

“I am an Old Car, My Engine is not Powerful Anymore”
**A Senior Teacher’s Voice on His ICT Learning, Obstacles and Its’
Implications for Teachers’ Development**

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ABSTRACT

The infiltration of ICT into education sector is inevitable. ICT can assist teachers in their teaching and learning practices. However, some teachers may not digital natives who are ready and can learn ICT quickly or happy to learn it naturally and effortlessly. Difficult choice between staying in comfort zone or following technological changes frequently happens to old (senior) teachers. For them, this era can be different from their era. Consequently, they may feel the tension of transition between convention or how they usually do and modernity or follow recent technological changes. This paper aims to explore a senior teacher’s feeling and thinking on his ICT learning efforts, forces, pressures, obstacles and its’ consequences for teachers’ learning and development or what we (other teachers) can reflect on his ICT learning experiences. The data are collected through interview and written response. The data show that the teacher is struggling to learn up-dated ICT and adapt to changes. He is trying to go across the border of his comfort zone. However, during his ICT learning process, he is restrained by his own self-constraints, including internal motivation, lack of self-confidence, age, energy and capacity to learn. He also finds obstacles and pressures from his social and physical surroundings. Social comparison, emerging conflict, unsupportive team culture and lack of external motivation are several restrictions of his ICT learning. This indicates that ICT learning needs more than knowledge/cognition on technical operation, but it involves broader spectrum of learning: affective, social, situated, self directed and experiential learning.

Keywords: affective learning; digital era; ICT learning; self constraints; self learning; social learning; social obstacles; teacher learning and development

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INTRODUCTION

The digital era and the rapid development of ICT brings about enormous changes in education. It can help teachers to prepare and deliver their materials effectively, communicate with and manage their students easier, assess their students' work more accurately. ICT also allows teacher to be learning facilitators by motivating their students to work and expand their learning independently by using various applications of ICT. Moreover, today's digital students seem to be highly enthusiastic to learn using ICT. Learning using ICT as media is becoming digital students' needs which should be responded by teachers. This situation leads today's teachers to learn ICT and incorporate it into their teaching practices. It is expected that today's teachers can guide their students to gain and continuously increase their digital literacy to support their learning.

Teachers should learn ICT for not only supporting their students' learning, but also their own learning. As teachers, they should constantly update their knowledge, expand alternative better approaches to learn, interact/communicate with other educators digitally for sharing, inform teachers' own selves about education issues around the global world and their problem solving, improve their pedagogical exercises and stimulate teachers' creativity in designing teaching-learning materials. Thus, learning ICT is a need for today's teachers.

Some teachers may feel that they cannot be separated from technology in class. They tend to feel strongly motivated to learn ICT. They also perceive that teaching will be very difficult to teach and learn without technology. It seems that effective teaching will not progress without technology in classroom. However, some other teachers may feel difficulty in learning ICT. They may not ready to change and unmotivated to learn ICT for various psychological, environmental and cognitive factors. This study aims to explore how a senior teacher from a higher institution perceives some barriers which he encounters when he attempts to learn ICT. As old generation, he has to face his own psychological and social barriers to implement ICT. This study also intends to explore what are some consequences or implications for ICT learning and development by mirroring and learning from the teacher-participant's experiences. This study is focused on a teacher's thinking and feeling in his effort to learn ICT and how his efforts can be affected by his social environment.

RESEARCH PROBLEM

There are two main issues which I intend to examine in this study. Those are:

1. What Learning challenges or barriers the teacher-participants encounter when he tries to learn and use ICT in his teaching practices? What happens to the teacher-participant, including how he feels about his learning and his situation?
2. What are the implications and consequences of teacher-participant's ICT learning experiences for other teachers learning and development?

THEORETICAL FRAMEWORK

There are various social and psychological processes occur behind teachers' ICT learning on ICT and how their integrate their learning into teaching practices. Some teachers can be successful in overcoming barriers, but other teachers may be trapped by barriers and drowning in despair. Teachers' responses on ICT can be avoidants who separate themselves from ICT learning activities, integrators who incorporate technology into their teaching based on their students' needs and technical specialists who introduce and push their students to use/implement specific applications (Mumtaz, 2000, p. 319). Many scholars and researchers express concern their concern on how teachers can learn ICT and share their findings on what makes teachers success or break down when they learn ICT. They agree that ICT learning involves interrelated and interdependency factors.

