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ARTICLES

Full Length Research Paper

Fathers in Turkey: Paternity characteristics, gender role, communication skills

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Objective of this study is to examine the correlation the quality of paternity, gender roles and communication skills of fathers. The scores in the scale of supporting developmental tasks were used in order to determine the quality of paternity. The other data collection tools were the BEM sex role ınventory and the communication skills ınventory. The study included a multiple regression analysis for predicting the quality of paternity. The multiple regression analysis suggested that the scores in the "behavioral", "emotional" and "cognitive" sub-dimensions of the communication skills inventory and those in the "femininity" and "masculinity" sub-scales of the BEM sex role inventory can account for the scores in the scale of supporting developmental tasks at a rate of 31%. It was concluded that those fathers who display feminine traits and those who communicate with their children through an "emotional" or "behavioral" communication language support their children's process of development in a more effective way.

Ke ywords: Family, the quality of paternity, sex role, communication skills.

INTRODUCTION

Individuals can succeed in social relationships to the extent that they recognize and express their own feelings and opinions, pay attention to the thoughts and feelings of the others and adjust their behaviors according to this context (Signe ve Van Schaik, 2000).

Identifying and transmitting emotions is an important factor for communication. Accepting the feelings of others is a significant social skill in especially establishing close and satisfying relationships (Shapiro, 2010). Children develop these important social skills through the experiences they gain within the family life. The effective relationship between the children and their parents enable them to succeed in life and constitute positive social interactions. Moreover, they begin to assume

social gender roles through these interaction activities.

The demand for female labor force has increased owing to the changing economic conditions ever since the ındustrial revolution. Women's higher educational status and the increasing number of working mothers have led to a need to redefine feminine and masculine roles and responsibilities. The specification of sex roles has been mainly shaped by the expectations of every particular society. Each society has defined certain feminine and masculine roles in accordance with its own culture (Winstead and Derlega, 1993). Redefined feminine and masculine roles have resulted in a change in the family structures, too.

The changes in family structure have taken place in

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the form of certain phases. Throughout the transition phases, individuals have made an attempt to adapt themselves to their new positions within their families and social circles. The quality of marriage has played a key role in this adaptation (Minsel et al., 1999). Men have started to lose their monopoly of being the group who maintained the family; however, they have not fully assumed the role of raising their children yet. Women's roles in maintaining the family have started to be accepted whereas the responsibilities of men for child care have started to increase (Colombo, 2008; Deutsch and Saxon, 1998; Drobeck, 1998; Lamb et al., 1987; Riggs, 1997; Wentworth and Chell, 2001; Zimmerman, 2000).

In recent years, increased research on gender roles and family relations. Studies on parenting roles found that a transformation has been experienced in paternal responsibilities. It was observed that fathers in western world are more interested in domestic tasks and more emotional than those in the old days (McMahon, 1999). Paternity has gained importance as a topic that people are interested and discuss (Lupton and Barclay, 1997).

Paternity characteristics (Renk at al., 2010), responsibilities in child care and education (Ünüvar et al., 2010), communication skills and parenting competencies (Ünüvar, 2010, Fears, 2010) have been observed by various researchers. The researches cover topics such as the self-efficacy of parents and parental roles.

In some researches, parents' self-efficacy perception is found to be associated with how they evaluate themselves in parenting and how they observe their children's developmental status (Coleman and Karraker 1998; Jones and Prinz 2005; Shumow and Lomax 2002).

In other words, the parents who found the developmental status of their children satisfactory, evaluate themselves as qualified at parenting. The effective participation of both mother and father to child care enables children to observe and get different gender roles (Rossi, 1984) and simplifies gaining sexual identity (Garrett, 1992).

Studies on parenting place a particular emphasis on the importance of parents to child education. Family is where a child goes through his/her first social experiences. Parents, in turn, are the first and the most long-standing teachers of their children. Therefore, it is necessary for parents and individuals that make up the immediate surroundings of a child to be a part of the educational process (Arnas and Yasar, 2008; Dinc, 2011; Gulay and Akman, 2009).

Parents prove to the most crucial element in providing pre-school children with an environmental support for their development (Clerkin et al., 2007). Pearson states that socially effective environments mediate the share of values and emotions and makes it easier for social roles to be performed by satisfying requirements (Kaner, 2010). The stronger and better the communication is between parents and a child, the more positive process

of development a child will experience (Ustun, 2010). It was reported that substance abuse and negative behaviors get decreased when parents adopt a supportive and emotional communication in their interaction with their children (Brody and Ge, 2001).

Paternal participation in child care and child rearing has a positive influence on a child's cognitive development, social skills, internal locus of control and level of empathy (Fagan and Inglesias, 1999). An active paternal participation in children's lives enables fathers to learn about their requirements and how to satisfy these needs in a more efficient manner (Ehrensaft, 1990).

Paternal participation leads to increased sense of self on the part of their children and develops their skills in controlling what is going on around them. (Pleck and Masciadrelli 2004). Children with a close interaction with their fathers will have a healthier psychology and higher academic achievement (Flouri and Buchanon, 2004).

Paternal participation in child care and child rearing is mostly associated with the perception of sex role (Coverman, 1985; Radin and Golsmith, 1989). Traditional roles have been undergoing a transformation. All the same, child care and child rearing are still regarded as exclusively feminine roles in many cultures.

Whereas, it is among the findings of the aforementioned researches (Clerkin et al., 2007; Fagan and Inglesias, 1999; Kaner, 2010; Üstün, 2010; Ehrensaft, 1990; Pleck, 2004) that the effective participation of fathers to child care and child rearing has positive effects on children. For that reason, this study aims to analyze the paternity characteristics, gender role and communication skills of fathers who have children at the 3 to 6 age group. In line with this purpose, the sub-objectives of this research are to analyze if the paternity characteristics of fathers vary depending on the social gender role they own; and if paternity characteristics can be predicted with gender role and communication skills.

METHODOLOGY

The present study is based on a descriptive and quantitative design. The population of the study is comprised of 540 fathers who were grown, and live in 35 different cities in Turkey. The data is collected from regions with different characteristics (economic, geographical, social, cultural) and for this purpose, the research is based on service regions table of the Ministry of Education. This table divided the cities in Turkey in three groups according to their similar characteristics such as geographic location, economic and social development, fulfillment of their service needs (meb.gov.tr, 2013).

The table lists the categories as Region 1, Region 2, Region 3; Region 1 representing the top region. As per this classification, 53% of the cities in Turkey are in Region 1, 27% of them are in Region 2 and 20% of the cities are listed under Region 3. Among the data of this research, 61% of the fathers have been grown up and are living in cities in Region 1, 22% of them have been grown up and are living in cities in Region 2 and 17% of the fathers have been grown up and are living in cities in Region 3. In total, the data is collected from 35 cities. (Cities in Region 3: Ağrı, Bitlis, Hakkari, Kars,

Table 1. The characteristics of the study group.

Characteristics	Frequency	Percentage (%)
Ages		
26-30	48	8.9
31-35	186	34.4
36-40	195	36.1
41-45	111	20.6
The age at which they are father		
26-30	465	86.1
31-35	63	11.7
36-40	12	2.2
The number of children they have		
1	120	22.2
2	255	47.2
3	102	18.9
4+	63	11.7
Educational status		
Primary/elementary	177	32.8
High School	117	21.7
University	246	45.6
Born and raised in a		
Village/Town/ Small district	315	58.3
City Center/ Large district	225	41.7
Working status of the spouse		
Housewife	372	68.9
Working	168	31.1
Sex traits (BEM)		
Feminine	99	18.3
Masculine	99	18.3
Androgynous	205	38.0
Undifferentiated	137	24.4

Mardin, Muş, Siirt, Batman and Van. Cities in Region 2: Çankırı, Kastamonu, Elazığ, Erzincan, Malatya, Kahramanmaraş, Niğde, Rize, Şanlıurfa, and Artvin, Cities in Region 1: Afyonkarahisar, Aksaray, Konya, Ankara, Eskişehir, Karaman, Amasya, Samsun, Sinop, Antalya, Çanakkale, Manisa, Mersin, Muğla, Osmaniye, and Burdur). This research is limited to fathers lived data collected cities. Table 1 summarizes the various features of fathers in the working group of the research.

Nearly 70% of the fathers included within the study group are aged between 31 and 40. Furthermore, 86% of them became a father for the first time when they were aged between 26 and 30 (Table 1). According to the statistics released by Turkish Statistical Institute TUİK (2010), 93.3% of the men in Turkey get married before they are 30. Therefore, national data support the finding that 86% of the subjects became a father for the first time when they were aged between 26 and 30.

Thirty-three percent of the subjects in the population are primary school graduates; 22% of them high school graduates; and the remaining 46% university graduates. Whereas 31% of the fathers (168) have a working wife, 69% of them (372) are married with a housewife. Twenty-two percent of the fathers have one child; 47% of them two children; 19% of them three children; and the remaining 12% four or more children. Fifty-eight percent of the subjects (315) were born and raised in a village or town, but the remaining 42% of them (225) in a city. According to the BEM Sex Role Inventory, 18% of the fathers have masculine traits; 18% of them feminine traits; 38% of them androgen traits; and 25% of them undifferentiated sex traits (Table 1).

Data collection tools

In this research, Communication Skills Inventory, The BEM Sex Role Inventory and The Inventory of Supporting Developmental Tasks are used as data collection tools. Various characteristics of these scales are described below:

1. *Communication skills inventory*: The inventory is developed

by Balcı and finalized by the studies of Ersanlı and Balcı (1998). Communication skills inventory is composed of likert-type 45 questions. The inventory consists of three sub-scales that measure communication skills in "mental", "emotional" and "behavioral" aspects. The items are graded as "Always=5", "Usually=4", "Sometimes=3", "Rarely=2" and "Never=1". While the maximum score gained from the scale can be 225, the minimum score is 45. For each sub-scale, the maximum score is 75 and minimum score is 15. If the individual has the highest score in one of the sub-scales, than it can be argued that the individual's communication skills are good at that sub-scale. For the whole scale, high score represents the high communication skill of the individual. Within the development process of the scale, the Cronbach Alpha coefficient which is applied to determine internal consistency is found as 72. The test-retest method is used for reliability testing and Cronbach Alpha reliability coefficient is found as 68. As a result of the bisection method, Cronbach Alpha reliability coefficient is found as 64. The study conducted by Gürşimşek et al. (2008) in order to determine the internal reliability of communication skills inventory found Cronbach Alpha coefficient as 72. The correlation of sub-scales and total communication skills are 83, 73 and 82 respectively. Validity coefficient of the scale is 70.

2. *The BEM sex role ınventory:* The inventory was developed by Bem in 1974. It was adapted to the Turkish community by Kavuncu (1987), who found the test-retest reliability of the inventory to be 0.75 for femininity and 0.89 for masculinity. The scales of femininity and masculinity contain 20 items severally, amounting to 40 items in total. The items are listed randomly in the form of one single scale. Individuals rate themselves on each item, on a scale from 1 (never or almost never true) to 7 (almost always true). Two particular scores are obtained from the scales of femininity and masculinity. The median score defines whether an individual is feminine, masculine, androgynous or undifferentiated. An individual is defined as androgynous in the event that his/her score of femininity is higher than the median of femininity and his/her score of masculinity is higher than the median of masculinity; as masculine in the event that his/her score of femininity is lower than the median of femininity and his/her score of masculinity is higher than the median of masculinity; as feminine in the event that his/her score of femininity is higher than the median of femininity and his/her score of masculinity is lower than the median of masculinity; and as undifferentiated in the event that his/her scores of both femininity and masculinity are lower than the medians of femininity and masculinity. Dokmen (1999) analyzed the psychometric characteristics of the Turkish Version of the Scales of femininity (F) and masculinity (M) in the BEM sex role ınventory. The analysis concluded that the internal consistency reliability of F and M is as follows:

alpha coefficient of K is 0.73 and its split-half reliability is 0.76 (N=989).

Alpha coefficient of E is 0.75 and its split-half reliability is 0.75 (N=989). According to the scores obtained by all the subjects (N=1762) in the scales of K and E, the median of K is 111 (the average score being 5.55) and the median of E is 104 (the average score being 5.20). In the end, it was proposed that 111 (5.55) and 104 (5.20) should be used as medians for K and E respectively and they should be accepted as reliable norms in studies. The present study defines the feminine, masculine, androgynous or undifferentiated traits in consideration of the medians specified by Dokmen (1999) for K and E.

3. *The scale of supporting developmental tasks*: The scale was developed by Unuvar and Sahin (2011) in consideration of the psycho-social developmental characteristics and developmental tasks specified by Erikson and Havighurst. An explanatory factor analysis and confirmatory factor analysis were conducted for the construct validity of the scale, which yielded a five-dimensional structure consisting of 17 items. The dimensions are as follows: supporting language development, spending time in a qualified way, supporting action development, supporting emotional development and supporting self-care skills. The first six items of the scale constitute the first dimension; 7th to 10th items the second dimension; 11th to 13th items the third dimension; 14th and 15th items the fourth dimension; and 16th and 17th items the fifth dimension. Cronbach's alpha of the inventory was estimated to be 0.84; the reliability of the first dimension to be 0.81; that of the second dimension to be 0.70; that of the third dimension to be 0.73; that of the fourth dimension 0.86; and that of the fifth dimension to be 0.77. Furthermore, the test-retest reliability of the inventory was found to be 0.86. Getting high scores in the whole inventory indicates that the child is well supported in the process of development whereas low scores suggest that he/she is not supported properly in the process in question. The minimum and maximum scores that can be obtained in the inventory are 17 and 119 respectively.

The reliability test of this research that are applied on scale scores, the Cronbach Alpha reliability of "communication skills inventory" is found as 73; for the sub-scales, the Cronbach Alpha reliability is found as 65 for mental aspect; 61 for emotional aspect; 74 for behavioral aspect. For the "BEM sex role inventory", Cronbach Alpha reliability is determined as 71 for femininity sub-scale and 75 for masculinity sub-scale (N=540). Cronbach Alpha reliability of "The scale of supporting developmental tasks" is found as 85. Cronbach Alpha reliability is found as 79 for "supporting language development"; 75 for "spending time in a qualified way"; 75 for "supporting action development"; 79 for "supporting emotional development" and 75 for "supporting self-care skills".

Data analysis

The data is analyzed by using statistical package for social sciences (SPSS) program and the impact of fathers' gender role on paternity characteristics is tested by ANOVA. The Levene test that was implemented before ANOVA statistics pointed out that the group variances are not distributed homogeneously and there are significant differences between them. For that reason, Welch test which is the alternative of F test and additionally among the robust tests Tamhane's T2 are used (Sipahi et al., 2006). Multiple regression analysis is applied to observe if paternity characteristics can be predicted with gender role and communication skills. Assumptions on the compatibility of the data for multiple regression analysis have been tested, and results are explained in the findings section.

FINDINGS

Do the fathers' paternity characteristics vary according to their gender roles?

"The scale of supporting developmental tasks" scores are used as an indicator of paternity characteristics. Analysis of paternity characteristics score according to the fathers' gender role points out that the paternity characteristics mean score of fathers showing "androgynous" gender role has the highest score ($\overline{X}$=93.19) and the fathers showing "undifferentiated" gender role has the lowest score ($\overline{X}$=86.47). The results are listed in Table 2. In Table 2 that compares the paternity characteristics score

Table 2. Tamhane's T2 results for the paternity characteristics score according to fathers' gender role.

Groups	Average difference	%95 Confidence ıntervals	
		Lower limit	Upper limit
Masculine-feminine	-0.13	-0.43	0.17
Masculine-androgen	-0.17	-0.39	0.04
Masculine- undifferentiated	0.22	-0.02	0.46
Feminine-androgen	-0.05	-0.31	0.22
Feminine -undifferentiated	0.35[*]	0.06	0.64
Androgen- undifferentiated	0.40[*]	0.20	0.59

*P<0.05.

Table 3. The correlation coefficient of the scores in "the scale of supporting developmental tasks", the "behavioral", "emotional" and "mental" sub-dimensions of the communication skills ınventory, and the "femininity" and "masculinity" sub-scales of the BEM sex role ınventory.

Inventory of support	Inventory of support	Femininity	Masculinity	Mental	Emotional
Femininity	0.269**	-	-	-	-
Masculinity	0.157**	0.343**	-	-	-
Mental	0.321**	0.360**	0.250**	-	-
Emotional	0.457**	0.182**	0.231**	0.184**	-
Behavioral	0.417**	0.383**	0.220**	0.517**	0.288**

**p<0.01.

according to the fathers' gender role, it has been found that the paternity characteristics of the fathers showing "femininity" and "androgynous" gender roles are significantly higher than the fathers showing "undifferentiated" gender role.

Paternity characteristics can be predicted with gender role and communication skills?

Firstly, the study made an analysis into the correlation among the quality of paternity, sex traits and communication skills. The study used the scores in the inventory of supporting developmental tasks as an indicator of the quality of paternity. It also investigated the correlation between the scores the fathers got in the inventory of supporting developmental tasks and their scores of femininity and masculinity in the BEM Sex Role Inventory as well as the scores in the "Behavioral", "Emotional" and "Mental"   sub-scales of the communication skills inventory. The results are presented in Table 3.

There is a positive correlation between the scores in The ınventory of supporting developmental tasks, in the "behavioral", "emotional" and "mental" sub-dimensions of the communication skills ınventory and in the "femininity" and "masculinity" sub-scales of the BEM sex role ınventory"; and the correlation has a significance of 0.01 (Table 3). The correlation coefficients vary between 0.16

and 0.51 (<0.70), which suggests that no multiple correlation exists (Sipahi et al., 2006; Buyukozturk, 2010). Other indicators of the lack of a multiple correlation are presented in the following sections of the study.