This indicates that to learn ICT successfully, teachers needs to be concern of challenges emerging from various factors. Mumtaz (2000, p. 319) mentions that successful implementation of ICT involves three intertwined factors which are required for supporting change, which include teacher, institution and policy factors. Becta (2003, p. 10, cited in Bingimlas, 2009, p. 236) finds five aspects which can open chances for ICT learning: "ICT resourcing, ICT leadership, ICT teaching, school leadership and general teaching." Furthermore, Becta (2004, cited in Bingimlas, 2009, p. 237) classifies ICT learning hindrances into school-obstacles which include insufficient training provided for their teachers and inadequate technology facilities and access and teacher-barriers which cover teachers' lack of self efficacy or refusal to change.

Teacher and School Barriers

Teachers' own selves can hinder their own learning. Mumtaz (2000, p. 320) lists several teachers' related obstacles: teachers do not have sufficient ICT experiences, there is no support for teachers to use ICT, there is no assistance to supervise students when they use ICT in classroom, teachers do not have other teachers' specialist to help them, there is no sufficient number of computers, teachers do not have enough time to incorporate technology into their teaching practices, teachers do not have enough financial back up. Relevant to Mumtaz's finding, Cox, Preston and Cox (1999) list several aspects prohibiting teachers to accept ICT: teachers resist to change, they do not aware of the essence of their profession, they do not how to integrate technology they learn into their teaching, teachers are afraid that they cannot control their students, and there is no sufficient facilities. Becta (2004) also finds several causes why teachers are failing to intake ICT which is also intertwined with school factors : teachers' lack of confidence and feel worry about showing their inadequate ICT skills in front of their students, teachers do not get sufficient ICT training (including lack of time for training, pedagogical content and skill development in training, lack of training concentrating on ICT when teachers firstly begins their teaching), teachers do not have sufficient resources (including inadequate hardwares, ICT facilities management, low quality of hardware and unsuitable

software/application), teachers have limited access to technology and there is no help when teachers find technological problems.

This indicates that what teachers perceive about using ICT in their classroom affect teachers' behavior. Mumtaz (2000, cited in Becta, 2004, p. 17) argues that teachers' belief is significant aspect which contributes to teachers' willingness to uptake ICT. Similarly, Albaugh (1997, cited in Becta, 2004, p. 17) contends that teachers may also resist to integrate ICT to their teaching because they do not believe their teaching can be more effective when they use technology. This is also supported by Ofsted (2001, cited in Watson, 2001, p. 258) by mentioning,

“Only a minority of teachers are capable of managing ICT resources and organizing the classroom to ensure that effective subject learning is taking place. Many teachers still have difficulty in deciding when, and when not, to use computers, while others are reluctant to use them at all. Teachers who have had experiences of faulty technology are often skeptical about the capacity of ICT to help raise standards.” (p. 258)

Furthermore, Vitanova, Pachemska, Iliev and Pachemska (2015, p. 1091) find that some demographical factors can affect teachers' capacity to learn ICT: gender, age, working experience and their subject matter of teaching. Zhao, et. al. (2002, p. 1470, cited in Donnelly, McGarr & O'Reilly, 2011) mention that teachers' technological skill, pedagogy competencies and social consciousness can affect ICT use in their teaching and learning. Lee and Lee (2014) highlight teachers' efficacy factors as the most influential aspect in teachers' learning.

Teachers' aspects are not the only determinant for ensuring successful use of ICT in classroom. School factors can be inhibitors of teachers' resistance. Schools as the surroundings of teachers can affect teachers' behavior and motivation. Scrimshaw (2004, p. 17) mentions that schools can support teachers' ICT through effective leadership and decision making, institutional management and action for change, increasing schools' capacities to develop their (school) resources, developing institutional support for informal sharing and formal training, activating technical staff roles for helping and allowing teachers to learn.

Teachers' Learning and Development

The fast changing of classroom/education life because of the arrival and development of ICT forces teachers to learn ICT. Today students' needs are changing from previous students. Now, students are surrounded by digital tools to support their learning. Moreover, today's students cannot be separated from ICT in their daily lives. Technology becomes a need for today's students for not only surviving, but also developing within their world. Today's schools should elaborate their curriculum and teaching with technology since technology can assist their students resources and skills that they require for acquired certain skills (Gulbahar & Guven, 2008, p. 37). The use of ICT in education can increase values and chance to be employed (Blunkett, 2001, cited in Watson, 2001, p. 252). This situation/needs encourages teachers to learn ICT in spite of lack of formal and planned training/support from their institutions/schools.

Teachers are the active agents who can/should bring about changes in their classroom. Moreover, they should provide role models for their students to accept and conform to constructive educational changes. The limited available formal training and education from schools frequently forces teachers to learn by themselves. In this situation, teachers frequently should be autonomous learners. An autonomous learner tend to be independent and being responsible for their own learning (Thanasoulas, 2000). Teachers' autonomous ICT learning can occur from various sources and within various contexts.

Teachers can learn from various social contexts, including inside their classroom, in their community of practices, professional development programs, during their conversations with others and this indicates that to understand teachers' learning, one should observe interactivity between teacher-as individual and his/her social environment (Borko, 2004, cited in Opfer, Pedder & Lavicza, 2011, p. 443). Teachers' teaching practices can stimulate teachers to be self-directed and self-regulated learners (Peeters. De Backer, Reina, Kindekens, Buffel & Lombaerts, 2014). Self regulated learners emerge from surrounding which provides complex tasks and chances to determine their own learning processes (Perry, Hutchinson, & Thauberger, 2008, cited in Peeters, et.al., 2014, p. 1964). Similarly, Ertmer and Ottenbret-Leftwich (2010, cited in Lee & Lee, 2014, p. 121) emphasize role of environment, including institution culture, support, training and time in influencing teachers' learning. Environment also provides stimulus for teachers to learn. As mentioned by Persico, Milligan and Littlejohn (2015, p. 2483) problems which arises from workplace can stimulate teachers to learn. This indicates that social life can support or hinder teachers' learning.

Teachers' learning is a social process. In their learning process, teachers should be autonomous as well as collegial (Clement & Vandenberghe, 2000). Collegiality is significant for teachers' professional development (Clement & Vandenberghe, 2000, p. 84). Little (1990, cited in Clement & Vandenberghe, 2000, pp. 84-85) divides collegial forms into several types: storytelling and scanning for ideas, aid and assistance, sharing and joint work. Teachers' ICT learning is a process. Teachers may need and take time to accept and use ICT for their teaching and learning. As mentioned by Little (1986, p. 33, cited in Clement & Vandenberghe, 2000, p. 87) "learning to teach like learning to play a musical instrument. Beyond the wish to make music, it takes time, a grasp of essential patterns, much practice, tolerance for mistakes and a way of marking progress along the way." To learn ICT, teachers need others. Wood (2007) argues that learning communities can be an approach to cope with changes.

RESEARCH METHODOLOGY

This study adopts a qualitative method. It aims to explore feeling and thinking of a senior teacher from higher education during his process to learn ICT. This study focuses on the teacher-informant's experience. Thus, phenomenology is adopted as the epistemological stance of this study. Phenomenology contains several procedures of recognizing the examined phenomena, eliciting the substantial

experiences and gathering data from individuals who have the examined experiences (Van Manen, 1990). The data are collected through interviews and written responses on open ended question.

Procedures of Data Collection and Analysis

The study is a case study intended to explore, observe and analyse a teacher-participant's feeling and thinking on his own ICT learning experiences. The research is originated from everyday life situations/problems. Qualitative researchers tend to explore the nature of phenomena which are together constructed by society, a close relationship between researchers and what they explore and situational forces which affect the search of knowledge (Denzin & Lincoln, 2000, pp. 2-6).