The study investigated whether the scores in the ınventory of supporting developmental tasks can be predicted through sex roles and communication skills. To do so, the first thing the study did was to determine whether the data were suitable for a multiple regression analysis. Therefore, the study made an analysis into whether scatter plot and error terms are subject to a normal distribution or not. The study presented the findings in Figure 1.

In the scatter matrix, dependent and independent variables are linear and error terms distribute in a normal manner (Error terms are on the line in the diagonal) (Table 4). In the light of the findings, the data were found to be suitable for a multiple regression analysis. The results of the analysis are presented in Table 4.

In view of the findings 1- R^2 = 0.69 >20 and the biggest VIF=2.238<10, it is concluded that no multiple correlation exists between the variables (Sipahi et al., 2006; Buyukozturk, 2010). The multiple regression analysis suggests that the scores in the "behavioral", "emotional" and "mental" sub-dimensions of the communication skills inventory and those in the "femininity" and "masculinity" sub-scales of the BEM sex role inventory can account
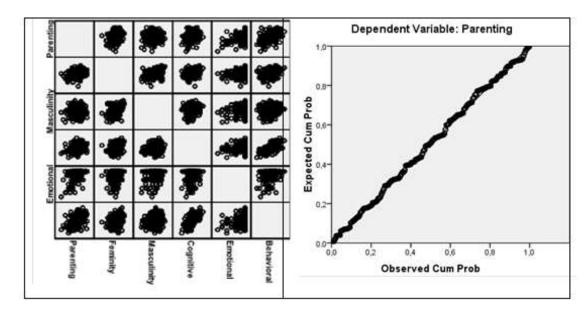
Figure 1. Dependent and independent variables, scatter matrix and distribution of error terms.

Table 4. The results of the multiple regression analysis regarding the quality of parenting.

Variable	B	Standard error (B)	β	t	p	Bilateral r	Partial r
Constant	-0.121	0.433		-0.279	0.780	-	-
Femininity	0.171	0.069	0.101	2.468	0.014	0.269	0.106
Masculinity	-0.038	0.052	-0.029	-0.728	0.467	0.157	-0.031
Mental	0.095	0.102	0.049	0.930	0.353	0.321	0.040
Emotional	0.399	0.042	0.366	9.556	0.000	0.457	0.382
Behavioral	0.428	0.095	0.244	4.532	0.000	0.417	0.192
R=0.555; $F_{(5-534)}$=47.429	R^2=0.308; P=0.001	-	-	-	-	-	-

for the scores in the inventory of supporting developmental tasks at a rate of 31%. The finding has a significance of 0.01.

According to standardized regression coefficients, the order of importance to predicting the fathers' scores in the inventory of supporting developmental tasks is as follows: the score in "emotional" communication (β=366), the score in "behavioral" communication (β=244) and the score in "femininity" (β=101). It is observed that the fathers' scores in "mental" communication (β=049) and "masculinity (β=-0. 29) are not a significant predictor of their scores in the inventory of supporting developmental tasks (p>0.05). In the light of these data, it can be concluded that their scores in the inventory of supporting developmental tasks can be predicted in a significantly meaningful way by their scores in "emotional" communication, "behavioral" communication and "femininity". Below is the mathematical model on predicting the scores in the inventory of supporting

developmental tasks in accordance with the results of the regression analysis.

$$\gamma = a+b$$

$$\gamma = a + b_1 x_1 + b_2 x_2 a + b_3 x_{3+\dots+b_n x_n}$$

SSDT(p) = -0.121 +0.366 (Emotional) + 0.277 (Behavioral) + 0.244 + 0.101 (Femininity)
SSDT(p) = The Score in the Scale of Supporting Developmental Tasks

RESULTS AND DISCUSSION

The findings of this research argue that the fathers who show "femininity" and "androgynous" gender roles have high paternity characteristics. Gender role orientation

covers the psychological and sociologic processes that include femininity and masculinity roles and responsibilities determined by women and men in the society (Cinamon and Rich, 2002).

The paternity characteristics in this research are defined by the inventory of supporting developmental tasks. The items in this inventory covers topics related to the fathers' participation to child care and education. As child care and education are interpreted as feminine practices, the fathers who show "femininity" and "androgynous" gender roles seems to have higher scores in terms of paternity characteristics.

Tzuriel (1984) states that the individuals who show "androgynous" gender roles are more flexible, and are more adaptive to unexpected situations. Unexpected situations frequently happen during child care and rearing. The fact that "androgynous" fathers have high paternity characteristics may be based on their adaptability to unexpected situations.

The research conducted with married couples (Gunter and Gunter, 1990) highlights that the fathers who show "femininity" and "androgynous" gender roles tend to do more housework which is considered to be feminine. Individuals act in accordance with their perceived sex role rather than their actual sex (Athenstaedt et al., 2002).

Therefore, it is not surprising that those fathers who have feminine traits are more successful in child care and supporting their development, two tasks that are stereotypically considered as feminine. The findings about the predictors of quality of paternity the following variables were mentioned: "emotional" and "behavioral" communication skills and "feminine" traits. The positive correlation between the dependent and independent variables suggests that a significant increase is experienced in the scores in the inventory of supporting developmental tasks when fathers use emotional or behavioral communication skills and display feminine traits.

Furthermore, those fathers who use "emotional" and "behavioral" communication skills succeed better in child care and support as well as establishing more qualified interaction with their children. It has been reported in the literature that child development is affected in a positive way when parents use an emotional and supportive communication language (Brody and Ge, 2001; Ustun,2010).

The researches conducted in the recent years indicate that fathers have a higher impact on the well-being of children (England and Folbre, 2002; Palkovitz, 2002; Lamb and Lewis 2010). The children who are raised in a family environment where father-child communication and participation is effective, have developed positive behaviors and personality traits (Fagan and Iglesias, 1999; Lamb and Tamis-Lemoda, 2004).

These results points out that the number and quality of the studies and parent training programs should be increased in order to improve the quality of time spend between the father and children. The training programs should highlight the importance of communication with children and active participation to child development. The effects of these programs should be tested with follow-up researches.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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Full Length Research Paper

An instructional design model with the cultivating research-based learning strategies for fostering teacher students' creative thinking abilities

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Designing the instructional model with the innovative the *Research-Based Learning Strategy Lesson Plans* of the effectiveness of the processing performance and the resulting performance (E1/E2) with the IOC value determining standardized criteria of 80/80 were developed. Students' perceptions were assessed with the 30-item *Research-Based Learning Strategies* (RBLS) in six scales. Students' creative thinking abilities adapted version into the 10-item *Creative Thinking Ability Questionnaire* (CTAQ) was used. Associations between students' perceptions of their cultivating learning strategies and their creative thinking abilities were analyzed. A sample size consisted of 626 senior teacher students from 21 Foundational Education classes in Kamphaeng Phet Rajabhat University in two semesters of the academic year 2015. Statistically significant was found that; the lessening effectiveness (E1/E2) evidenced of 80.73/80.98 over the threshold setting was 80/80. The 5-professional expert educators' responses of the IOC revealed of 0.76. The RBLS and CTAQ were validated and reliable with the internal consistency was analyzed. Students' perceptions of their RBLS and their CTAQ toward Foundational Education Subject were positive relatively. The multiple correlations R was 0.79 and the predictive efficiency value (R^2) indicated that 62% of the variances in students' creative thinking abilities to their classes were attributable for their perceptions of their individualized classroom environments. Suggestions that of these research findings, the designing instructional model for fostering students' creative thinking abilities with the research methodology, research procedure, sample design of research instruments and other components of this research, it would be valuable and had the highest benefit for further research study.

Key words: Designing instructional model, cultivation indoctrination, research-based learning strategy, teacher students,creative thinking ability.

INTRODUCTION

Designing instructional model

Design is more than a process; that process, and resulting product, represents a framework of thinking (Driscoll and Carliner, 2005:9). Instructional design (ID) or instructional systems design (ISD) is the

practice of creating instructional experiences which make the acquisition of knowledge and skill more efficient, effective, and appealing with the designers (Merrill et al., 1996). The process consists broadly of determining the state and needs of the learner, defining the end goal of instruction, and creating some "intervention" to assist in the transition. The outcome of this instruction may be directly observable and scientifically measured or completely hidden and assumed (Forest, 2016). Instructional design, also known as instructional systems design, is the analysis of learning needs and systematic development of instruction. Instructional designers often use Instructional technology as a method for developing instruction. Instructional design models typically specify a method, that if followed will facilitate the transfer of knowledge, skills and attitude to the recipient or acquirer of the instruction (Merrill et al., 1996). Instructional design is the systematic development of instructional specifications using learning and instructional theory to ensure the quality of instruction. It is the entire process of analysis of learning needs and goals and the development of a delivery system to meet those needs. It includes development of instructional materials and activities; and tryout and evaluation of all instruction and learner activities (Barger, 1996).

Instructional model is guidelines or sets of strategies on which the approaches to teaching by instructors are based. Effective instructional models are based on learning theories. Learning theories describe the ways that theorists believe people learn new ideas and concepts. Often, they explain the relationship between information we already know and the new information we are trying to learn (NC State University, 2016). Instructional design is the systematic development of instructional specifications using learning and instructional theory to ensure the quality of instruction. It is the entire process of analysis of learning needs and goals and the development of a delivery system to meet those needs (Instructional Design Central (IDC), 2016).

This research study focused on model for instructional design provided procedural frameworks for the systematic production of instruction. It incorporated fundamental elements of the instructional design process including analysis of the intended audience or determining goals and objectives that followed as the concept of Braxton et al. (1995). An instructional design model gives structure and meaning to an ID problem, enabling the would-be designers to negotiate their design task with a semblance of conscious understanding. Models help to visualize the problem, to break it down into discrete, manageable units. A model should be judged by how it mediates the designer's intention, how well it can share a work load, and how effectively it shifts focus away from itself toward the object of the design activity (Ryder, 2001). Instructional models prescribe how combinations of instructional strategy components should

be integrated to produce a course of instruction (Braxton et al., 1995).

As instructional innovation with the instructional lesson plans advanced and constructivist theory gained popularity, instructional lesson plans were used in the classroom began to evolve from mostly drill and skill exercises to more interactive activities that required more complex thinking on the part of the learner (Markham, 2012). In this process, an instructional design project is prototyped quickly and then vetted through a series of try and revise cycles. This is a big departure from traditional methods of instructional design that took far longer to complete the concept of Reiser (2001). Technology advances permitted sophisticated simulations with authentic and realistic learning experiences (Markham, 2012). Academic degrees focused on integrating technology, the internet, and human-computer interaction with education gained momentum with the introduction of *Learning Design and Technology* (LDT) majors. Universities have established undergraduate and graduate degrees in technology-centered methods of designing and delivering education (Anglin and Towers, 1992). This section was the historical background of the instructional design model. Moreover, emphasized that this research within an University, then, may be summarized as the knowledge about research topics and processes which are sanctioned as appropriate and relevant; the values, beliefs, creative thinking skills and norms which surround the research process within the University; and the various material ways in which the University supports or denies support to its researching individuals and groups. New values, beliefs and norms about research develop as individuals and groups attempt to carry out research projects of what the University has previously approved through the cultivating research-based learning strategies.

Instructional design model in the 21st century

In the 21st century, the instructional design model helps instructional designers to make sense of abstract learning theory and enables real world application. An instructional design model provides structure and meaning to an instructional design problem. Many of them have common instructional design principles and patterns that are used to design learning experiences, courses, and instructional content (Instructional Design Central, 2016). An instructional design model is used to define the activities that will guide the development of teacher projects. It allows teachers to communicate the purpose and reason behind a strategy. A framework gives teachers the birds-eye view of all the major components that have to be included in the course. If a teacher is a new instructional design model, then understanding and following instructional design best

practices from the beginning is crucial to your success. It is vast, and you will find numerous theories, models, and resources that have worked for different experts (Gutierrez, 2015).There are many instructional design models, for example, the ADDIE model with the five phases: Analysis, design, development, implementation, and evaluation. As a field, instructional design is historically and traditionally rooted in cognitive and behavioral psychology, though recently constructivism influenced thinking in the field of education (Mayer, 1992).

Research based learning strategies

Learning strategies help students organize their thinking and be successful learners, but there's a little more to it than following a recipe for instruction (Linde, 2014). Read on to learn about important research and how this directs instructional practices.

Research-based principles of learning and teaching strategies

In education, research team defined learning strategies as techniques used by students to become familiar with information. In other words, it is how we take in information and apply it to other areas of our lives. Without good strategies, students can struggle with acquiring and using the information they are taught in the classroom. Luckily, educators can directly instruct students on how to become active learners by teaching learning strategies, those strategies that show students how to take in new information and use it in valuable ways. Teachers bring a lot of instinct to their classrooms, but they are not born knowing what is best for all students. Educational research helps illuminate what has been shown to be effective so teachers can use the best methods of instruction in their own classes. Research can be broken down into two categories: Brain science and teachers. Teachers can encourage students to incorporate active learning principles into their own studies by assigning some of these tools in class. For instance, as students begin to learn about in this research study, they might start the unit by not only memorizing facts and dates pertinent to the war, but also rephrasing the information into their own words and visualizing it.

These principles are distilled from research from a variety in disciplines. Students' prior knowledge can help or hinder learning. Students come into our courses with knowledge, beliefs, and attitudes gained in other courses and through daily life. A widely used adjective in education, evidence- based refers to any concept or strategy that is derived from or informed by objective evidence, most commonly, educational research or

metrics of school, teacher, and student performance. The *Research-Based Learning Strategies* for successfully linking teaching and research, Research-based learning is a multi-faceted concept referring to a variety of learning and teaching strategies that link research and teaching. Good practice in research-based learning may include: Research outcomes informing the innovative teaching plans, research process based methods of teaching and learning, learning to use the tools of research, and developing an inclusive research context (Blackmore and Fraser, 2007). Although at first glance, creative thinking techniques may sometimes look like a bit ridiculous, there are good principles behind most of them. However, the research team might be about the potential, it is a good idea to approach them with an open mind of our students.

Creative thinking abilities

In the three last decades, researchers have conclusively demonstrated that creativity can be nurtured and enhanced through the use of deliberate tools, techniques, and strategies. *HOW can you help your students become more creative?* Exactly*,* to improve creative thinking, a teacher can *encourage creativity by students* during activities that *provide opportunities for them to be creative;* while they are learning useful principles and strategies (Facione, 2001). Creative or innovative thinking is the kind of thinking that leads to new insights, novel approaches, fresh perspectives, and whole new ways of understanding and conceiving of things. The products of creative thought include some obvious things like music, poetry, dance, dramatic literature, inventions, and technical innovations. But there are some not so obvious examples as well, such as ways of putting a question that expand the horizons of possible solutions, or ways of conceiving of relationships that challenge presuppositions and lead one to see the world in imaginative and different ways (Facione, 2001). A way of looking at problems or situations from a fresh perspective that suggests unorthodox solutions, which may look unsettling at first; creativity is the act of turning new and imaginative ideas into reality. Creativity is characterized by the ability to perceive the world in new ways, to find hidden patterns, to make connections between seemingly unrelated phenomena, and to generate solutions. Creativity involves two processes: Thinking, then producing (May, 2014). Creative thinking can be stimulated both by an unstructured process such as brainstorming, and by a structured process such as lateral thinking.

In this research study, designing the practice of creating instructional experiences which make the acquisition of knowledge and skill more efficient, effective, and appealing were assessed. The process consists broadly of determining the state and needs of the learner, defining the end goal of instruction, and

creating some "intervention" to assist in the transition. The outcome of this instruction may be directly observable and scientifically measured or completely hidden and assumed (Merrill et al., 1996). The instructional learning model with the cultivating research-based learning strategies was adapted as well as the researcher's framework for fostering teacher students' creative thinking abilities at the Faculty of Education in Kamphaeng Phet Rajabhat University in Thailand is provided.

METHODOLOGY

The designing instructional model with the cultivating research-based learning strategies to their creative thinking skills at the Faculty of Education in Kamphaeng Phet Rajabhat University in Thailand was to describe into five theoretical framework that following as:

1. Designed and administered from the research-informed teaching innovative teaching plans design that following guidelines were adapted from Blackmore and Fraser (2007).
2. To assess the efficiency of the processing performances and the performance results (E_1/E_2) at the determining criteria as 75/75 to promote students' learning achievements of their instructional innovative lesson plans of the cultivating research-based learning strategies.
3. A blending of creativity and critical thinking is necessary for productive thinking that produces a high-quality solution for a problem.
4. A preliminary quantitative research method study with the questionnaire technique was used. The conclusions consider further research designs and the expertise necessary for multiple methods research.
5. This educational research shines the light on how children learn. There are three viewpoints that can help determine whether a student is using learning strategies or not. The first learning strategy asks the question, 'How do you remember new information?' There are a range of tools used by active learners that help them retain information that is new to them. Successful students use all of these learning strategies to make sense of new information.

Research procedures

The Educational Research Technique was the foundational research to be designed on the instructional strategies for presenting content describe the ways of presenting information during teaching and learning on a group of educational foundation classroom environment, to the instructional model through impressive educational students of their *Cultivating Research-Based Learning Strategies* (RBLS).The RBLS instructional strategies have been demonstrated to, in at least one study, be "effective." As implied, it is not that simple and it does not mean it will work well in our next lesson.

Phase I: Developing the research-based learning strategies (RBLS) innovative teaching plans

Based on the framework of Blackmore and Fraser (2007), the *Research-Based Learning Strategies* in four elements are identified as being important in the design of the RBLS.

Step I (The Four Elements of the Framework of Blackmore and

Fraser): The framework's Blackmore and Fraser for developing the research-based innovative teaching plans in four elements are identified as:

1. Outcomes: Including research outcomes in the innovative teaching plans (for example modules designed around the research interests of staff).
2. Process: Using research-process-based methods of teaching and learning (for example problem-based learning).
3. Tools: Learning to use the tools of research (for example bibliographic searching, field skills, quantitative analysis etc.)
4. Context: Developing an inclusive research context and culture (for example students assisting with staff research, student and staff research seminars etc.).