It is started when I sense and observe an issue related to ICT learning difficulties and aging which happens to a senior teacher. This issue becomes worse as the teacher-participant gets older. From my direct observation, daily interaction and dialogue with the teacher-participant, I decide to learn and view what happens to the teacher-participant from the academic perspective and share the results/findings in form of a research. The data are collected through direct observation, semi-structured interviews and written responses. After obtaining approval from the teacher-participant, the research is started with describing how the teacher-participant feels about his ICT learning in written form. Some interviews are conducted to get more data, complete and verify the written responses. The transcription of the interviews and result of analysis are brought back to the teacher-participant to get approval and ensure the validity of the data. The natural observed issues emerging from daily situation/problem, direct observation and natural teacher-participant and real experiences enable me (the researcher) to do naturalistic study. Circumstance is vital in naturalistic inquiry (Lincoln & Guba, 1985, p. 200).

The collected data are analyzed using interpretivist approaches: inductive and within-case method of analysis. This approach emphasizes the complexity of interpretation. This means that what human say and how they act are considered as texts and symbols which carry several levels of meaning (Dilthey, 1997, cited in Miles & Huberman, 1994, p. 8). The inductive analysis is started from the process of data collection and data interpretation. During the written responses and interviews, I develop my thinking and proposition related to the issues daily and lead to the emerging themes of analysis. These thinking and propositions are brought back to the teacher-participant to be confirmed. Within-case analysis is performed after all data are collected by examining the overall context of the issues and teacher-participant's thinking and lives.

Research Instrument

There are several instruments I used to collect the data. Those are semi-structure interview guide, written open ended questions and digital voice recorder. Before

interview the teacher participant, I prepare some open ended questions to focus the data collection process. A list of questions can help a qualitative researcher who conducts interviews to focus on the research topic, but this list should not obstruct the flexibility or dynamics of the interview (Liamputtong & Ezzy, 2005, pp. 62-63). The other instrument is written open ended questions. This type of data instrument aims to allow the teacher-participant to express his feeling freely which can be similar to writing a diary. The other tool to keep the data is digital voice recorder. The use of digital voice recorder enables the researcher to get a permanent record of interviewees' voice, intonation, pause, emphasis and enables the researcher to focus on and understand what the interviewees say (Arksey & Knight, 1999, p. 5).

The Teacher-Participant's Profile

The teacher participant is a senior teacher in a higher education institution. He is 64 year-old. He teaches English language topic. He starts his career in educational sector as an elementary school teacher. His commitment as teacher and motivation to improve the quality of his life encourage him to pursue higher level of education. After dedicating himself as an elementary school teacher, he decides to apply and teach in higher educational sector.

During his career in higher education institution, he experienced several technological changes which force him to adapt and learn to survive. When he comes to his workplace, he has to learn how to operate old language laboratory boot machine. Subsequently, as the technology changes, he has to adapt and learn to use more modern language laboratory boot machine. Then, he has to learn how to operate PC which is connected to big speaker for delivering listening materials. Recently, he has to learn how to operate laptop connected to speaker for listening class. He finds difficulty to learn and operate the newest technology. Frequently, he is assisted by laboratory technician/staff to operate.

RESULT

The collected data show that the teacher-participant encounters several barriers to learn ICT. The barriers are not only coming from his social environment (external factor), but also from his own self (internal aspect). His lack of motivation, old age, perceived decreased energy, perception on usefulness of learning ICT and perceived low and inferior self-competence can impede his ICT learning process. The following data extract show how the teacher-participant feels about himself:

“The problem is if we draw an analogy with a car, I am an old car, so my engine is not powerful anymore. That is the big problem. But, I am aware that ICT is very effective and efficient for teaching and learning. The problem is my age, I feel very tired. My tiredness is caused by old age and too much teaching hours, so I become very lazy to improve my ICT skills. I see that it also happens to many senior colleagues, who even they do not

proper mobile phone, for example Mr X, he does not mobile phone, I do not know why. The main factor is learning motivation for accepting new changes is weakening...” (Data Extract-1)

The above extract (Data extract-1) indicates that the teacher-participant does not have motivation to change. He believes that he cannot cope with changes because of insufficient energy to learn new things and lack of time to learn ICT. The other data extract (Data extract-2) show how the teacher-participant’s view on how learning can still progress without ICT and ICT supplementary function/role for students’ learning can also be obstacles for welcoming and using ICT. The following data extract represents the teacher-participant’s belief about role of ICT for learning.