Step II (The Seven Principles for Good Practice in Undergraduate Education): The following innovative teaching plans design, toolkit, was based on these four elements and the Seven Principles for Good Practice in Undergraduate Education by Chickering and Gamson (1987). This research design and the subsequent creation, validation and dissemination of knowledge, are fundamental to the operation of a research-intensive of the University. The intention of research-based learning was that university academics should make positive moves to help students build strong intellectual and practical connections between research frontiers and the students' own learning. Student benefits include:

Inducting students into the disciplines' values, practices and ethics; *Ensuring* course content that includes cutting edge research findings; *Increasing* students' understanding of how their chosen discipline contributes positively to the society; *Developing and enhancing* students skills and capabilities including *Generic skills* such as critical and analytical thinking, information retrieval, and evaluation and problem-solving; *Skills in conducting and evaluating* research that is helpful to students' ongoing personal and professional lives; *Providing enhanced opportunities* for teaching and learning approaches such as inquiry-based and experiential methods that have been linked to positive learning outcomes for students.

This step was built with the goals of the innovative instructional lesson plans of the Foundational Education content for teacher students.

Phase II: Teacher students' perceptions of their cultivating the research-based learning strategies

In education, researcher team defines learning strategies as techniques used by teacher students to become familiar with the information. In other words, it is how we take in information and apply it to other areas of our instruction. Without good strategies, students with struggle with acquiring and using the information they are taught in the classroom. We can directly instruct students on how to become active learners by teaching learning strategies, those strategies that show teaches students how to take in new information and use it invaluable ways.

Interestingly, although research and evaluation in education have relied heavily on the assessment of academic achievement and other valued learning outcomes, these measures cannot give a complete picture of the educational process. Students have a large stake in what happens to them at university and their reactions to and perceptions of their university experiences are significant. Using students' perceptions to study educational environments can be contrasted with the external observer's direct observation and systematic coding of classroom communication. This section describes the following important and adapting contemporary research instruments were built.

Step I (Good practice in research-informed teaching: Include

Table 1. The 5-Item of the integrating research scale for the RBLS.

Item	Research-informed teaching	Scoring perceptions				
		1	2	3	4	5
1	Instructors direct their students towards relevant research papers to read on a regular basis					
2	Instructors update their teaching materials with recent research on a regular basis					
3	Instructors stress the importance of reading beyond the core text books					
4	Instructors integrate their own research into their teaching					
5	Instructors direct their students to newly published research					

Table 2. The 5-item of the understanding role research scale for the RBLS.

Item	Research-informed teaching	Scoring perceptions				
		1	2	3	4	5
1	Instructors explain the development of ideas in their discipline					
2	Instructors explain how research methodology, methods and ethical considerations have developed in their discipline					
3	Instructors discuss how research methodology, methods and ethical considerations in their discipline may develop in the future					
4	Instructors explain why research in their discipline is important					
5	Instructors discuss with students the real-world application of research in their evaluation					

outcomes of recent: Research in the foundational education innovative teaching plans): Teacher students have a right to expect that their innovative teaching plans are fully informed by recent research in their chosen area of study and, to a certain extent, research and integration of research into the innovative teaching plans are what defines us as this University; irrespective of whether teaching staff are 'research active' and researcher team was built the research instrument for students' responses of their instructors of these questions. This is called *Integrating Research* scale of the RBLS that it is the first scale to obtain the five items and the five response alternatives are almost never, seldom, sometimes, often and very often. Table 1 reports of the *Integrating Research* scale.

Step II (Good practice in research-informed teaching: Develop an understanding of the history and role of research in the discipline): It is important that students have some awareness of how research has developed in their chosen subject area. Not only does this provide an important context in terms of showing the relevance of material being taught, but it provides students with a level of methodological knowledge and demonstrates that knowledge was constantly evolving and developing and that they had a part to play in that evolution and development.

Students' perceptions of this section, it's called *Understanding Role Research* scale of the RBLS, that is the second scale to obtain five items and the five response alternatives are almost never, seldom, sometimes, often and very often. Table 2 shows the *Understanding Role Research* scale.

Step III (Good practice in research-informed teaching: Engage students in generic research processes and skills): By attaining a suite of generic research skills students learning to become enquiring and analytical skills that are becoming increasingly demanding of students upon graduation are designed (Jenkins et al., 2011). Generic research training also provides a

suite of valuable transferable skills. Students' perceptions of this section; it is called *Generic Research Processes and Skills* scale of the RBLS that it is the third scale to obtain of five items and the five response alternatives are almost never, seldom, sometimes, often and very often. The Generic Research Processes and Skills scale reports in Table 3.

Step IV (Good practice in research-informed teaching: Fosters an environment where research was encouraged, promoted and valued): Fostering a 'research-rich' environment enthuses and motivates students and was invaluable in helping to break down the 'them and us' barriers that may exist between teaching staff and students. Students' perceptions of this section, it's called fostering environmental research scale of the RBLS that is the fourth scale to obtain five items and the five response alternatives are almost never, seldom, sometimes, often and very often. Table 4 shows the items of *Fostering Environmental Research* scale.

Step V (Good practice in research-informed teaching: Engage students in enquiry-based activities): Here, students learn the importance of identifying where knowledge may be limited and thereby find ways to enhance knowledge (Blackmore and Fraser, 2007). Enquiry-based activities also allow teamwork skills to be developed and students move from being the audience to become participants in their learning. Students' perceptions of this section, it is called *Enquiry-Based Activity Research* scale of the RBLS that it is the fifth scale to obtain of five items and the five response alternatives are almost never, seldom, sometimes, often and very often. Table 5 shows the items of *Enquiry-Based Activity Research* scale.

Step VI (Good practice in research-informed teaching: Draw on pedagogic research to enhance teaching and research links): The seven principles of good practice in undergraduate education, as defined by Chickering and Gamson (1987) can and should

Table 3. The 5-Item of the generic research processes and skills scale for the RBLS.

Item	Research-informed teaching	Scoring perceptions				
		1	2	3	4	5
1	Instructors teach generic research skills within the innovative teaching plans					
2	Instructors emphasize cross-innovative teaching plans application of generic research skills and techniques					
3	Instructors highlight the real-world application of generic research skills and techniques					
4	Instructors provide exercises where students apply research skills to data/information that they have collected					
5	Instructors ensure students undertake tasks that allow research skills to be practiced					

Table 4. The five items of the fostering environmental research scale for the RBLS.

Item	Research-informed teaching	Scoring perceptions				
		1	2	3	4	5
1	Instructors invite external speakers to come and speak about their research					
2	Instructors encourage students to discuss their research together and work on joint research projects					
3	Instructors arrange visits to scholarly University (for example Royal Society, other Universities, British Library, Art Galleries etc.)					
4	Instructors encourage students to attend staff research presentations within my University					
5	Instructors encourage and support students to apply for research funding or other research-related awards					

Table 5. The Five items of the enquiry-based activity research scale for the RBLS.

Item	Research-informed teaching	Scoring perceptions				
		1	2	3	4	5
1	Instructors provide opportunities for students to work together in groups to solve research/real-world problems					
2	Instructors present students with specific problems to which they have to apply research skills					
3	Instructors expect students to collect data/information to address specific research questions/real-world problems					
4	Instructors present students with realistic scenarios to which the whole cycle of research has to be applied					
5	Instructors encourage students to work with staff on specific research questions/projects					

be applied to the design of a research-based innovative teaching plans, just as they should in other areas of teaching. Continual innovative teaching plans development in the light of the results of sound pedagogic research is arguably pivotal to all that researcher team did. Students' perceptions of this section, it is called *Pedagogic and Linking Research* scale of the RBLS that it is the sixth scale to obtain of five items and the five response alternatives are almost never, seldom, sometimes, often and very often. The items of the *Pedagogic And Linking Research* scale are reported in Table 6.

Phase III (Design creative thinking in foundational education)

This is the simplest phase of taking action research plan and

implement of ideas built to search the situation veers away from the research team plans to next steps.

Step 1: Principles and strategies for increasing creative thinking skills: There is some activity in mainstream K-12 schools and higher education. Underground educational students programs seem to focus on critical thinking more than creative thinking, but some "thinking skills" programs combine critical thinking with creative thinking and in some, the focus is on creativity. Researcher team summaries of scientific principles and practical strategies from Jeffrey Baumgartner (2016) and adapted his ideas to build up the questionnaire to assess students' perceptions of their creative thinking abilities in the Foundational Education classes to increase their creativity by shifting how researchers approach problems, including just being more observant and asking better questions

Table 6. The Five Items of the pedagogic and linking research scale for the RBLS.

Item	Research-informed teaching	Scoring perceptions				
		1	2	3	4	5
1	Instructors apply 'principles of good practice' across all their academic activities					
2	Instructors apply appropriate teaching and learning research when designing their teaching sessions					
3	Instructors encourage students to become participants rather than observers					
4	Instructors refer to case studies of 'good practice' when developing the innovative teaching plans					
5	Instructors regularly update their teaching practice by attending relevant workshops and/or reading pedagogic literature					

Table 7. The 10-item creative thinking ability questionnaire (CTAQ)

Item	Creative thinking skills	Scoring perceptions				
		1	2	3	4	5
1	I have the best way to clarify and identify the problem and understand the underlying issue					
2	I have more questions that I can ask to help clearly define the problem and by the time I have answered all these questions					
3	Depending on the nature of the problem, I need to do a great deal of research					
4	I have the data sources of information and opinion that libraries are fantastic for in-depth information					
5	I am clear on the real issue behind my problems or goals to turn these issues into creative challenges					
6	I have ideas for finding a logical approach to solving both problems in a coordinated way					
7	My ideas are respective generation approach that I can simply them on my map and enter them onto a computer document					
8	If I have browsed the web for my idea generation, I will find lots of creative ideas on how to generate creative ideas					
9	I focus only on the "best" ideas to choose the less creative ones and include my favorite in the initial of ideas					
10	I often can implement several ideas to solve my challenge to keep in mind that I do not need to limit myself to one winning idea					

(Table 7).

Step II (Design creative thinking in education questionnaire):
However, there are numerous different approaches to the creative thinking ability. It is more focused on innovation that is the implementation of the most promising ideas. It involves straightforward on seven steps. The researchers were integrated of A 7-step CPS framework of Jeffrey Baumgartner to the version of our research instrument of the *Creative Thinking Ability Questionnaire* (CTAQ) was used in this research study.

Research aims

This research study focused on students of 626 junior teacher students in 10 Educational Programs, Faculty of Education, Kamphaeng Phet Rajabhat University in Thailand. The research questions are as follow:

Research Question 1: How much level of the cultivating research-based learning strategies innovative lesson plans are assessed with the hypothesis of the processing and performance resulting effectiveness's standardized criteria and the IOC quality's responses?

Research Question 2: The Research-Based Learning Strategies (RBLS) in this research study are there valid and reliable?

Research Question 3: The Creative Thinking Ability Questionnaire (CTAQ) used in this research study, are they valid and reliable?

Research Question 4: What are the associations between students' perceptions of their research- based learning strategies and their creative thinking abilities?

Research instruments

The following strategies provide a guide for incorporating research-based learning into courses and programs. There is overlap between categories and some suggestions are more appropriate in some disciplines at some year levels and in some teaching and

learning contexts than others. They give a range of options that will be most effective if tailored to a particular context and student cohort, with the research instruments.

The research-based learning strategies innovative teaching plans

The *Research-Based Learning Strategies Innovative Teaching Plans were designed* from the context of the Foundational Education Course Content and it composed of eight lesson plans administered in 45 h. This innovation focused on students' learning outcomes, the research-process-based method, instructional tools, and foundational education context. Student benefits include inducting students' disciplines, ensuring course content, increasing students' understanding, developing and enhancing students' skills, generic critical and analytical thinking skills, skills in conducting and evaluating research, and providing enhanced opportunities for teaching and learning approaches.

The Research-Based Learning Strategies (RBLS)

Using the 30-item *Research-Based Learning Strategies* (RBLS), the 7-step CPS framework of the research-informed teaching innovative teaching plans design was adopted and the following guidelines were gotten from Blackmore and Fraser (2007). The RBLS has six scales, namely; Integrating Research, Understanding Role Research, Generic Research Processes and Skills, Fostering Environmental Research, Enquiry-Based Activity Research, and Pedagogic and Linking Research scales. Each scale obtained with five items and the five response alternatives are almost never, seldom, sometimes, often, and very often.

The Creative Thinking Ability Questionnaire (CTAQ)

Students' perceptions of their creative thinking abilities were assessed with the *Creative Thinking Ability Questionnaire* (CTAQ) with 10 items and the five response alternatives are almost never, seldom, sometimes, often and very often.

Sample

To administer, the sample size which consists of 626 junior teacher students, who were the third year students and studied in level of Bachelor Degree in Education, in 10 Educational Programs from 21 foundational education classes in two semesters in the 2015academic year, at the Faculty of Education in Kamphaeng Phet Rajabhat University with the purposive random sampling was selected.

Data analysis

The quality instrument of the *Research-Based Learning Strategies Innovative Teaching Plans* was analyzed by the IOC and the Processing Performance Effectiveness (E1) and the Resulting Performance Effectiveness (E2) by the 5-professional expert educators

The validity and reliability of research instruments were assessed with internal consistency, Cronbach alpha reliability, and discriminant validity. Data differentiated was statistically significant to compare with the independent variable t-test and ANOVA results (eta^2), because of using the one statistic that minimizes the effects of this issue is called partial eta^2. Partial eta^2 can be defined as the ratio of variance accounted for by an effect and that effect plus its associated error variance within an ANOVA study. Associations between students' perceptions of their *Research-Based Learning Strategies* and their *Creative Thinking Abilities* toward Foundational Education Content with simple and multiple correlations, standardized regression weight abilities and the coefficient predictive value (R^2) were analyzed.

RESULTS

Educational research shines the light on how students learn. There are three viewpoints that can help determine whether a student is using learning strategies or not. The first learning strategy asks the question, *'How do you remember new information?'* There is a range of tools used by active learners that help them retain information that is new to them. *How do you study information?* Once information has been initially stored in the brain, active learners utilize a separate set of techniques that help push the surface knowledge to long-term memory. And finally, the third strategy to active learning asks, *'What do you do with your new learning?'* Successful students do not just take in new learning. This research study emphasizes the research designs and administrations of the target goals into the groups of teacher students in the Faculty of education in the institutes at the Office of Higher Education Commission in Thailand. They investigated their learning outcomes and their performances.

The effectiveness of the innovative instructional lesson plans

To analyze the effectiveness of the *Research-Based Learning Strategies Innovative Teaching Plans, are* based on the model of learning management in the *Research-Based Learning Strategies Method* in Foundational Education classes with the processing and performance resulting effectiveness at 80/80 criteria. Table 8 reports of the effectiveness of the innovative instructional lesson plans

Table 8 shows the results for the effectiveness of the innovative instructional lesson plans based on the model of learning management in the *Research-Based Learning Strategies Innovative Teaching Plans*. The effectiveness of lessons during the learning process (E1) reveals 80.73 and the performance effectiveness (E2) indicate that 80.98, so the lessening effectiveness (E1/E2) evidences of 80.73/80.98 over the threshold setting is 80/80.

In terms of the Index of item-objective congruence (IOC), the validity of the quality of the *Research-Based Learning Strategies Innovative Teaching Plans* was checked that the value of correspondence between the question and the objective or content by the 5-professional expert educators responses of the IOC evidence of 0.76.

Table 8. Score total, mean, standard deviation, and percentage for the effectiveness research-based learning strategies innovative teaching plans.

Teaching plan	Total			
Efficiency performance processes (E_1)	3,420	72.66	41.26	80.73
Efficiency performance results (E_2)	1,140	26.21	81.12	80.98
The lessoning effectiveness (E1/E2)	80.73/80.98			

N = 626.

Table 9. Scale means' score, means, standard deviations, scale internal consistency (Cronbach Alpha Reliability), discriminant validity and F-test for the RBLS.

Scale	Mean (30)	Average mean (5)	Standard deviation	Cronbach alpha reliability	Discriminant validity	*F*-test
Integrating research	23.19	3.86	7.49	0.70	0.73	12.69**
Understanding role research	24.04	4.02	7.55	0.72	0.73	16.82**
Generic research processes and skills	22.16	3.69	7.13	0.73	0.73	11.47**
Fostering environmental research	25.07	4.18	6.89	0.76	0.72	19.53***
Enquiry-based activity research	22.39	3.73	7.56	0.74	0.72	12.98**
Pedagogic and linking research	23.45	3.91	7.45	0.71	0.73	13.67**
Average total	23.38	3.90	7.51	0.82		21.86**

*N = 626, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.*

Validity of the Research-Based Learning Strategies (RBLS)

Table 9 shows the description of quantitative data of analyzing responses for senior teacher students' assessments reported for the *Research-Based Learning Strategies* (RBLS).The internal consistency (Cronbach alpha coefficient) and the mean correlation of each scale with the other scales were obtained for the sample in this present study as indices of scale reliability and discriminant validity for the RBLS. The RBLS consists of five scales, namely: *Integrating Research, Understanding Role Research, Generic Research Processes and Skills, Fostering Environmental Research, Enquiry-Based Activity Research, and Pedagogic and Linking Research* scales.

The results given in Table 9 shows the mean scores for each of the six RBLS scales. As each scale has five items ranging from 22.16 to 25.07 and average total score as 23.38. The average mean scores ranged from 3.69 to 4.18 and average total score as 3.90, respectively. Table 9 reports the internal consistency which ranged from 0.70 to 0.76 when using the actual scores. A successful evaluation of discriminant validity on each scale shows that a scale of the RBLS is correlated with other scales designed to measure the different three sales theoretically. The *F*-test is the test statistic that has an F-distribution. Table 9 reports that the statistically significant is an *F*-test is a ratio reflecting different sources of variability at level 0.01.

Validity of the Creative Thinking Ability Questionnaire (CTAQ)

Using the description of quantitative data of analyzing responses for senior teacher students' assessments was reported for the 10-item *Creative Thinking Ability Questionnaire* (CTAQ). Internal consistency (Cronbach alpha coefficient) and the mean correlation were obtained for the sample in this present study as indices of scale reliability of the CTAQ as 0.83.

Associations between students' perceptions of their research-based learning strategies and their creative thinking abilities

Given the potential for students' perceptions to enhance creative thinking abilities in Foundational Education Classrooms were qualities explored to determine their relationship with students' perceptions of their Research-Based Learning Strategies environment. Correlation's studies identified significant differences in students' perceptions according to achievements made. In this study, it was also considered important to investigate associations between students' perceptions of their *Research-Based Learning Strategies* and their *Creative Thinking Abilities.*

The Cronbach Alpha Reliability of the selected CTAQ was 0.83 when using the individual student as the unit of analysis. This suggests that the scale is reliable for

Table 10. Associations between RBLS scales and CTAQ to fundamental education in term of simple correlation (r), multiple correlations (r) and standardized regression coefficient (β).

Scale	Simple correlation (r)	Standardized regression validity (β)
Integrating research	0.32**	0.31**
Understanding role research	0.28**	0.27**
Generic research processes and skills	0.32**	0.30**
Fostering environmental research	0.34**	0.33**
Enquiry-based activity research	0.28**	0.27**
Pedagogic and linking research	0.26**	0.24**
Multiple correlation *(R)*		0.7898**
Coefficient predictive value (R^2)		0.6239**

N = 626, *$\rho < 0.05$, **$\rho < 0.01$, ***$\rho < 0.001$.

measuring students' creative thinking abilities in Foundational Education classes with the RBLS. These involved simple correlation and multiple regression analyses of relationships between the RBLS scales as a whole and the CTAQ reported in Tables 10.

Table 10 reported simple correlation and multiple regressions analyses were conducted to examine whether associations exists between students' perceptions of their research-based learning strategies and their creative thinking abilities' affective outcomes. Table 10 shows the actually correlations between students' creative thinking abilities' towards Foundational Education and designing the instructional model of the research-based learning strategies among six scales, when using a simple correlation analysis (r) and the standardized regression validity (β) are significant, and positive relatively. The multiple correlations R was 0.79 and the predictive efficiency value *(R^2)* indicated that 62% of the variances in students' creative thinking abilities to their Foundational Education classes were attributable for their perceptions of their individualized classroom environments.

DISCUSSION

This research study was to design the instructional model with the cultivating research-based learning strategies for fostering teacher students' creative thinking abilities at the Faculty of Education in Kamphaeng Phet Rajabhat University in Thailand. Strategies for successfully linking teaching and research to draw on personal research in designing and teaching courses to incorporate current research directly into the innovative teaching plans as the focus of an entire course, was referred to students' own experience of tackling 'real world' problems in this research study; as illustrative examples to help students understand ideas, concepts and theories. The Illustration of the values, practices and ethics of students' discipline by having faculty members, including postgraduate students, discuss their current research projects. The

place, where the latest research in the field within its historical context in classroom teaching to contextualize discussion of current research findings by referring to some of the discredited theories of the past and the passionate debates of the present (Green, 2013). This research study demonstrated the provisional nature of knowledge and its dynamic and evolving nature with a historical perspective showing how current policies and practices have evolved from earlier practices.

Designing learning activities around contemporary research issues for asking students to explore cutting-edge research problems or to suggest solutions to current real world problems based on their knowledge of the fundamentals of the discipline. This activity includes asking students to investigate the reporting of the status of a current research question in the discipline by comparing media reporting of a study with the official report. Analyzing the methodology and argument presented in setting out recent research findings has conducted a small-scale literature review, leading to a conclusion about the current state of knowledge and further questions to be addressed (Baldwin, 2005). Building the research methods, techniques and skills explicitly within programs to develop students' understanding of research methodologies during their classes and designing research methodology courses that provide opportunities to apply research skills to authentic research problems is assessed.

Building the research instruments with small-scale research activities into undergraduate assignments students at all levels can benefit from small-scale research activities and can often be carried out in groups. This mirrors the research culture of working in research teams rather than conducting individual research to ask students' perceptions toward analyzing research data from existing 'real world' projects. Especially, to provide students with a research question which requires them to conduct a small-scale literature review, decide on methodology, gather data, write up results and reach conclusions for offering capstone courses that focus on a major project utilizing the research skills and disciplinary

knowledge acquired in previous semesters (Healey and Jenkins, 2011). Involving students in departmental research projects to give students a self-contained project within a larger project for organizing students to act as research assistants to higher degree research students or faculty members are organized site visits to university research centers (Fierke, 2015).

Instructors might be encouraged students to feel part of the research culture of other departments that inform undergraduate students about the research interests and strengths of staff in the departments in which they are studying to refer to colleagues' areas of interest and achievements and, where possible, invite them to speak to students about their work (Green, 2013). Talking about the process that researchers go through before their work is published and the number of revisions typically involved for providing structured learning experiences that require students to develop these values, such as, providing research articles presenting opposing arguments on the same topic and asking students to analyze their validity and draw a conclusion (Baldwin, 2005).

This research study reports typical validation data for selecting the Research-Based Learning Strategies and their Creative Thinking Abilities were validated and reliable of the RBLS and CTAQ instruments were checked. The internal consistency/reliability (Cronbach alpha reliability coefficient) and discriminant validity (using the mean correlation of a scale with the other scales in the same instrument as a convenient index) and the ability of a scale were also found. A summary of these values obtained separately for the actual RBLS and CTAQ are expected reliability estimates were higher when the class means was used as the unit of analysis. On the whole, the statistics obtained were acceptable, though somewhat higher. This research investigating the associations between associations exists between students' perceptions of their research-based learning strategies and their creative thinking abilities toward foundational education. Having a standardized set of items for the assessment of achievement was shown to give more comparable sample results. Designing instructional model with the Cultivating Research-Based Learning Strategies and their Creative Thinking Abilities had a positive effect on both the six scales of RBLS students in highly motivated classes had a more favorable perception of their instructors indicate 62% for the sample size with 626 junior teacher students.

Conclusions

In this research study, designing instructional model through teacher students with the cultivating research-based learning strategies for enhancing their creative thinking skills at the Faculty of Education in Kamphaeng Phet Rajabhat University, Thailand, was investigated in 21 Foundational Education Classes to teach 626

students in two semesters in the academic year 2015. The main purposes were to develop the instructional model as the Cultivating *Research-Based Learning Strategies.* Innovative lesson plans were assessed with the hypothesis of the processing and performance resulting effectiveness's standardized criteria and the IOC quality's research innovations were assessed and the quality of the innovation teaching plans.

Adapted versions of the framework of the 7-Strategies for successfully linking teaching and research of good practice guides (Blackmore and Fraser, 2007) to the research instrument, namely: the *Research-Based Learning Strategies (RBLS)* questionnaire that has never been used to assess students' perceptions of their learning outcomes in Thailand was designed. The RBLS obtained with 6 scales, namely: *Integrating Research, Understanding Role Research, Generic Research Processes and Skills, Fostering Environmental Research, Enquiry-Based Activity Research, Pedagogic and Linking Research* Scales. Each scale composed of five items, total of 30 items and the five response alternatives are almost never, seldom, sometimes, often and very often.

The 10-item *Creative Thinking Ability Questionnaire* (CTAQ) was built from the framework of Craig Rusbult (2014), who examined the *5-Way to Creative Generate Ideas* for including *Guided Generation* when Critical Thinking stimulates-and-guides Creative Thinking and *Free Generation*, and describes some of the ways a freely creative generation of Ideas can be hindered. The CTAQ was built to assess students' perceptions of their Creative-and-Critical Community to adjust the interactions between creative thinking abilities and their learning with the RBLS is associated.

As these research instruments, the RBLS and CTAT have never been used to study in Thailand, the validity and reliability were analyzed. Using the Internal consistency (Cronbach alpha coefficient) and the mean correlation, obtained for the sample in this present study, was used.

These research findings, the effectiveness of the innovative instructional lesson plans based on the model of learning management in the *Research-Based Learning Strategies Innovative Teaching Plans*. The effectiveness of lessons during the learning process (E1) reveals 80.73 and the performance effectiveness (E2) indicate 80.98, so the lessening effectiveness (E1/E2) evidence of 80.73/80.98 over the threshold setting is 80/80. Focused on the *Index item-objective congruence* (IOC), it was validated that the innovative quality of the *Research-Based Learning Strategies Innovative Teaching Plans* was checked. The value of correspondence between the question and the objective or content by the 5-professional expert educators' responses to the IOC evidence was 0.76. This result answered the research question 1.

The description of quantitative data of analyzing

responses for senior teacher students' assessments reported for the *Research-Based Learning Strategies* (RBLS). Internal consistency (Cronbach alpha coefficient) and the mean correlation of each scale with the other scales were obtained for the sample in this present study as indices of scale reliability and discriminant validity for the RBLS. The RBLS consists of five scales, namely: *Integrating Research, Understanding Role Research, Generic Research Processes and Skills, Fostering Environmental Research, Enquiry-Based Activity Research, and Pedagogic and Linking Research* scales. The mean scores for each of the six RBLS scales, as each scale has five items ranging from 22.16 to 25.07 and average total score as 23.38. The average mean scores ranged from 3.69 to 4.18 and average total score as 3.90, respectively. The internal consistency which ranged from 0.70 to 0.76 when using the actual scores, the successful evaluation of discriminant validity on each scale shows that a scale of the RBLS was correlated with other scales designed to measure theoretically the different three scales were revealed. Using an *F*-test is the test statistic has an F-distribution. The statistically significant *F*-test is the ratio reflecting different sources of variability at the level of 0.01. This result is answered the research question 2.

Using the 10-item *Creative Thinking Ability Questionnaire* (CTAQ) to assess students' perceptions to the description quantitative data of analyzing responses for the sample target students' assessments reported of the internal consistency (Cronbach alpha coefficient) and the mean correlation were obtained in this present study as indicated by the scale reliability of the CTAQ as 0.83. This result answered the research question 3.

In terms of simple correlation and multiple regressions analyses were conducted to examine whether associations exists between students' perceptions of their research-based learning strategies and their creative thinking abilities' affective outcomes with the actually correlations between students' creative thinking abilities' towards Foundational Education and designing the instructional model of the research-based learning strategies among six scales; when using a simple correlation analysis (r) and the standardized regression validity (β) are significant, relatively positive. The multiple correlations R was 0.79 and the predictive efficiency value (R^2) indicated that 62% of the variances in students' creative thinking abilities to their Foundational Education classes were attributable for their perceptions of their individualized classroom environments. The results are answered the research question 4.

This study determined how students assess the various components of their foundational education environmental classes with the instructional designs of the *Research-Based Learning Strategies* (RBLS) were checked by the professional educators in a high quality. It also identified how the foundational education classes

were affected by students' learning outcomes. Findings revealed that students could assess the six components such as: Integrating research, understanding role research, generic research processes and skills, fostering environmental research, enquiry-based activity research, and pedagogic and linking research of the foundational education classes. Students' responses to their fostering environmental research have the highest assessment while generic research processes and skills have the least. The results also showed that the six components of the foundational education classes are positively correlated with students' perceptions of their creative thinking abilities, interestingly.

Limitations and suggestions

This research study designed the instructional model with the cultivating research-based learning strategies for fostering teacher students' creative thinking abilities at the Faculty of Education in Kamphaeng Phet Rajabhat University, Thailand. The form of the result of this research by applying research tools from abroad with the framework of research that includes innovation, learning plan, research tools or instruments throughout the use of advanced statistics to analyze the relationship between variables in the context of Thailand. It may be different from the context of international research. However, the research team hopes that the research methodology, research procedure, sample design of research tools and other components of this research. It will be valuable and have the highest benefit for further research.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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Educational Research and Reviews

Full Length Research Paper

Cul-de-sac from diehard traditions: The demise of action research in teacher education

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Reflective practice has become the global prime educational trend expected of education practitioners but some teacher educators tend to stifle its development. It is strongly believed in critical pedagogy, the theoretical framework of action research theorists that reflective practice is inherent in an introspective disposition and is developed through participatory action research. Reflective practice is the contradistinction of routine practice and is focused on the interrogation and subsequent improvement of one's own practices. A qualitative research was carried out with nine lecturers at a teacher education college about their experiences in supervising students who embark on participatory action research. The interview participants were selected using the snowball sampling technique. The data generated were analyzed by employing the Johnson-Christenson method. The results point to that the teacher educators categorically denounce participatory action research and are not conversant with the techniques to develop reflective practice through action research. They tend to stifle reflective practice by being prescriptive on 'transactions' of research practice and work practice based on their own experiences which Dewey refers to as 'miseducative' experiences. It is recommended that the teacher educators should be conscientized about how action research has the potential to promote the development of reflective practice.

Key words: Reflective practice; participatory action research, critical pedagogy, 'miseducative' experiences.

INTRODUCTION

The current global thrust in developing the requisite attitudes, knowledge and skills in educational practitioners is through nurturing an introspective disposition in them. Introspection involves the interrogation of own practices with the aim of improving on own practice. Embedded in introspection is reflective practice which is believed to contribute immensely to solving one's workplace problems. In teacher education, reflective practice is explicitly dealt with when students embark on action research. Thus it is the onus of the teacher educators to facilitate the embarking on action research by the students. Some teacher educators in Zimbabwe are not comfortable with action research and tend to stifle students' interest in embarking on such a research. The teacher educators did not do action research during their studies but traditional research.

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Traditional research is hinged on traditional education which Dewey (1938) conceptualizes as being focused on bodies of information and skills that are passed from one generation to another. Thus the teacher educators who are for traditional research have research techniques that are static. The teacher educators are expected to be progressive and consider the employment of the learners' experiences within the fluid learning environment of the learners. Action research incorporates experiential learning and is inclined to what Dewey (1938) termed progressive education. Notwithstanding the value of action research in contemporary education, some teacher educators inclined to traditional research tend to stifle the learners' interests in action research.

Background

Action research was introduced in Zimbabwean teacher education curriculum in 2009 by the University of Zimbabwe which is the accreditation institution of the diplomas in education. Before then, the teacher education students were expected to embark on only one type of research project which is traditional research. The over-arching goal of involving teacher education students in academic research is to prepare them to become creators of knowledge about the education phenomenon. The noble purpose of embarking on research is slowly dissipating in teacher education students since some students are made to develop an attitude of embarking on researches solely for the fulfillment of course requirements. They are made to take research as an end in itself. The teacher educators who are traditionalistic would want the student teachers to have experiences similar to the ones that they had even though the experiences would have become obsolete. Such experiences are what Dewey (1938) described as the miseducative experiences. Thus there are research projects that were done some time ago which are circulating viciously for a very deplorable purpose. They are being reproduced verbatim for the fulfillment of a course requirement of some teacher education students. The circulating research projects that are copied word for word are metaphorically referred to as "zvitunha" which means corpses. The projects are literally "dead" for nothing substantial is got from them. It seems these "academics" in the making are conscious of how retrogressive their practices are.

The students who embark on action research find themselves in some sort of a quandary. Some of the lectures are opposed to action research. These lecturers are what Ganzel (1998) refer to as the resistant educators. Dewey (1938) describes them as traditional educators who consider phenomenon as being static. The traditionalistic lecturers have adultistic tendencies that are characterized by behaviours and attitudes based on the assumption that educators are better than learners and are entitled to act upon the learners without their agreement (Checkoway, 2010; Bell, 1995). Thus the educators who are adultistic wield power over the learners and they tell the learners what to do and not do (Fletcher, 2006). There is disempowerment and repression of the learners (Bell, 1995). The traditionalistic educators do not readily accept innovations since they have *ephebiphobia*, fear of the youths. They are afraid to be put in a zone of incompetence (Tate and Copas, 2003).

Purpose of the research

The purpose of the study was to explain the attitudes and practices of the lecturers that tend to stifle the students' embarking on action research. Embarking on action research in teacher education is being promoted in many education institutions the world-over. In the United States of America, action research was formally introduced in the 1950s and is becoming a global contemporary trend for practitioner development (Ferrance, 2000). In Zimbabwe, the action research situation is worrisome in that its inception is amid socio-cultural, academic and political misconceptions. The unpacking of the misconceptions could help in designing intervention programmes for educators to facilitate students' embarking on action research. Thus action research could part of the panacea to making efficacious socio-economic reforms which require introspective and reflective practitioners. Such a caliber of practitioners can at best be developed from the focus on researches such as action research.

METHODOLOGY

Research problem

There is a strong suspicion that the educators' attitudes significantly contribute to students' choice of action research as the research option. Thus implicitly, educators either promote or stifle reflective practice in the student since reflective practice is inherent in action research. In Zimbabwe there is no explicit policy on reflective practice and action research formalizes reflective practice. Evaluation of the extent of reflective practice in teacher education is implied in the quality of the students' action research projects. In the wake of the situation in Zimbabwe, the research problem focused on how teacher educators in Zimbabwe stifle the development of reflective practice in the student teachers.