“There are some works which can be done manually, using traditional or conventional ways. I still use that conventional ways. May be it is not rational. Others may say why I don’t have and use laptop and for them it is not rational. As a senior teacher, why I can’t buy laptop, while the junior colleagues can afford it, they think that. I feel that this is because of my low learning motivation, I feel reluctant to change, I think that is the main reason. Why I don’t want to change? It is because I still can use conventional ways. When I use those conventional ways, I don’t have any problems with my works. I still can meet my working deadlines...” (Data Extract-2)

The teacher-participant feels that learning ICT is not an obligation. ICT learning is regarded as supplementary to traditional (conventional) ways of teaching. He feels that ICT does not affect his teaching.

The teacher-participant’s ICT learning is not only inhibited by self-factors, but also social aspects. Those are perceived lack self competence which is caused and developed through self-social comparison process, no strong sharing culture and unsupportive leadership. This is as represented by the following data extract (Data extract-3):

“...but mentally, when Mrs X leads, I am down, I feel very lazy, I feel down. I think I should not say that, but this is the truth. That’s right...working environment can affect me, I feel I become victim...that is also the main reason, I feel down...” (Data Extract-3)

The data from data extract-3 show that unsupportive leadership can cause the teacher-participant feels unmotivated. Moreover, he feels that he does not get any help from his social environment. He feels that he becomes helpless victim.

In spite of his self and social barriers, he expends efforts to learn ICT for survival. He learns ICT just when it is closely related to his teaching materials and there is no other ways to teach. His ICT learning willingness is also supported by the changing leadership, availability of technical assistance from administrative staff. Moreover, his motivation to learn is increased by changing working atmosphere as more and more junior teachers are coming and providing help to teach ICT

informally. The following extract (Data extract-4) show how the teacher-participant feels about his ICT survival learning.

“...there are several things I want to learn using ICT, especially if it is very closely related to and vital for my job. For example when I teach in language lab, it is impossible not to learn IT. It is difficult to learn without technology. So, I feel I am forced to learn. That’s why I must learn. But I am aware that ICT is very important for increasing teaching effectiveness and efficiency. Still...for works which I can do manually I prefer to do conventionally...” (Data extract-4)

Data extract-4 indicates that to learn ICT, the teacher-participant needs a push and pressure. The situation/condition of “having no other choice” forces the teacher-participant to learn ICT. The teacher-participant also suggests the external environment should also provide continuous-formal ICT training or education for teachers who cannot learn by themselves.

DISCUSSION

This section provides analysis of the collected data and links the collected data and teacher-participant’s practices and experiences to theories.

The data shows that teacher’s ICT learning involves complexity and interactivity between self situation and social circumstances. There are various social and psychological processes occur behind teachers’ ICT learning and how they integrate their learning into teaching practices. Some teachers can be successful in overcoming barriers, but other teachers may be trapped by barriers and drowning in despair. Thus, to learn ICT, the teacher-participant does not only require cognitive knowledge, but motivation, psychological support to learn and mentality.

To learn ICT successfully, teachers need to be aware of challenges emerging from various factors. Successful implementation of ICT involves three intertwined factors which are required for supporting change, including teacher, institution and policy factors (Mumtaz, 2000, p. 319). Moreover, there are five aspects which can open chances for ICT learning: “ICT resourcing, ICT leadership, ICT teaching, school leadership and general teaching” Becta (2003, p. 10, cited in Bingimlas, 2009, p. 236).

Teachers’ own selves can hinder their own learning. The teacher-participant’s feeling on how he perceives his’ own condition for learning (including age and competence), how he views ICT learning (today’s teaching) compared to traditional (conventional learning) and how he sees situation around him can affect his ICT learning process. This indicates that teacher’s belief is a big matter. Teachers’ perception on using ICT in their classroom can affect their behavior. Teachers’ belief is significant aspect which contributes to teachers’ willingness to uptake ICT (Mumtaz, 2000, cited in Becta, 2004, p. 17). Consequently, the teacher-participant’s belief may impede his professional development process.

Teachers' professional development is affected by teachers' experiences as learners, professional development trainings, all type of teachers' experiences, teachers' beliefs, values and behavior, and teachers' engagement in groups (Wright, 2005, p. 256).