Miseducative experience

Miseducative experience is the set of conditions or procedures that impede continuing professional development and closes the student teacher off from continuous learning (Woodson, 1990). A miseducative experience stymies the growth of meaningful experiences. Some experiences are miseducative if they are disoriented from the learners' 'natural' experiences and cannot be readily transferred to the real life experiences of the learner (Dewey, 1938). Thus the educator can create a miseducative experience if the learners are denied the opportunity to be involved

in meta-cognition which enables them to anchor new knowledge onto prior experiences. In the diagnosis of the enclaves of a miseducative experience in education, Dewey came up with two modes of education which are the traditional and progressive education. Even though miseducative experiences can be detected in both modes, by and large they are inherent in traditional education since it does not incorporate enough experiential learning. Traditional education is rather insulated from the purposeful interactions with the world that give meaning to the world. The teacher in traditional education is concerned mainly with the impartation of 'refined' knowledge which is some cases is alien to the life experiences of the learners. The knowledge and skills that are considered requisite are handed down from the past when the teacher employs monological techniques. The learners are expected to be malleable, docile and receptive. Dewey contends that students must be made to feel a sense of purpose in their learning to avoid mental slavery which is characterized by pursuance of the purposes of the teacher.

Reflective practice

There are some traditions in teacher education that the traditionalists cherish since there is a culture that defines the acceptable ways in which goals and problems should be approached. One such tradition is the traditional research. In maintaining some traditions there are some routines that should continue without interruption and reality is perceived as unproblematic (Ferrance, 2000). Dewey (1933) made a distinction between reflective action and routine action. Routine action is that action which is guided by tradition, authority and the official definitions within an educational setting (Boud et al., 1996). In routine action, one considers means as problematic but takes for granted the ends toward which they are directed (Kemmis and McTaggart, 1988; Schon, 1987). On the other hand reflective action entails active, persistent and careful consideration of any belief or supposed form of knowledge in light of the grounds that support it and the further consequences to which it leads (Dewey, 1933:09). Reflective practice can be promoted when student teachers are afforded opportunities that allow students to think about their learning, their own lives, and the world around them. The learners become responsible for their own learning (Strong et al., 2001).

Action research

Action research is a quest for knowledge about how to improve on practice. The teacher researcher embarks on research to improve teaching skills, techniques and strategies. The value of action research is in the change that occurs in everyday classroom practice. Action research can be viewed as a tool for classroom practice reform (Ferrance, 2000).

Action research is a form of applied research which is done by practitioners to try to solve immediate problems in their working environments (Hoberg, 2001). An encompassing definition of action research is given by Kemmis and Mc Taggart (1988:05).

Action research is a form of collective self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own social and educational practices and the situations in which these practices are carried out. Thus action research bridges the gap between practice and research. It is within the framework of critical theory where there is stress that real-life testing should not be separated from scientific theory. The student teacher is encouraged to become a teacher-researcher. Thus action research becomes one of the field-based experiences of the pre-service teachers that needs to be encouraged to avoid miseducative experiences. There are three types of action research that namely; participatory action research,

practical deliberative and technical action research (Schulze et al., 2002). The type of action research ideal for the student teacher on teaching practice in Zimbabwe is participatory action research.

Participatory action research

Participatory action research has a critical intent that motivates action and interaction at all its stages and hence becomes particularly important in the development of theory (Masters, 1995). It does not begin with theory and end with practice but creates theory (McNiff, 2013; Hoberg, 2001).

Participatory action research deliberately recognizes that "individualization is not possible without socialization, and socialization is not possible without individualization" (Habermas, 1992b:26). Thus the students individually and collectively try to understand how they are formed and reformed as individuals, when they work together (or with lecturers) to improve processes of teaching and learning in the classroom. Thus through participatory action research the student teachers are enabled to examine their *knowledge* understandings, skills, and values) and interpretive categories (the ways in which they interpret themselves and their action in the education phenomenon. The student teachers get a handle on the ways in which their knowledge shapes their sense of identity and agency and to critically reflect on how their current knowledge frames and constrains their action. Participatory action research is important in the sense that student teachers can only do action research "on" themselves, either individually or collectively. It is *not* research done "on" others (Kemmis and Mc Taggart, 2000).

The student teachers who are engaged in action research examine the *social practices* that link them with others in educational interaction. It is a process in which student teachers explore their practices of communication, production, and social organization and try to explore how to improve their interactions by changing the acts that constitute them, that is, to reduce the extent to which participants experience these interactions (and their longer-term consequences) as irrational, unproductive (or inefficient), unjust, and/or unsatisfying (alienating). Participatory researchers aim to work together in reconstructing their social interactions by reconstructing the acts that constitute them (Ferrance, 2000).

One of the aims of participatory action research is help student teachers recover, and release themselves from, the constraints of irrational, unproductive, unjust, and unsatisfying *social structures* that limit their self-development and self-determination (Hendricks, 2006). It is a process in which people explore the ways in which their practices are shaped and constrained by wider social (cultural, economic, and political) structures and consider whether they can intervene to release themselves from these constraints or, if they cannot, how best to work within and around them to minimize the extent to which they contribute to irrationality, lack of productivity, injustice, and dissatisfactions (alienation) as people whose work and lives contribute to the structuring of a shared educational goal (Kemmis and Mc Taggart, 2000).

The other aim of participatory action research is to help people recover, and release themselves from, the constraints embedded in the traditions through which they interact-their language (discourses), their modes of work, and the social relationships of power (Ferrance, 2000). It is a process in which students deliberately set out to contest and reconstitute irrational, unproductive, unjust, and/or unsatisfying (alienating) ways of interpreting and describing their world, ways of working and ways of relating to others.

The third aim of participatory action research is to help student teachers investigate reality in order to change it and to change reality in order to investigate it (Hendricks, 2006). In particular, it is a deliberate process through which practitioners aim to transform their practices through a spiral of cycles of critical and self-critical

action and reflect

Participatory action research does not regard either theory or practice as preeminent in the relationship between theory and practice; rather, it aims to articulate and develop each in relation to the other through critical reasoning about both theory and practice and their consequences. It does not aim to develop forms of theory that can stand above and beyond practice, as if practice could be controlled and determined without regard to the particulars of the practical situations that confront practitioners in their ordinary lives and work. Nor does it aim to develop forms of practice that might be regarded as self-justifying, as if practice could be judged in the absence of theoretical frameworks that give them their value and significance and that provide substantive criteria for exploring the extent to which practices and their consequences turn out to be irrational, unjust, alienating, or unsatisfying for the people involved in and affected by them (King and Nel, 2002). Thus, participatory action research involves "reaching out" from the specifics of particular situations, as understood by the people within them, to explore the potential of different perspectives, theories, and discourses that might help to illuminate particular practices and practical settings as a basis for developing critical insights and ideas about how things might be transformed (Kemmis and Mc Taggart. 2000). Thus, participatory action research aims to transform *both* practitioners' theories and practices *and* the theories and practices of others whose perspectives and practices may help to shape the conditions of life and work in particular local settings.

Critical pedagogy

Critical pedagogy is the term that critical theorists use for critical theories of education (Higgs and Smith, 2002). The term pedagogy means the theory and practice of teaching (Higgs and Smith, 2002:38). The term "critical" in critical pedagogy is a valued educational goal. It urges teachers to help students become more skeptical towards commonly accepted truisms (Popkewitz and Fendler, 1999:217). Critical pedagogy refers to the theory and practice of education as understood by the critical theorists (Higgs and Smith, 2002:88; Wiesen, 2014; 21st Century Schools, 2010).

According to McLaren (1987) cited in 21st Century Schools (2010), critical pedagogy resonates with the sensibility of Hebrew symbol of "tikhun" which means to heal, repair and transform the world. In other words, the education systems provided in schools the world over is faulty in one way or the other. According to critical pedagogy, schools and teaching do not educate learners at all. In schools, learners learn to accept the power structures of their society (Degener, 2007; Higgs and Smith, 2000:89).

Critical pedagogy emphasizes on the critiquing of what happens in the schools. Thus it can be considered as a domain of education and research that studies the social, cultural, political, economic and cognitive dynamics of teaching and learning (Freire Project, 2010; 21st Century Schools, 2010). In the context of this study, critical pedagogy is considered handy critiquing the dominant, conservative, and traditional research.

Empirical investigation

The qualitative research methodology was employed in the generation of data. The research paradigm that guided the study was social constructivism. A paradigm is a world view or a basic set of beliefs that guide action (Cohen, Manion and Morrison, 2011; Guba, 1990: 17). The social constructivist paradigm is closely intertwined with interpretivism which develops subjective meanings from the respondents' experiences (Creswell, 2007: 20). Thus the focus of the research was to seek an understanding of the world in which the respondents live. The research design for this study was phenomenology. A research design is a plan, recipe or blueprint that describes the conditions and procedures for generating data (Schulze, 2002: 04; Mouton 2011:42).

The aim of phenomenology is to understand the lived experiences of the respondents. These lived experiences were expressed empirically (that is as free as possible from theoretical constraints), in the respondents' own words (O'Leary, 2010:271; De Vos et al., 2011:295). Thus phenomenology attempts to penetrate illusions of situations of experiences in order to get to the reality underlying that illusion (Higgs and Smith, 2002:67). The researcher was interested in the essence of a situation or experience (that is what the situation is all about). In phenomenology, researchers generally use interviews (Hoberg, 2001:52). Nine lecturers who sampled purposively were interviewed and their responses were audio-taped. The lecturers had all their supervisees doing traditional research. In interviews there are generally two voices of interpretation of situations or experiences. The voices of interpretations are of the respondents and that of the researcher. The respondents' interpretations of experiences in their own words are known as the *emic* interpretations. The method of Johnson and Christensen which is about the thematic approach was used for the analysis of the interview transcripts. The method is analytic on the *emic* (respondents') interpretations of experiences and thus provides the basis for more accurate *etic* interpretations (that is the researchers') interpretations (Johnson and Christensen, 2008:356; Slavin, 2007:356; Steyn et al., 2004:56; Hoberg, 2001:68).

RESEARCH FINDINGS AND DISCUSSION

The research findings show that the ways in which the teacher educators stifle students' interests in embarking on participatory action research can be considered in three types of miseducative conceptions and practices that are; academic, socio-cultural and political.

Academic miseducative conceptions

When asked about her perceptions on participatory action research, one of the lecturers remarked, *"At times you are made to wonder whether students have the capacity to produce any knowledge, some theories are ever relevant to our situation"*. The lecturer showed some orientation in technical rationality which gives supportive or disputative reasons about an issue when making reference to some theories or age-old experiences (Schon, 1987). In other words she is not inclined to phenomenological thinking which encourages educators to put all theories aside. According to phenomenology the educator should consider reality as it is (Higgs and Higgs, 2000). Reality is contextual so the context of the student teacher is important. In fact the teacher educator was implying that the important knowledge about education was created long ago. The implication is that the student teacher cannot generate even procedural knowledge about his or her teaching of particular learners.

One of the lecturers who were interviewed remarked, *"I have been in teacher education for the past twenty years. What do you think this action research thing can do to teacher education?"* The remarks by the lecturer imply that he had established some immutable truths in teacher education. The lecturer is not an adherent of the

"principle of falsification" which contends that there are no truths that are absolute. The number of years in teacher education could be misleading. One is likely to be biased to think that the number of years is commensurate with the quality of teaching. If the lecturer has been doing the same things over and over again, then he has professionally speaking, one year experience. Experience should not be considered as what happens to the lecturer but what the lecturer does with what happens to him. If the lecturer had investigated his teaching experiences each and every year, he could have developed professionally to the extent that he would appreciate the role of participatory action research to professional growth.

One of the lecturers also declared, *"I wouldn't like my supervisee to choose action research. It is a mere waste of time. The so-called cycles show that one is in confusion".* The response by the lecturer shows that some lecturers are obstacles to the professional growth of the students. The lecturers should be seen to be promoting critical pedagogy to show that they are experienced.

The other lecturer opined, *"Action research is a cul-de-sac in academia. The student who does it cannot do research at university level. One would be lacking the basics of research."* The lecturer is very much likely to propagate such academic injurious opinions to the students. This could be worse than what Dewey (1938) referred to as the miseducative experiences

One of the lecturers declared, *"The findings are useless since they are subjective and cannot be generalised."* The assertion that action research findings cannot be generalised is common among critiques (De Vos et al., 2003). The objectivity that is claimed by the logical empiricists is simply an ideal. It is very hard to come by objectivity in any research. What is important in all research work is systematicity. A perfect example of the importance of systematicity is the research by Jean Piaget the psychologist. He systematically studied only three children and generated theory that is almost universally accepted. If the teacher-researcher systematically studies his/her practice with the pupils he/she may come up with theories that could be used in other similar situations.

The other lecturer pronounced, *"But what is boring about traditional research is that some students look for a "chitunha". It's very disheartening to mark a research project that you previously marked."* The remarks by the lecturer imply that there are some students who do not produce original work in the research projects. There is a lot of cheating that goes on about research projects that are traditional. Participatory action research has the potential of minimizing cheating. The student teacher is compelled by the requirements of participatory action research to generate authentic data. The interviews can be audio-taped and the observations can be video-taped. The authentic data generated most likely lead to

producing original research projects. The student teacher thus learns by doing. Ferrance (2000) considers participatory action research as learning by doing. Through participatory action research, the students also learn how to learn. This phenomenon of learning how to learn is referred to by Brookfield (1985) as 'mathetics'. One learns how to learn when one learns by doing.

Political miseducative conceptions

One of the lectures remarked, *"Don't forget that action inception of action research is donor funded. Some donors have ulterior motives. So the action research thing should be considered with some dose of skepticism."* The lecturer was exposed to colonial education and is skeptical about the virtue of participatory action research.

Some teacher educators often have the trouble with the political dimensions and the basic notion that education can be hurtful to particular students (Groenke and Hatch, 2009). The student who would have been indoctrinated "well" would embrace the education ideologies as good since their support of ideologies makes them succeed in education. Thus the educators once exposed to colonial education think that the donor funded programmes in a politically closed state work to reproduce a "rational irrational education" (Groenke and Hatch, 2009). The lecturer was to some extent a victim of the halo effect and technical rationality. Not all programmes funded by some foreign organisations could be insidious.

Socio-cultural miseducative conceptions

When asked about how they viewed action research, one of the lecturers postulated that they found it irrelevant to their situation. *"I find it confusing, irrelevant and boring. It's out of the works of the so-called contemporary innovators who want to derail the veteran academics"* The lecturer is adultistic and traditionalistic and as such does not readily accept innovations since he has *ephebiphobia*, fear of the youths. He is afraid of being put in a zone of incompetence (Tate and Copas, 2003).

One of the lecturers posited, *"Action research throws me in the incompetence zone. How can I teach students when I am still learning"*. The remark implies that the lecturers need intensive coaching on the theory and practice of action research. Lecturers could be resisting action research due to lack of knowledge. According to Hoberg (2001: 124), "The best way to understand action research is to do it." The lecturers are encouraged to embark on action research themselves in order to be able to advise the students on how to carry out action research.

The other lecturer remarked, *"Nothing new is going to come out of action research. You only re-invent the*

wheel. I have seen it all in teacher education." The implication of the remark is that one should not labour with investigations since all important theories have been discovered. The implication is however fallacious. Theory is always generated from particular practice. This is what critical theorists refer to as praxis (Higgs and Smith, 2002). In fact all the theories there are have been generated from particular contexts and have then been generalised. That is why some theories have been found not perfectly applicable to some situations. There is then a dire need to investigate those finer nuances that do not fit perfectly in the generalized theories.

The lecturer's view is the antithesis of the view by Ferrance (2000) who says that research done by the students, in the setting with which they are familiar helps to confer relevance and trustworthiness to a study. Thus the study on which the student teacher embarks on is about the immediate problem in his/her working environment creates contextual knowledge.

Conclusion

Action research in teacher education colleges has the potential to realize many goals at institutional, national and global levels. There are three types of action research and of these, participatory action research is ideal for student teacher in Zimbabwe. The overarching thrust of participatory action research is reflective practice that promotes introspection which subsequently promotes professional growth. The development of student teachers' interests in participatory action research in teacher education colleges is being stifled by some miseducative perceptions and some die hard traditions. The miseducative perceptions can be put in three categories that are; academic, political and socio-cultural. The lecturers are generally traditionalistic thus being conservative when it comes to the student teacher to make a choice of the type of research to embark on. The lecturers tend to be prescriptive and show adultistic tendencies. By and large some lecturers discourage their research-supervisees to embark on action research.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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Full Length Research Paper

Secondary school teachers' perceptions on their school's openness to change

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Any possible difference to occur in the subsystems or dimensions of the organization or the interrelations between them is called organizational change. Organizational change means an organization's adapting a new way of thinking or an action. In this sense, change is such a comprehensible term that includes all events and phenomena related to creativity, renovation, growth and development. The purpose of this research is to investigate the secondary schools' openness to change based on the views of teachers. This is a descriptive research in which both qualitative and quantitative data gathering techniques were used. The sampling group of the study consists of 105 teachers working at 9 secondary schools in the districts of Nilüfer and Osmangazi of Bursa province in 2015 to 2016 academic year. In order to determine the secondary schools' openness to change, the Faculty Change Orientation Scale (FCOS) which was developed by Smith and Hoy (2007) and adapted into Turkish by Demirtas was used. For the analysis of the quantitative data, descriptive statistics which are Anova and Kruskall Wallis were used. To analyse qualitative data, content analysis technique was used. As a result of the research, it was found that the secondary schools' scores from different dimensions of the scale differ significantly with regard to gender, seniority, and last higher education program the teacher graduated from, years at current school and union membership.

Key words: Openness to change, change, teacher, secondary school.

INTRODUCTION

Change is one of the most important and common concepts in the globalizing world of the 21st century. It is possible to experience change in every aspect of life in today's globalizing world. Before going into any further details, it might be useful to define what change means.

According to Hargreaves (2004) "change is defined as

movement from one state to another". From another point of view (Konaklı, 2014) suggests that "change refers to a shift from previous qualitative or quantitative characteristics in a planned or unplanned way".

Altrichter (2000) states that change is a term that can be used to describe an improvement process and the results of this process. In addition, these products and

processes have a lot of different parts and small details that fit together. It can be said that organizations must always change and renovate themselves in order to survive, be more productive, reach their goals more effectively and have a creative and competitive capacity. Any possible difference to occur in the subsystems or dimensions of the organisation or the interrelations between them is called organizational change. Every aspect of life is affected by change.