The teacher-participant's personal beliefs that he cannot learn ICT, his belief, "I am an old car and my engine is not strong anymore" becomes high walls which hinder his motivation to change. Teacher's resistance to change can be an obstacle for ICT learning. Barriers of ICT learning can be caused by teacher-barriers which cover teachers' lack of self efficacy or refusal to change and school-obstacles which include insufficient training provided for their teachers and inadequate technology facilities and access (Becta, 2004, cited in Bingimlas, 2009, p. 237). The teacher-participant's belief, "I am an old car and my engine is not strong anymore," also indicates the teacher's lack of self confidence because he feels too old to learn new things. Some demographical factors can affect teachers' capacity to learn ICT: gender, age, working experience and their subject matter of teaching (Vitanova, Pachemska, Iliev & Pachemska, 2015, p. 1091).

The teacher-participant's refusal to change indicates that learning is not only social process, but also an individual endeavour. Learning is an individual decision in which other people just can support, but it is the individual who determines to learn or not to learn (Sessa & London, 1999, p. 9). Furthermore, Sessa and London (1999, pp. 9-10) mention that an individual's learning is similar to "old adage" stating "you can lead a horse to water, but you can't make him drink." The teacher participant's perception on how his self relates to other selves also affects his ICT learning intention. He regards his own self as older than other, as having lower energy and competence than others. An individual's interpersonal perception is influenced by his/her social schemata on how he/she relates to others, above, equal, with, is isolated, resembles with others (Ziller, 1973, p. 4). This indicates that teacher's ICT learning involves self factors.

Various teacher's self factors can impede teachers' ICT learning process. Mumtaz (2000, p. 320) lists several teachers' related obstacles: teachers do not have sufficient ICT experiences, there is no support for teachers to use ICT, there is no assistance to supervise students when they use ICT in classroom, teachers do not have other teachers' specialist to help them, there is no sufficient number of computers, teachers do not have enough time to incorporate technology into their teaching practices, teachers do not have enough financial back up. Relevant to Mumtaz's finding, Cox, Preston and Cox (1999) list several aspects prohibiting teachers to accept ICT: teachers resist to change, they do not aware of the essence of their profession, they do not how to integrate technology which they learn into their teaching, teachers are afraid that they cannot control their students and there is no sufficient facilities. Becta (2004) also finds several causes why teachers are failing to intake ICT which is also intertwined with school factors : teachers' lack of confidence and feel worry about showing their inadequate ICT skills in front of their students, teachers do not get sufficient ICT training (including lack of time for training, pedagogical content and skill development in training, lack of training concentrating on ICT when teachers firstly begins their teaching), teachers do not have sufficient resources (including inadequate hardwares, ICT

facilities management, low quality of hardware and unsuitable software/application), teachers have limited access to technology and there is no help when teachers find technological problems.