Organizations' ability to catch up with the change determines their existence. With this knowledge in mind, it can be said that without adapting itself to the changing environment, it is implausible to think that organizations or institutions will continue to exist and achieve their goals. Organizational change is a purposeful initiative. From an organizational perspective, change has general aims which include being ready for the future, enabling organization members to have a mutual trust and support, and a good rapport among each other. The other aims involve delivering solutions to problems or issues and creating synergy. For organizations, change is inevitable; however, the attempts which are made to realize change in organisations result in failure. Organization members react differently to change at times of change.

The impact of changing demands can easily be seen on educational institutions and schools, as well as other institutions and organizations. As an open system on its own, it is more likely that schools have got a fragile structure towards those change claims. In addition, school as an educational institution is more open to the environmental forces of change than other organizations, since, it processes its raw material, human being, considering the social expectations and again supplies its output into the same society. As educational institutions, schools have to possess a multifunctional structure which is always open to renewal; produce, use and promote knowledge; provide confidence thanks to team work; open for 24 h a day; meet the society's emerging needs; and aim at developing free and creative thinking students (Kalmaz, 2007).

With all types of organizations, educational organizations are influenced by global changes in science, psychology and technology. It is leaders who primarily facilitate and lead the change in the process. In this regard, teachers are primarily the most important people to lead the change in educational organizations. As teachers are people who are going to support and enhance the change, their views are quite important. Educational institutions have to keep up with the demands of the ever-changing environment to survive in this globalizing world. Considering that, it might be possible to say that the future of educational institutions will be determined by their ability to realize their change process effectively.

Openness to change represents a situation marked by the tendency, readiness and willingness (Wanberg and Banas, 2000). Researches that have been conducted to investigate openness to change (Harris, 2001, 2006, 2009, 2011; Hopkins, 2003, 2007; Levin, 2007; Murphy, 2005; Priestley, 2011; Seashore, 2009; Sergiovanni, 2000; Stoll, 2009; Wheatley, 2006) which show that openess to change is related to a lot of different factors. One of the potential variables affecting the success of change at schools is teachers' (Çalışkan, 2011; Demirtas, 2012; DePaulo, 2000; Griffith, 2010; Ha et al., 2004; Lee, 2000; Moroz ve Waugh, 2000; Waller, 2008).

Employees' attitudes towards change must be known before beginning organizational change studies. Thus, possible resistance can be prevented and planning, implementation and evaluation studies can be done in accordance with the attitudes of the employees. It can be said that the success of a change process is proportional to the organization's employees' openness to change. This also applies to the school organisations. The success of change practices in schools, depends on the acceptance and adaptation of those practices of the administrators and teachers of the school.

Teacher is the most critical element of education system. Change relies heavily on the willingness of individuals to change and their positive ideas as to its potential consequences (Tal and Yinon, 2002; Tasdan, 2013; Demirtas, 2012; Yilmaz, 2010; Altun and Buyukozturk, 2011; Akpinar and Aydin, 2007; Hall, 2005; Voorhis and Sheldon, 2004; Konaklı, 2014, Wanberg and Banas, 2000).

It can not be expected that the results of change will be positive for an organization with employees who do not believe in the necessity of change. Studies have demonstrated how influential teachers who are willing to change are in the success of changes. In this study, the main purpose was to determine openness to change of secondary schools based on teacher opinions on the success of change. It is important that the teachers who are practitioners of change in education should be aware of change.

The purpose of this study is to determine the secondary schools' openness to change based on teachers' views. The following research questions were posed in accordance with this overarching purpose:

1. What is the level of secondary schools' openness to change according to teachers' views?
2. Is there a meaningful difference between teachers' views about schools' openness to change according to their gender, branch, seniority, graduated faculty, in service training experience and union membership?

METHODOLOGY

Sample and population

A descriptive approach was used in the present study in which the data were collected with both quantitative and qualitative methods. A total of 105 teachers from 9 secondary schools in Bursa, Turkey were the sample of the study in 2015 to 2016 academic year. Each

Table 1. Personal information for quantitave data.

Variable		Frequency (f)	Percentage (%)
Gender	Female	70	66.6
	Male	35	33.3
Branch	Verbal	29	27.6
	Numerical	60	57.1
	Other	16	15.2
Graduated faculty	Education faculty	64	60.9
	Faculty of arts and sciences	41	39.0
Seniority	1-5 years	13	12.3
	6-10 years	34	32.3
	11-15 years	51	48.5
	16- years and more	7	5.6
In service training	Yes	78	74.2
	No	27	25.7
Union membership	Yes	85	80.9
	No	20	19.0

subject was given the questionnaire by the researcher directly with a set of specific instructions describing the study. The personal data about the sample is given in Table 1.

33.3% (n=35) percent of the group was composed of males and 66.6% (n=70) females. The number of years of teaching varied considerably. Branches of teachers were categorised under three headings including numerical, verbal and others. Social sciences, English language, Turkish language, and such, were categorised under the heading of "verbal".

The branch "numerical" included courses such as science and mathematics. The last category "others" was composed of courses like information and communication technology, physical education, music, arts, education of religion and ethics. Among the teachers 57.1% of the participants were numerical branch teachers (n=60), 27.6% verbal branches (n=29) and 15.2% other branches (n=16). 60.9% of the teachers (n=64) have an undergraduate degree in education faculties whereas 41% have an undergraduate degree from faculty of arts and sciences (n=41).

While 74.2% (n=78) have in service training experiences in the last 5 years 25.7% (n=27), others do not. In terms of tenure, 12.3% (13) of teachers have 1 to 5 years, 32.3% (34) of teachers have 6 to 10 years, 48.5 (51) of teachers have 11 to 15 years, 5.6% (7) of teachers have 16 and more years. 74.2% of the teachers (n=78) attend inservices training whereas 25.7% do not (n=27). 80.9% (n=85) of the sample affiliates a union and 19.04% (n=20) do not.

For qualitative analysis an interview was held with 19 teachers. 8 of the interviewed teachers were female whereas 11 were male, 9 participants had 1 to 5 years experience, 5 participants had 6 to 10 years experience, 4 participants had 11 to 15 years experience and 1 participant had 16 and more years of experience.

In terms of graduated faculty, 8 of the teachers were from Faculty of Sciences Letters whereas 11 were from Education faculties. 4 of the participants were numerical branches, 12 of the teachers were verbal branchers and 3 were other branches with regard to branches. 12 of the interviewees had in-service training, 7 others

did not have any in service training during their teaching career. 14 of the interviewees had union memberships and 5 of them did not. As the privacy rules, the participants are coded as T1 to T19 (Table 2).

Measures

The data were collected through Faculty Change Orientation Scale – (FCOS), Personal Information Form and interviews. The FCOS was translated into Turkish by Demirtas (2012). Opennes to change scale consists of 14 items and 3 factors. These factors of the scale are 'academic staff openness to change," "principal openness to change and "community pressure for change."

On the other hand, Cronbach alpha reliability coefficients for present study were; α= 0.73 for the 'academic staff openness to change" dimension; α = 0.78 for the "principal openness to change" dimension and α =0.70 "community pressure for change" dimension. The dimension "faculty' openness to change" contains five questions as to the extent to which teachers are open to change and how they view change. Some of these questions are "in this school, faculty welcomes change, teachers in this school readily accept changes to new rules and procedures."

The second dimension involves six questions that measure principals' openness to change. These questions include "In this school, the principal is committed to major change; "the principal in this school embraces new change initiatives." The third dimension comprised of three questions designed to identify the school environment's pressure for change. Community pressure for change can be considered as "strong pressure from community and community to change school policy and influence the functioning of the school". These questions include, "faculty in this school is open to ideas of the community. Most community members are happy with their schools. "Whereas, the first part of the questionnaire contained questions as to the participant teachers' personal

Table 2. Personal information for qualitative data.

Variable	Gender	Union membership	Inservices training	Branch	Graduated faculty	Seniority
T1	Female	Yes	Yes	Numerical	Education	1-5 years
T2	Male	Yes	Yes	Numerical	Education	1-5 years
T3	Female	Yes	No	Numerical	Arts and Sciences	6-10 years
T4	Male	No	Yes	Numerical	Education	16years and more
T5	Female	Yes	No	Numerical	Arts and Sciences	6-10 years
T6	Male	Yes	Yes	Numerical	Education	1-5 years
T7	Male	No	Yes	Verbal	Arts and Sciences	1-5 years
T8	Female	Yes	No	Numerical	Education	1-5 years
T9	Female	No	No	Verbal	Arts and Sciences	11-15 years
T10	Male	Yes	No	Others	Arts and Sciences	1-5 years
T11	Male	No	Yes	Numerical	Arts and Sciences	1-5 years
T12	Male	Yes	Yes	Numerical	Arts and Sciences	11-15 years
T13	Female	Yes	No	Others	Education	1-5 years
T14	Female	Yes	Yes	Numerical	Arts and Sciences	11-15 years
T15	Male	Yes	Yes	Numerical	Education	1-5 years
T16	Male	Yes	Yes	Others	Arts and Sciences	6-10 years
T17	Female	No	No	Numerical	Education	6-10 years
T18	Male	Yes	Yes	Numerical	Education	6-10 years
T19	Male	Yes	Yes	Numerical	Education	11-15 years

information, the second part was based on the items of the schools' openness to change scale. Participants were asked to express their thoughts in 'I absolutely disagree,' 'I disagree,' 'I partly agree,' 'I agree' and 'I absolutely agree' with 5 point Likert type scale. The high score on the scale shows the school's change-of-openness, while the low indicates the opposite.

Data collection

Teachers and school administrators were contacted through site visits to each school and provided with a permission letter from the National Ministry of Education for the research and a letter explaining the study. It was explained to teachers that their participation in the study was completely voluntarily. Once verbal consent was received from the principals, arrangements were made with teachers to give detailed information about the study and the FCOS. The teachers returned the FCOS to the researcher within one week. The sample for this study was selected according to random sampling method.

The qualitative data were collected through a researcher-designed semi-structured interview and the sample was asked about their school openness to change, 19 voluntarily participant teachers were interviewed in depth, on an individual basis lasting approximately one hour for each. The original interview schedule was first pilot-tested with three teachers working in a different secondary education school.

After each interview, interviewee's comments were elicited, followed by a number of fundamental modifications in the schedule. During the interviews conducted by the researcher, the synonyms of change in Turkish were listed, and then openness to change was explained in detail. The following questions were asked:

1. Do you think that teachers are open to innovation?
2. How are the other teachers' attitudes towards teachers open to

innovation and trying to implement these innovations?
3. Are the manager, the teacher, the community open to the innovations the time has brought?
4. In which areas are your school easier to change?
5. Will the community make an effort to enable the change at school?
6. Which branch of teachers is most committed to change?
7. Do you think this school will change?

Data analysis

The Shapiro-Wilk test was used to find out whether the data show normal dispersion or not. For the data showing normal dispersion, t-test and one-way analysis of variance were applied. For the variables that were found significant, Turkey HSD test was used to make comparisons across groups.

For the data that did not disperse normally, Mann-Whitney U and Kruskal Wallis tests were used. The relationships among the variables were investigated using the co-efficient of Spearman correlation. The significant level was found to be $\alpha=0.05$. For the statistical analysis of the quantitative data, statistical package for social sciences (SPSS) 13.0 was used.

The data gathered from the interview forms was first transferred to Microsoft Office. After that, the data was read several times by the researchers and codes were formed accordingly. Afterwords codes were brought together and the themes that form the main line of the research were found.

Lastly, descriptive analysis was used to analyse the interviews. Descriptive analysis involves identifying coherent and important themes and during the interviews by using the word processor program; the responses of the participants were cut and pasted under each category. After that, thematic similarities and differences were identified under each category.

Table 3. Descriptive statistics related to FCOS.

FCOS subscales	Lowest	Highest	X	Level	SS
Academic staff openness to change	5	25	15.80	Moderate	5.52
Principal openness to change	6	30	16.12	Moderate	6.34
Community press for change	3	15	5.90	Low	3.12
Total	20	69	42.20	moderate	10.42

Table 4. Descriptive statistics related to FCOS and gender.

FCOS subscales	Gender	N	X	Ss	t	p
Academic staff openness to change	Female	70	15.05	0.61	0.805	0.54
	Male	35	14.45			
Principal openness to change	Female	70	17.1	0.74	1.58	0.03
	Male	35	17.94			
Community press for change	Female	70	10.02	0.44	1.41	0.02
	Male	35	9.48			
Total	Female	70	42.14	0.47	0.25	0.70
	Male	35	41.86			

RESULTS

The quantitative and qualitative findings of this research is presented in six main parts as openness to change according to gender, branch, seniority, graduated faculty, inservice training experience and union membership. The level of secondary school teachers' openness to change is given in Table 3.

When the teachers are examined in terms of the openness to change, it is seen that the lowest score is 5 and the highest score is 25. According to the results of the analysis, teachers views about openness to change is moderate level on academic staff openness to change subscale (X=15.80).

In terms of principal's openness to change, the lowest score is 6 and the highest score is 30. The teachers participating in the study stated that moderate level expressions on principal openness to change subscale (X=16.12) and in terms of community press to openness to change, the lowest score is 3 and the highest score is 15.

In the present research, the level is found low on tahat subscale (X= 5.90). When the teachers are examined in total, it is seen that the lowest score is 20 and the highest score is 69. Teachers participating in this research declared that secondary school teachers are open to change at moderate level (X=42.20) (Table 4).

According to the results of the analysis, teachers views about openness to change do not show a significant difference according to participants' gender (t(103)=0.25, p=0.70). The female have higher mean score (X =42.14) than the male about openness to change (X=41.86). Although female teachers (X=15.05) have more positive views of academic staff openness to change than male teachers (X=14.45), there is not any statistically significant difference.

There was a significant difference between the participants in their views of principals' openness to change (t(103)=1.58, p=0.03). More male teachers (X =17.94) than female ones (X=17.10) reported that principals were open to change. Similarly, there was a significant difference between male (X=9.48) and female (X=10.02) teachers in their views of the community's press for change (t(103)=1.41, p=0.02). Female teachers (X=10.02) reported more positive ideas than male (X=9.48) ones on community press for change subscale.

There was no statistically significant difference between teachers in the scale of FCOS according to gender. Female teachers have high mean scores than the male in openness to change. During the interviews many female teachers mentioned that:

"Female teachers are more open to change because genarally the female have more negative views of the status quo"(T1, T3, T8, T9)

whereas male teachers expressed their opinions as:

"*Teachers are not open to change at all. They do not*

Table 5. Descriptive statistics related to FCOS and branch.

FCOS subscales	Branch	N	X	Ss	F	p	Significancy
Academic staff openness to change	Verbal (A)	29	14.65	4.13			
	Numerical(B)	60	14.95	4.37	7.951	0.000	A-B//B-C
	Others (C)	16	14.35	4.25			
Principal openness to change	Verbal (A)	29	18.66	2.69			
	Numerical(B)	60	18.42	2.27	4.422	0.014	A-B
	Others (C)	16	14.16	2.83			
Community press for change	Verbal (A)	29	9.42	3.96			
	Numerical(B)	60	8.94	4.15	2.951	0.063	
	Others (C)	16	10.83	4.87			
Total	Verbal (A)	29	41.3	3.12	0.423	0.046	A-B/A-C/B-C
	Numerical(B)	60	42.42	3.65			

update themselves. They do not keep track of what's happening in education "(T2, T4, T6, T18).

On some points of views both male and female teachers have similar opinions about the faculty's openness to change as

*"the main reason for not being warm to change is that teachers do not want to change their job descriptions, job routines, and working hours" (*T1, *T4, T6, T10, T13, T15, T16, T18, T19).*

During the interviews, many female teachers mentioned that:

"female teachers are more open to change because genarally the female have more negative views of the status quo"(T1, T3, T8, T9).

whereas male teachers expressed their opinions as:

"*Teachers are not open to change at all. They do not update themselves. They do not keep track of what's happening in education "*(T2, T4, T6, T18).

On some points of views both male and female teachers have similar opinions about the faculty's openness to change as:

*"the main reason for not being warm to change is that teachers do not want to change their job descriptions, job routines, and working hours" (*T1, *T4, T6, T10, T13, T15, T16, T18, T19) (Table 5).*

Test results showed statistically significant difference among the mean scores of teachers from different branches on Academic staff openness to change (F=7.951, p=0.00). The significant difference is among verbal teachers (X=14.65) and numerical teachers (X=14.95) and numerical teachers and other teachers (X=14.35).

Among all branches numerical teachers have more positive views towards academic staff openness to change sub scale. On principal openness to change subscale there is a meaningful significant difference between verbal (X=18.66) and numerical (X=18.42) branch teachers (F=4.422, p=0.01).

On communitys press for change subscale though there is not any significant difference between branches (F=2.951, p=0.06) other branch teachers have more positive (X=10.83) perceptions than the numerical (X=8.94) and verbal (X=9.42) branches. On overall, there is significant difference among all branches (F$_{(4-100)}$=0.423, p=0.04). The mean scores are verbal (X=2.95), numerical (X=3.03) and others (X=2.84) respectively. Numerical branch teachers declared that:

"*The parents are not aware the importance of change. They do not want to take responsibility for change. They wait all the effort from school and teachers. The community will not make an effort for change* (T3; T8; T11; T15, T19) (Table 6).

Although there is not any significant difference on "Academic staff openness to change" subcale (F$_{(4-100)}$=0.736, p>0.05). The most senior teachers expressed a more positive opinion of "academic staff openness to change". Regarding the subscale of "principal openness to change" ($\chi^2_{(4)}$=6.853, p>0.05), compared with others, teachers with 6 to 10 years of experience delivered a more positive opinion of "principal openness to change".