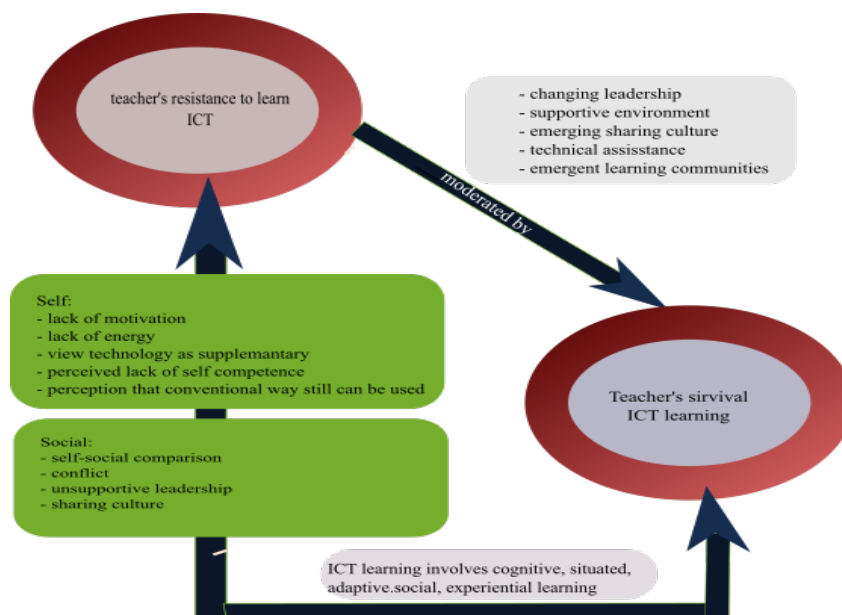


Fig. 1: Interplay between self and social environment in teacher's ICT

The data also show that gradually, the teacher participant tries to start accepting and learning ICT. He learns ICT as survival learning. Since he does not have any other ways to teach (conventional ways), except learning and using ICT for delivering specific materials in his class. This indicates that he performs survival learning. All individuals have different responses to transform, some of them have strong motivation to change, but some of them perform minimal transformation (Sessa & London, 1999, p. 9). "Minor adaptation" tends to be performed by individuals because of their comfortable feeling with their status quo (Sessa & London, 1999, p. 9). To accept ICT, teachers should believe that ICT can make their teaching be more effective, technology will not cause more problems and teachers can handle problems related to technology (Zhao & Cziko, p. 27, cited in Gulbahar & Guven, 2008, p. 38). This indicates that teacher's ICT learning requires willingness and consciousness to embrace positive changes/transformations, leave comfort zone and challenge status quo. The teacher-participant's survival learning indicates that he tends to avoid learning ICT, except he has no other choice or other conventional ways to teach. Teachers' responses on ICT can be avoidants who separate themselves from ICT learning activities, integrators who incorporate technology into their teaching based on their students' needs and technical specialists who introduce and push their students to use/implement specific applications (Mumtaz, 2000, p. 319).

The data also show that by observing other friends' experiences, the teacher-participant is basically aware that ICT can benefit teaching and learning. It can

help teachers and students learn effectively and efficiently. However, the teacher-participant feels the tension of between being committed teacher and facing the reality. Many teachers face mismatch between their mental image on teaching profession and reality in the classroom/teaching environment (Johnson, 1996, p. 34).

Teachers' aspects are not the only determinant for ensuring successful use of ICT in classroom. School factors can be inhibitors of teachers' willingness to learn ICT. Schools' social and physical environment can affect teachers' behavior and motivation. The data show that the teacher-participant's ICT learning is stimulated by the changing social atmosphere around him. The changing leadership, help of technical assistance from administrative staff and engaging in informal learning communities with more junior teachers during material preparation can stimulate the teacher-participant to learn ICT. Lack of technical helps can lead to teachers' unwillingness to use ICT (Bingimlas, 2009, p. 241). Several researches argue that lack of ICT training can be ICT learning barriers (Becta, 2004; Bingimlas, 2009).

This study indicates that the teacher-participant is not dependent on formal ICT training provided by institution to change. The teacher-participant performs adaptive and situated learning. Frequently, formal ICT training is not available when it is needed. The teacher-participant learns from his surroundings. Situated learning occurs when learners learn from everyday situation/problems arise from learners' social and cultural environment (Henning, n.d., p. 143). Adaptive learning occurs when an individual is not aware that he/she changes his/her behavior as responses to recent stimulating event to attain his/her goal (Sessa & London, 1999, p. 9). This situated and adaptive learning implies that the teacher-participant has potential capacity to be autonomous learner.

Teachers are the active agents who have to and should bring about changes in their classroom. Moreover, they should provide role models for their students to accept and conform to constructive educational changes. The limited available formal training and education from schools frequently forces teachers to learn by themselves. In this situation, teachers frequently should be autonomous learners. An autonomous learner tend to be independent and being responsible for their own learning (Thanasoulas, 2000). Teachers' autonomous ICT learning can occur from various sources and within various contexts.

The teacher-participant also feels that leadership behaviour is a matter. He feels that his leader exerts too strong pressures to learn which ignites conflict. This indicates that how a leader can support his/her followers' learning is significant for ensuring teachers' ICT learning. Leaders should be able to assure that learning is continuously progressing within his/her organizations (Mumtaz, 2000, p. 321). Similarly, Scrimshaw (2004, p. 17) argues that schools can support teachers' ICT through effective leadership and decision making, institutional management and action for change, increasing schools' capacities to develop their (school) resources, developing institutional support for informal sharing and formal training, activating technical staff roles for helping and allowing teachers to learn.