On **"**community press for change" subscale (F$_{(4-}$

Table 6. Descriptive statistics related to FCOS and seniority.

FCOS subscales	Seniority	N	X	Ss	X2	p
Academic staff openness to change	1-5 years (A)	13	14.8	2.64	0.736	0.570
	6-10 years (B)	34	14.8	2.83		
	11-15 years (C)	51	15.7	2.77		
	16years and more(D)	7	16.0	3.72		
Principal openness to change	1-5 years (A)	13	17.58	3.36	6.853	0.411
	6-10 years (B)	34	17.88	3.57		
	11-15 years (C)	51	16.14	5.30		
	16years and more (D)	7	15.66	3.35		
Community press for change	1-5 years (A)	13	9.75	3.12	1.179	0.325
	6-10 years (B)	34	9.84	4.06		
	11-15 years (C)	51	12.00	3.80		
	16 years and more (D)	7	10.26	4.78		
Total	1-5 years (A)	13	42.14	2.84	0.473	0.755
	6-10 years (B)	34	4242	3.10		
	11-15 years (C)	51	41.72	2.76		
	16 years and more (D)	7	43.68	2.81		

$_{100)}$=1.179, p>0.05) teachers with 11 to 15 years of experience reported a positive opinion. No significant difference was observed between the averages of the groups regarding the whole of the measuring instrument ($F_{(4-100)}$=0.473, p>0.05) and teachers who have the most experience (X=43.68) presented a more positive view.

The findings revealed by the present study are that those teachers with a length of service ranging between 1 to 10 years had more negative views of schools' openness to change when compared to those with a length of service varying from 10 to more years. During the interviews, without any seniority especially young teachers have expressed the difficulty in creating change at school, using expressions such as:

"*Everything at our schools is old-fashioned and outdated. It is too difficult to make changes at the schools. It seems that teachers are the most resistant group of professional to the change. Teachers think that they know everything and they do have a negative point of view against chance. I think that there is no difference between the time I was a student and the present in terms of teachers and schools. Everything is the same.* (T1; T2; T5; T7; T8; T15;)

Another reason why teachers are not open to change according to the views of the teachers is as follows:

"*Teachers who are open to newness are not welcomed and accepted by others.*"(T5; T7; T10; T11; T12; T13) "*Teachers seeking change is not welcomed by other teachers. Teachers who support and want the change are seen like people who are keen on impressing their principals and trying to make themselves stand out in the eyes of other teachers.*" (T3; T5; T11; T13; T17; T18)

Although, the teachers between 6 to 10 years experienced believe that principals are open to change;

"*In fact, if regulations allow principals they can be more open to change. If this change is positive, it will be very useful for future of principals*" Professionally they will be able to progress much more easil and quickly (T3, T5, T16, T18); some teachers declared that "*The principal do not really want radical changes because they do not want to lose authority and power. It is more comfortable for them to maintain usual practices.* "*(T4, T5, T12, T19)* (Table 7).

According to the results of the analysis, teachers views about openness to change do not show a significant difference according to participants' graduated faculty (t(103)=1.065, p=0.70). The analysis suggests that education faculty graduates have higher mean score (X =16.9) than graduates of faculty of arts and sciences (X=15.65).

Although education faculty graduated teachers (X=16.9) have more positive views of academic staff

Table 7. Descriptive statistics related to FCOS and graduated faculty.

FCOS subscales	Graduated faculty	N	X	Ss	t	P
Academic staff openness to change	Education	64	16.9	0.14	2.307	0.63
	Arts and Sciences	41	15.65			
Principal openness to change	Education	64	17.1	0.27	-1.346	0.56
	Arts and Sciences	41	17.82			
Community press for change	Education	64	9.96	0.41	1.676	0.03
	Arts and Sciences	41	7.62			
Total	Education	64	42.84	0.32	1.065	0.70
	Arts and Sciences	41	39.62			

Table 8. Descriptive statistics related to FCOS and inservice training**.**

FCOS subscales	Inservices training	N	X	Ss	t	P
Academic staff openness to change	Yes	95	14.8	1.25	0.814	0.074
	No	10	15.7			
Principal openness to change	Yes	95	17.46	2.64	0.631	0.058
	No	10	16.92			
Community Press for Change	Yes	95	9.84	2.18	0.251	0.063
	No	10	9.69			
Total	Yes	95	42.14	3.10	-0.117	0.082
	No	10	42.28			

openness to change than the graduates of Arts and Sciences faculty (X=15.65), there is not any statistically significant ($t_{(103)}$=2.307, p>0.05). There was not a significant difference between the education and arts and sciences graduates participants in their views of principals' openness to change (t(103)=-1.346, p>0.05).

More arts and science faculty graduates (X =17.82) than education faculty graduates(X=17,10) reported that principals were open to change. However, there was a significant difference between education faculty graduates (X=9.96) and arts and sciences graduates (X=7.62) teachers in their view of the community's press for change ($t_{(103)}$=1.676, p<0.05).

According to the graduated higher education institution, the opinions of the secondary school teachers about the change of schools are significantly different from each other. Education faculty graduates teachers have optimistic views about faculty's openness to change:

In fact, teachers are very open to change if the system is suitable. It is not *possible for us to train new generation students according to old methods and patterns.*

Technology, the more active the children, the easier it is to reach the information, the teachers have to change and they change it in the way they see it (T1, T6, T13) (Table 8).

According to the results of the analysis, teachers view about faculty's openness to change do not show a significant difference according to either the participants have inservice training or not in recent 5 years (t(103)=0.814, p=.74).

The analysis suggests that the teachers who do not have inservices training have higher mean score (X =15.7) than the ones who have not (X=14.8). Although there is not any statistically significant difference ($t_{(103)}$=0.631, p=0.058) the teachers who have inservices training (X=17.46) have more positive views of principal openness to change than the ones who do not have (X=16.92).

In their views of communitys openness to change ($t_{(103)}$=0.251, p=0.63). More inservices training experinced teachers have more positieve views (X =9.84) than the ones who do not (X=9.69).

Table 9. Descriptive statistics related to FCOS and union membership.

FCOS subscales	Union membership	N	X	Ss	t	p
Academic staff openness to change	Member	85	15.7	0.47	1.66	0.034
	Non member	20	14.8			
Principal openness to change	Member	85	17.46	0.57	1.06	0.000
	Non member	20	16.92			
Community press for change	Member	85	9.84	0.78	1.32	0.026
	Non member	20	9.69			
Total	Member	85	42.28	0.29	0.879	0.001
	Non member	20	42.14			

Similarly, there was not a significant difference between the groups of inservices training expeienced (X=42.14) and non experienced ones (X=42.28, p=0.082). The teachers who have inservices training in the last 5 years reported positive views of principal's openness to change. 4 teachers who have inservice training expressed similar views:

"*If enough effort is made, many things will change in school. Teachers and community really change very much. Community are able to make a lot of sacrifices if this change is to the benefit of the students*" (T6, T11, T14, T16) (Table 9).

According to the results of the analysis, teachers view about facult's openness to change shows a significant difference according to participants' union membership (t(103)=1.66, p=0.034. The analysis suggests that the teachers who are members of a union have higher mean score (X =15.7) than the ones who do not (X=14.8).

There is statistically significant difference (t(103)=1.06, p=0.00) between union member teachers (X=17.46) and non member ones (X=16.92), on principal's openness to change. There was a significant difference between the participants in their views of community's openness to change (t(103)=1.32, p=0.026). More union member teachers (X =9.84) than the ones who do not (X=9.69).

Similarly, there was a significant difference between union member teachers (X=42.28) and non (X=42,14) in their view of the teachers openness to change (t(103)=0.879, p=0.001). Union member techers have expressed a positive opinion on the issue of change on faculty, principals and the community. It is thought that these teachers experience and view the influence of the union on policy makers and the legislators. They report the power of the union as

"*Teachers, of course, can change, as long as the union wants them to change*". (T2, T8) *The union is really very effective on both the teachers and the principals. If the union want to change, they are definitely done in every condition?* (T11).

DISCUSSION

The change to be made at school is a complex, time consuming and difficult task. Schools and teachers are one of the most important occupational groups faced with change.

In the present study, the teachers are assessing the openness to change on the faculty, principal and community subscales moderately which may not be sufficient to achieve change. The findings of this research are supported by several other studies (Beycioglu and Aslan, 2010; Kurşunoğlu and Tanrıöğen, 2006; Akpinar and Aydin, 2007; Yilmaz, 2010; Ozer, 2010; Demirtas, 2012). It is very clear that secondary schools need to be improved in terms of openness to change.

Teachers are the most critical element of the education system. For this reason, the success of change practices in a school is largely dependent on teachers. Effective involvement of teachers in the process is a fundamental requirement for the achievement of change initiatives. As Devos et al. (2007) claim that organizations will be able to survive and succeed as long as they and their employees are prepared to change.

In this research, it was observed that at the end of the interviews, the teachers were divided into 3 groups according to the answers given by about the change of the school. The first group is the supporters of the exchange who are ready to adapt to change, the second group is opponents of change and the last group is the ones who are unrelated and indifferent to change. It can be said that the teachers' openness to change is a critical prescription for the provision of the human resources needed to increase the exchange capacity of the school.

There was no statistically significant difference between teachers in the scale of FCOS according to gender. But similar to the review of literature (Huang, 1993; Crow and

Glascock, 1995; Klecker and Loadman, 1999) also in this study female teachers have high mean scores than the male in openness to change.

On some points of views both male and female teachers have similar opinions about the faculty's openness to change. As a result of this finding, it can be concluded that without gender discrimination change efforts can affect working conditions, ways of working, communication with other people and the existing status quo and that's why teachers may not welcome the change process.

As Knippenberg et al. (2006) declared the change process is causing a variety of worries in employees, eliminating these concerns is crucial to establish a successful process of change. It is known that it is important for teachers to be open to change in terms of providing responsibilities for the development of the school and enriched learning opportunities for the students. For this reason, the importance of teachers' belief in change is very crucial and vital because school administrators and teachers were found to have more responsibility for increasing the school's learning capacity in a culture where change is supported (Goh et al., 2006).

The findings revealed by the present study are that those teachers with a length of service ranging between 1 to 10 years had more negative views of schools' openness to change when compared to those with a length of service varying from 10 to more years. The studies by Arafat (2003) and Balıkcı (2004) were in contradiction with the present research. This might have been caused by the fact that newly-recruited teachers have more up-to-date theoretical knowledge and higher expectations than other teachers. It is not surprising that they have negative impressions of change when they interfere with each other and observe the applications at schools. Several other studies support the idea (Datta et al., 2003; Tasdan, 2013).

According to the graduated higher education institution, the opinions of the secondary school teachers about the change of schools are significantly different from each other. Education faculty graduates teachers have optimistic views about faculty's openness to change.

Union member techers have expressed positive opinions on the issue of change on faculty, principals and the community. It is thought that these teachers experience and view the influence of the union on policy makers and the legislators.

Arafat (2003) and Balıkcı (2004) investigated the influence of teacher attitudes on organizational innovation and found that branch teachers remained distant towards the change. There might be reasons for this difference between the branch teachers and the others. For example, branch teachers have to teach a lot of different classes depending on course load. Another reason is that they are not able to fully recognize their students in each of those classes and they take less responsbility for changing the behaviours of the students. Last reason is

about communication with parents. Teachers do not have enough communication with parents.

The teachers who do not have inservices training in the last 5 years reported positive views of secondary schools openness to change. Perhaps teachers who did not receive education reported a more favorable opinion on this issue as they did not know the process of change. This finding does not coincide with the findings of the study (Tal and Yinon, 2002) which claims that there is a positive link between being open to change and self-improvement. It is clear that ensuring the understanding and adoption of change by teachers is the most important criterion for successful change in school.

It can not be expected that the results of the change will be positive in an organization with employees who do not believe in the necessity of change. The teachers who have inservices training in the last 5 years reported positive views of principal's openness to change. One of the most fundamental reasons for this is that perhaps teachers who have inservices training are evaluating principals with a different perspective because they know how change should be and that principals are the most important factors to initiate change.

In the present study, the teachers reported that principals were moderately open to change. However, roles and responsibilities of principals have now been alienated from traditionalism and diversified by the influence of changes and transformations, it is essential that principals, who will play a pioneering role in change by motivating teachers and students, should be open to change.

The school principal is responsible for establishing a vision in their schools and ensuring the adoption of this vision by school members. Studies have reported that roles of principals are much in the process of change (Portin et al., 2006; Cooner et al., 2008). It is impossible to realize change in an organization that does not have leaders with the ability, the mission and the vision to manage change.

The most important role in achieving organizational change must be played by the principals who hold organizational authority. If principals in the organization do not see change as a necessity, or if they lack the ability to lead in the organization, it is the point that change fails (Yeniçeri, 2002).

A principal should be a leader that applies what he has learned, pioneers learning, takes collective decisions, recognizes the needs for renewal, represents this recognition in the school, establishes a trustworthy and intimate working environment, and attempts to turn change initiatives into reality.

In the present compared to numerical branches, verbal branch teachers reported more positive views of principal's openness to change. In all schools that the data were collected the principals were verbal teacher originated. This finding is similar to the findings of the studies in which school principals from verbal branches

are found to be more open than school principals from numerical branches. (Aslan et al., 2008; Ocaklı, 2006),

Interpreting the school community at moderate level of change may be related to the level of involvement of education (including community) in education. Unfortunately, the school community is far away from being open to change due to the decentralized nature of the education system in Turkey, the low level of co-decision making and the ineffective participation of democratic decision-makers. Effective communication, experience, resources and support must be available for successful change at schools.

It can be said that the success of a change process is proportional to openness to change of the organization's employees. Attitude towards change is dealt with in the context of variables such as readiness to change, resistance to change, pessimism against change, change openness, change coping, change adaptation, adoption of change and change commitment, which form a wide spectrum.

The success of change practices in schools, which are an educational organization, depends on the acceptance of those practices by the administrators and teachers of the school. Apart from that, in order for those practices to be successful, administrators and teachers also have to be open and adapt to change. Change is a difficult task. Considering that the people who make up groups and organizations have the knowledge and experiences that they get from different environments with different opinions, thoughts and tendencies, adaptation to change can be seen as a challenging and difficult process in terms of organizations.

Teachers have to be the people who lead the change in school. Teachers need to take initiative to learn from each other and to improve teaching in school, which is an important variable in terms of change. For a successful and healthy organizational change, it can be said that teachers in the school must understand the organizational change process effectively and internalize this process by showing necessary behaviors.

The attitude of being ready for change is the first step of change applications. If change is successful, organizational change initiatives are adopted by employees. On the other hand, when the attitude of readiness to change is neglected, employees will be faced with resistance either actively or passively. Therefore, creating an attitude of readiness to change while working in the success of organizational change initiatives emerges as an important necessity.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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Full Length Research Paper

Using Valsiner's zone theory for identifying the forms of students' pseudo responses in mathematics teaching process

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Various methods of teaching had been implemented to create an active and fun teaching process by teachers for students. Teachers' actions during class could lead to different responses from students. However, those actions are not always well accepted by students. Valsiner suggested a theory on a set of teachers' actions for promoting students' response called zone of promotion action (ZPA). The characteristics of the teacher's ZPA were not imbedded, indicating that the students could accept, reject or respond in a pseudo manner. This study aims to identify the forms of *promote action* which had pseudo responses called teacher's pseudo promote action (P-PA). Data were collected by interviewing teachers and students. The teaching process was observed through video recording. The subject of this study was a novice teacher and three students with high, moderate, and low math skills. The result showed that P-PA was dominant on the student with low math skill. This was apparent when she was silent, behaving as if she did not pay any attention to her teacher but she actually got the concept. She partly followed the teacher's instruction, and got answers from her classmates to complete the task, so that it seemed as if she understood the concept that was given.

Key words: Valsiner's zone theory, mathematics teaching, pseudo promote action (P-PA).

INTRODUCTION

Learning is a process of acquiring insights and experience to change people's behavior through interaction with the environment. This occurs in cognitive, affective, and psychomotor aspects. Students interact with their surroundings in order to acquire new information and experience. Learning is a complex activity which results in students having skill, knowledge, attitude, and values. These capabilities are derived from the stimulus provided by the environment and a cognitive process provided by the teacher. Hence, through teaching and learning process, students would change for the better.

Suherman (2003) proposed two kinds of learning: learning to accept and learning to find. In learning to

accept, students would only learn by accepting all information their teachers provide. Thus, they would only memorize the given concept. However, in learning to find, they would seek to find the concept learned with their teachers' guidance.

Students would not only memorize, but also have meaningful learning; they will learn the concept developed in another context. Therefore, it is expected that they could have better understanding and apply the concept they learn in real life.

Mathematics is necessary for students because it provides them with logical, analytical, systematical, critical, and creative thinking abilities and also ability to cooperate. Hence, in teaching mathematics, students should be made to learn by finding in order to make them truly understand the given process from the origin of the concept up to its implementation. This should make teachers realize their role as motivator and preceptor for students in learning mathematics. Teachers should implement teaching methods which will make students active to achieve teaching and learning objectives.

Mathematics teaching is a process of interaction between teachers and students in a learning environment. It involves evolving mindset and logic through various methods for mathematics learning program to grow and develop optimally and for students to be able to do learning activities effectively and efficiently (National Education Law, 2003). In teaching mathematics, students are made to understand the nature of a number of objects. Tools are provided for students to understand or explain an information (for example, equation or table in mathematical models as the simplicity of word problems).

Learning mathematics does not only involve having calculation skill, but also includes being proficient in mathematical thinking and reasoning to solve new problems and learn new things which students might see in the future. Some studies showed that whatever teachers teach in class influences students' learning both the mathematics concept given and chances to understand mathematics as a discipline (Goos et al., 2007).

Yackel and Cobb (1996) conducted a research, and found that daily practices and routines during class play an important role in how students understand and learn mathematics. Students construct mathematical knowledge and the discourse of norms in relation to daily practices. Whatever students learn mostly depends on their teachers' experience in teaching. In order to achieve high-quality mathematics education, teachers need to:

1. Deeply understand the field they teach
2. Understand how students learn mathematics, including finding out how their mathematical skill grow individually, and
3. Select tasks and strategies which can improve the quality of their teaching process (NCTM, 2000).

Various teaching methods had been implemented to create an active and fun teaching process. Van de Walle (2002) stated that teachers should change their approaches from teacher-centered to student-centered. Goos and Bennison (2012) suggested that a teaching process needs to be interactive between teacher and students. Teachers' skills in delivering material, managing the teaching process, and controlling students during class are influenced by several factors, including teachers' educational background, teaching experience, educational qualification, and class governance (Nadeem et al., 2011; Leong, 2013; Lamb and Fullarton, 2002).

These are not always well accepted by students. Valsiner (1997) suggested two zones to explain the development of students' interaction with their physical environment and other people: *Zone of Free Movement* (ZFM), representing the environmental constraint which limits the freedom to act and think; and *Zone of Promoted Action* (ZPA), a set of activities promoted by adults to promote new skill. Valsiner (1997) claimed that ZPA is a set of activities, things and area in an environment, in which individuals' actions are displayed. On the other hands, Blanton (2005) argued that this concept of ZPA refers to a set of activities provided by teachers to make students act in particular ways. Thus, it was stated that ZPA is a set or a number of teachers' actions (*promote action* /PA) provided for students

Goos (2005) defined ZPA as a set of activities offered by adults to promote new skills. Teachers implement some procedures during teaching process. However, they are not always categorized into ZPA. Some teaching methods included in ZPA are referred to activities which make students act and behave with the aim to acquire new skills.

This ZPA was not imbedded, which could either be accepted (*accepted promote action*/A-PA), or rejected (*rejected promote action*/R-PA) by students. Additionally, there is another condition, referred to as pseudo response (*pseudo promote action*/P-PA). It is difficult to see this condition directly during teaching, because with it students act as if they accept their teachers' promotion action, but do not accept their teachers' instruction. It is necessary conducting this study because when students are identified, feedback would be obtained, and, thus, would make the teachers to revise their teaching. This present study focuses on P-PA since this condition needs to be identified and is not apparent during the teaching process.

Although teachers determine the kinds of PA that would be implemented in class, it does not mean that such PA would be positively responded to by all pupils in a class. This could be solved by guiding the students to follow or modify the existing PA. Teachers can only determine the PA to be implemented based on the level of students' development in the teaching process. If what they implement is far beyond the students' understanding, an optimal development would not happen.

Table 1. Form of teacher's promotion.

S/N	Teacher's promotion action
Initial activities	
1	Teacher asked the students to relate a given example to the presented material
2	Teacher asked the students to recall their insight through question on prerequisite material/previous material
3	With the initial description of material, teacher asked the students to identify the scope of the material
4	Teacher asked the students to prepare particular tools for learning, such as ruler, compass, and arc ruler
Main activities	
5	Teacher asked the students to note and explore the material written on the board
6	Teacher asked the students to formulate the concept discussed through particular given direction
7	With provided information, teacher asked the students to represent the mathematical object and concept in the form of variable, equation, graphic, diagram, and geometric, etc
8	Teacher asked the students to keep the concept learned
9	Teacher asked the students to apply the concept learned on the provided problems
10	Teacher gave chances for the students to ask questions
11	Teacher asked the students to solve the problems provided by the teacher
12	Teacher asked the students to make use the teaching-learning media such as task-sheets, modeling tools, and other mathematical tools
13	Teacher facilitated the students to discuss the given problems
14	Teacher asked the student to correct their answer classically written on the board
Final activities	
15	Teacher directed the students to conclude the given material through related questions

Processing standart, 2007; processing standart, 2013; Goos, 2007; Hussein 2001; Winkel, 2007; Goos, 2005; Goos, 2013; Goos, 2012; NCTM, 2000; Blanton, 2005; Goos, 2009; Goos, 2012; Iffah, 2016.

Some studies on teachers' ZPA had been conducted. Based on the results of those studies coupled with the teaching components consisting of teaching objectives, materials, methods, media, and evaluation, the author took some indicators of the form of teacher's promotion action for this study as shown in Table 1.

Teacher's *promote action* described earlier would result in students' various responses. They include: giving attention, internal process of learning activities such as correlating between concepts, solving problems, answering teachers' questions, manipulating mathematical models, representing mathematical objects, and concluding information acquired. Such responses could not be separated from teacher's promotion action. It could be shown in three forms as follows:

1. The students accepted the teacher's promote action or *accepted promote action* (A-PA) by conducting a particular instruction given by the teacher, participating actively, and paying attention to the teaching process.
2. The students rejected the teacher's promote action or *rejected promote action* (R-PA) apparently by not conducting particular instruction given by the teacher, and doing another activities not related to the teaching material.
3. The students responded to the teacher's promote action in a pseudo manner or *pseudo promote action* (P-PA) apparently by acting as if they accepted the promote action, but it was actually not.

From the above, the author only focused on identifying the students' pseudo response to the teacher's promote action (P-PA).

METHODOLOGY

This study is a descriptive qualitative research. The author described the teaching process conducted by a teacher and identified which teaching procedures were categorized into the teacher's PA. Next, the author took the teacher P-PA as the focus of an in-depth examination. The subject of this study was a novice teacher in one of the junior high schools in Jombang, East Java, Indonesia. The novice was categorized based on years of teaching experience which range between 1 to 5 years. The teaching was conducted on first grade students of junior high school, and three students with high, moderate and low math skills responded to the teaching.

This study was conducted by having an interview with the subject based on the teaching plan. This plan includes teaching materials, methods and teaching scenario that were implemented. After conducting the interview, the subject did the teaching in class and the author observed the process. This observation focused on every procedure of the teaching which was identified and categorized into PA the author had predetermined. The study observed the three students with different mathematical skills and collected data in the form of their responses categorizing them into A-PA, R-PA, or P-PA.

After completing the teaching process, the author had an interview with the teacher and the students on the teaching process that had just been conducted. The interview done with the subject was to know whether the teaching-learning process succeeded or not, and to confirm the subjects' action during the process. This was conducted to know if the teacher would likely change the teaching procedures in class, thus, it would not correspond to the initial planning. The interview with each of the three students was conducted to confirm their responses or action during the teaching process. The result of that observation was still assumption, and it would be confirmed after having the interview, whether it was A-PA, R-PA, or P-PA. Besides categorizing, the researcher analyzed under which condition the students might show such responses.

Data collection was conducted through observation which involved field note, teaching recording, and interview with the teacher and students as well. The author focused on identifying the subject's *pseudo promote action* (P-PA) based on responses gathered in the form of the students' behavior with high, moderate, and low math skills.

RESULTS AND DISCUSSION

The teacher taught the first grade student to identify plane elements. The result of the pre-teaching interview showed that the teaching was conducted by identifying and implementing question-answer technique. The only plane identified classically was rectangle. Whereas, the other planes were provided, identified, and ultimately presented in groups.

The teacher began the teaching process by praying, checking the number of students present, and reviewing the previous material taught, which was triangular sides. Subsequently, the teacher presented the material that was discussed for the day. It was rectangular. She asked the students to mention the features of rectangle. The subject-matter of the teaching was to define and list the characteristics, circumference and area of rectangle. The teacher utilized a rectangular paper as the medium and named each of its angles. She began to define rectangle by folding the paper vertically and it was found that it had four congruent angles and two congruent sides.

Next, the teacher asked the students to investigate the characteristics of rectangle from its diagonal and determine which angles face each other. It was further investigated that each angle was 90°C. Furthermore, the teacher asked the students to identify the symmetry fold of the paper. There were two folded symmetries. In addition, the subject also asked the students to identify the rotational symmetry of the paper, and it resulted in two rotational symmetries. It was rotated up to 180°C and 360°C.

The teacher went on to the formulation of circumference and area of the rectangle. However, the subject directly provided some problems for the formulation of the rectangle area. Sometimes, in the process of identification, the teacher gave chances for the students to ask what they did not understand in the material. The subject asked them to note the material given as well. The teaching process conducted is shown in Figure 1. During observation, the author signed that the promote

action on the indicator was not always conducted by the subject. Overall, the promote actions apparent were number 1, 2, 5, 6, 8, 10, and 12. Subsequently, the author analyzed the video recording that corresponded to the observation note and was used as content of arranging questions for the interview. Following the interview, the author determined the category of the subject's promote action based on the students' responses. The category might be in the form of acceptance, rejection, or pseudo. The researcher merely focused on the students' pseudo promote action (P-PA). It seemed that P-PA was apparently on number 1, 2, 5, and 6.

The author showed the result of the analysis with code S as the subject/teacher, H as the student with high math skill, M as the student with moderate math skill, L as the student with low math skill and A as the author. *Promote action* on number 1 was asking the students to correlate the example provided with the material to discuss. This was categorized into P-PA for the student with low math skill. The following was the excerpt of the teaching process and the interview with the student:

Teaching process recording

S: This is for long-square. This is the plane, ok. First, you need to find the definition of this plane. Then, you need to identify its features. Third, we seek to find the circumference and the area of this plane. For instance, I name this plane as ABCD. So, what is long-square?
L: (keep silent) (Pictures 1 and 2).

Post-teaching interview with the students

A: This is long-square, isn't it? Why is it called long-square?
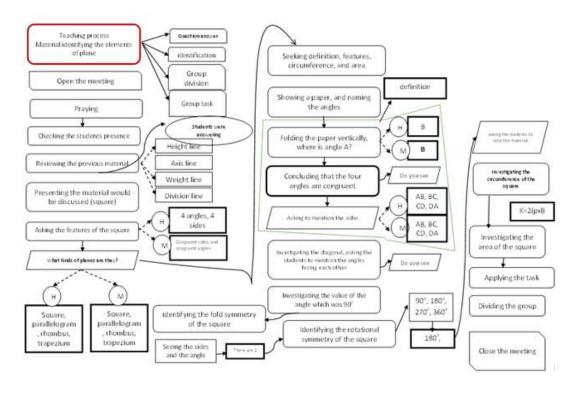L: Because both its top and bottom sides are all long.
A: Is this long, is this long?
L: Both the right and left sides as well.
A: Do you mean the length is equal or else?
L: The length is equal.

Based on the Pictures 1 and 2, the subject seemed to ask about the shape of long-square by displaying a paper. L could not clearly correlate the example with the material presented and pretended as if she understood the content; however, when it came to the interview, L could no correctly answer the question given or merely answered without any understanding of the material. This was revealed after conducting the post-teaching interview, and L admitted that she copied her classmate's answer. It showed that the student just followed her friend when correlating the example with the material given. It also showed that L gave pseudo response toward the subject's/teacher's promote action. Hence, the PA was also showed that L gave pseudo response toward the

Figure 1. Structure of the teaching process.

Picture 1. The subject's PA1 was apparent.

Picture 2. SR's response toward PA1.

asking the students to explore their knowledge through the teacher's given prerequisite questions/previous

Picture 3. The subject's PA2 was apparent.

Picture 4. SR's response toward PA2.

material. This PA got pseudo response from the students with the low math skill as well. The following was the excerpt of teaching recording and the interview with the low math skill student.

Teaching recording

S: And for today, we have come into long square. So, today we are going to discuss long-square. Ok, what can you see on long-square? I am sure you know the shape of long-square.
L: (the student kept silent) (Pictures 3 and 4).

Post-teaching interview with student

A: Where are the angles of long-square?
L: Its above, under, and beside
A : If we use this, where are the angles?

Picture 5. The subject's PA5 was apparent.

L: These are the angles
A: So, these all are the angles. How many are they?
L: there are 4.

As presented in Pictures 3 and 4, the subject asked about the shape of rectangle. At that moment, the subject had not present the concept of rectangle yet, hence, the students used their existing knowledge. The excerpt of the interview and the teaching recording noted that L seemed quiet as if ignoring the subject; whereas, in the interview, L was able to show some features of identified rectangle. L seemed quiet as if ignoring the subject but she, in fact, was able to see the correlation between the material and the previous one. This showed the L gave pseudo response to the subject's promote action. Thus, the subject's PA was categorized into P-PA. *Promote action* number 5 was asking the student to note and explore the material presented on board; however, it got pseudo response from the student with low math skill. The following was the excerpt of the teaching process and the transcript of the interview with the student.

Teaching process recording

A: Note this first!
(the students wrote)(Pictures 5 and 6).

Post-teaching interview with the student

A: The teacher had written this material yesterday, right? Did you write yesterday?
L: Yes, I did
A: did you write all?
L: Not yet. I did not write the task yet.
A: Why did not you complete your writing?
L: I was confused. I wanted to complete the task but the time was up.

The subject asked the students to note the concept presented on the board. Both the teaching recording and the interview showed that L noted on her book but she

Picture 6. SRP1's response toward PA5.

Picture 7. The subject's PA6 was apparent.

did not complete it because her time was up. L noted on her book but it was not completed. She did the instruction but not completely. This showed that L gave pseudo response to the subject's promote action, thus, the PA was categorized into P-PA. *Promote action* number 6 was by giving an instruction, The subject asked the student to formulate the given concept. This PA got pseudo response from the students with moderate and low math skills. The following was the results of the teaching recording and the interview with the moderate math skill student.

The teaching process recording

S: Do you know what the angles of the long-square are?
M: (kept silent)
S: $\angle A = \angle B = \angle C = \angle D$. Besides, if these are all congruent, I'd like to ask you, how is the degree of each angle?
M:90°C

Picture 8. SSP1's response toward PA6.

S: How could you say that it is 90° and where did you get that? You may prove with this way. I will take this, a long-square. Here, how large is the angle of long-square?
M: (keep silent)
S: There are 4, right?, when I fold this, it will be side-by-side … (the subject helped the students to prove the large of the long-square's angle) (Pictures 7 and 8).

Post-teaching process interview

A: Ok, what about the angle?
M: It is at the corner
A: How many are the angles?
M: it is 4
A: Ok, how big is it?
M:90°C
A: How could you know that it is 90°?
M: Because it is all 360° and it is divided by 4 resulting in 90°C

The results of the recording and interview showed that the subject directed the students to formulate the angles of rectangle. The students were more likely to be quiet and did not respond, as if ignoring the subject. However, she mentioned one of the components of rectangle, which was in terms of identifying the degree of the rectacle angles, in the interview. This showed that the student gave pseudo response and it was categorized into *pseudo promote action.*
This similar *promote action* had pseudo response from the student with low math skill as well. The following was the excerpts of the teaching process recording and the interview with the student.

Teaching recording

The student kept quiet and ignored the teacher's direction (Pictures 9 and 10).

Picture 9. The subject's PA6 was apparent.

Picture 10. SRP1's response toward PA6.

Post-teaching interview

A:Do you know what the fold symmetry is?
L: It is folded
A: How does make it folded?
L: As like this
A: If it is this way, is this the fold symmetry? So, what is the fold symmetry? Is it just simply folded?
L: yes, it is the same.
A: Which one is the same?
L: These, and these are same in length.
A: Are these the same in length?
L: Yes
A: So, where is another one?
L: These are same as well.
A: These and these are the same, these and these are the same as well. It is for the fold symmetry.

The results of the recording and the interview showed

that the student just kept quiet and ignored the subject's direction, seemed like to be daydreaming and had no concentration at all. However, she could answer, although not completely, the question during the interview. At the end of the interview, the student admitted that she just copied her friend's answer. This showed that the student gave pseudo response toward the subject's promote action, thus, it was categorized into P-PA. The following was the structure of the subject's P-PA during the teaching process in terms of identifying the features of long-square Figure 2.

The students showed pseudo responses categorized into P-PA when they kept quiet without showing any expression. when the student copied her friend's answer in order to answer the researcher's questions or she just followed her friend so the she seemed to give positive response to the instruction; and when the student just partly did the subject's instruction due to limited time. The result of the analysis earlier mentioned is presented in Figure 3.
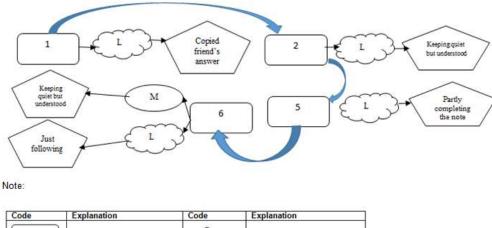
This P-PA did not exist for the student with high math skill since she could clearly showed her acceptance and rejection of the teacher's action. In addition, she was more dominant in accepting the subject's PA. Based on the chart above, it showed that the student with low math skill was more likely to give pseudo response toward the subject. This was related to her low skill, her level of courage and motivation.

Conclusion

This study was conducted with a first grade teacher of Junior High School and three students with high, moderate, and low math skills. The result showed that not all PAs were apparently on the subject's action. It indicated that the subject's ZPA referring to some or aggregate PA emerged. P-PA was not apparent to all the students either. It was only apparent to the students with low and moderate math skills. This was more dominant on the student with low math skill. P-PA appeared in a condition on which the students kept quiet but, in fact, understood the material given. They just partly complete the subject's instruction and copied their friend's answers as if they positively respond to their teacher. The teaching process conducted here had both advantages and limitations. The advantage was this process could make the students identify the features of long-square and memorize the material given as well. However, the subject, in particular, and teachers, in common, need to take consideration of their students' condition while teaching since they do not always show their true feelings.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

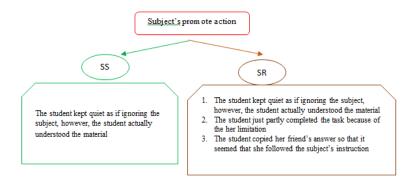**Figure 2.** The structure of the subject's P-PA.

Figure 3. Result of the analysis.

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