The data also show that the teacher-participant starts being motivated when he observes that his environment has changed. He has a chance and motivation to engage with junior teachers in informal learning communities. Within this learning community, the teacher-participant learns how to use technology to deliver certain materials. Teachers' engagement in learning communities can improve their teaching practices which impact on students' progress compared to if teachers work independently (Wood, 2007, p. 711). The nourishment of teachers' learning communities for both improving teachers and students learning requires supportive school/institutional cultures (Wood, 2007, p. 711). Wood (2007, p. 723) quotes a school principal-participant who states that learning communities can encourage an individual to change without threatening him/her. Moreover, the school principal participant in Wood's research (Wood, 2007, p. 723) highlights role of learning communities by stating "...it develops a common language and common experience. I'm seeing collaboration across the grade level and we arrange our groups in such a way that they're representative of all the grades with some specialists. People are understanding each other's practice like they never have before, but it's because they learn to feel safe with each other. They build trust. They find a purpose. That builds more trust..."

The teacher-participant's engagement in emerging learning communities implies role of social environment in supporting teacher's ICT learning. Teachers can learn from various social contexts, including inside their classroom, in their community of practices, professional development programs, during their conversations with others and this indicates that to understand teachers' learning, one should observe interactivity between teacher-as individual and his/her social environment (Borko, 2004, cited in Opfer, Pedder & Lavicza, 2011, p. 443). Teachers' teaching practices can stimulate teachers to be self-directed and self-regulated learners (Peeters, De Backer, Reina, Kindekens, Buffel & Lombaerts, 2014). Self regulated learners emerge from surrounding which provides complex tasks and chances to determine their own learning processes (Perry, Hutchinson, & Thauberger, 2008, cited in Peeters, et.al., 2014, p. 1964). Similarly, Ertmer and Ottenbret-Leftwich (2010, cited in Lee & Lee, 2014, p. 121) emphasize role of environment, including institution culture, support, training and time in influencing teachers' learning. Environment also provides stimulus for teachers to learn. As mentioned by Persico, Milligan and Littlejohn (2015, p. 2483) problems which arises from workplace can stimulate teachers to learn. This indicates that social life can support or hinder teachers' learning.

The teacher-participant's situated ICT learning from the emergent learning community around him indicates that learning is a social practice. Teachers' learning is a social process. In their learning process, teachers should be autonomous as well as collegial (Clement & Vandenberghe, 2000). Collegiality is significant for teachers' professional development (Clement & Vandenberghe, 2000, p. 84). Little (1990, cited in Clement & Vandenberghe, 2000, pp. 84-85) divides collegial forms into several types: storytelling and scanning for ideas, aid and assistance, sharing and joint work. Teachers' ICT learning is a process. Teachers may need and take time to accept and use ICT for their teaching and learning. As mentioned by Little (1986, p. 33, cited in Clement & Vandenberghe,

2000, p. 87) “learning to teach like learning to play a musical instrument. Beyond the wish to make music, it takes time, a grasp of essential patterns, much practice, tolerance for mistakes and a way of marking progress along the way.” To learn ICT, teachers need others. Wood (2007) argues that learning communities can be an approach to cope with changes.

The teacher-participant’s experiences indicate that ICT learning is not only involving cognitive thinking, but also situated, adaptive, transformative and experiential learning. It demands the learners to engage in social learning and individual learning. It is a process which requires the learners to face complex self and social barriers.

CONCLUSION

To learn ICT, teacher may find difficulties. Each teacher may find different drawbacks. The study shows that a senior teacher encounters self and social barriers during his process to learn ICT. His self barriers include lack of self motivation, lack of energy, views on technology, perceived lack of self-competence and perception that conventional way still can be used. These self barriers can be caused by some social factors, including self-social comparison, conflict, unsupportive leadership and weak sharing culture. These barriers can be handled by engaging in learning communities. These learning communities are informally formed as social surrounding is changing. This indicates that teachers’ ICT learning involves self and social learning. It requires teachers to engage in cognitive, adaptive, transformative, situated and experiential learning.

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