Research Articles

The Current and Desirable States of Private School Teacher Development Model Based on the Concept of TPACK and Productive Pedagogies

Natthawut Katechaiyo
PruteSiribanpituk
NantratChreonkul
Department of Education Policy, Management and Leadership, Faculty of Education
Chulalongkorn University, Thailand
**Corresponding Author, e-mail:nutchaiyo01@gmail.com Tel: (+66)870717105*

Abstract

The present research explored the current and desirable statuses of private school teacher development model based on the concepts of TPACK and productive pedagogies. The study population includes 3,850 private schools under the Office of Private Education Commission throughout the country. The sample size of 431 schools was determined by using the Krejcie and Morgan equation (Krejcie& Morgan, 1970) with a confidence coefficient 95%. The questionnaire was used as a research tool.The data were analyzed by frequency, percentage, mean, standard deviation and PNI Modified.

The results were as follows: 1) The current and desirable statuses of private school teacher development model based on the concepts of TPACK and productive pedagogies**,** with the finding of productive pedagogies current status of mean at high level ($\bar{x}$ = 3.593, S.D. = 0.786), and the desirable status of mean at high level ($\bar{x}$ = 4.102, S.D. = 0.870).With respect to the current status of private school teacher development model based on the concept productive pedagogies, the findings suggested the high level of recognition of difference with the highest mean ($\bar{x}$ = 3.664, S.D. = 0.895), followed by connectedness ($\bar{x}$ = 4.141, S.D. = 0.846), and supportive classroom environment ($\bar{x}$ = 4.113, S.D. = 0.867), respectively. For the desirable status of private school teacher development model based on the concept productive pedagogies, recognition of difference was at high level with the highest mean ($\bar{x}$ = 4.149, S.D = 0.861), followed by connectedness ($\bar{x}$ = 4.281, S.D. =0.743) and supportive classroom environment ($\bar{x}$ = 4.153, S.D. = 1.078), respectively.

2) The analysis of TPACK reported high level of overall current status ($\bar{x}$ = 3.643, S.D. = 0.880) and high level of overall desirable status ($\bar{x}$ = 4.167, S.D. = 0.859). Considering the current status, content knowledge ranked first at high level with the highest mean ($\bar{x}$ = 3.720, S.D. = 0.866), followed by pedagogical knowledge ($\bar{x}$ = 3.685, S.D. = 0.849), and technological knowledge ($\bar{x}$ = 3.666, S.D. = 0.893), respectively. In terms of the desirable status, content knowledge also ranked first at high level with the highest mean ($\bar{x}$ = 4.179, S.D. =

0.843), followed by technological knowledge ($\bar{X}$ = 4.176, S.D. = 0.859), and pedagogical knowledge ($\bar{X}$ = 4.175, S.D. = 0.849), respectively.

Keywords: *Teacher Development, Private School, Productive Pedagogies, TPACK, Out of Field Teacher*

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Introduction

The effectiveness of administrators is a key to drive organizations or schools. Superintendents, principals, and others with authority in school systems are instrumental in providing the vision, time, and resources to support continual professional learning, a positive school climate, and success for all students. Administrators are in charge and responsible for planning resources such as man, money, materials and methods to bring out an effective organization or school. One of the important resources in all organizations is man or employees; in school context, it is teachers. School administrators have to support and enhance teachers' knowledge, capability, skills etc. so they can bring success for all students.

In this case we will focus on an area of out-of-field teacher development. According to Hobbs (2012), school administrators need to consider the school context, school support and development plans, and teachers' prior knowledge and relating knowledge to out-of-field teachers in developing a professional development programme for out-of-field teachers. She further explains that there is still a lack of understanding of the significance of out-of-field teaching experiences and it is an international concern to perceive that it is acceptable to put out-of-field teachers to positions out of their field. From the statements, we can see that there are special characteristics of out-of-field teachers and it is the reason why we need to pay attention to this.

There have been debates in Thailand over years on teacher shortage and the number of teachers in urban and rural areas. According to Ministry of Education (2015), the students and teacher ratio should be 30:1 in primary levels and 40:1 in secondary levels. If we look at the number of primary level students and secondary level students in both public and private institutions, we will get a total number of 11,190,164 students (Ministry of Information and Communication Technology, 2013). In comparison to the number of primary and secondary teachers, which are 535,622 teachers, we can tell that the number of current teachers actually exceeded the number of teachers required to meet with the students and teacher ratio (30:1) indicated by the Ministry of Education in 2015.

While there is an oversupply of teachers, a cross-national study found that Thailand has "established" systems of attracting the best into teaching and motivating teachers to perform, which implied that they had good practices with some limitations (World Bank, 2012). However, the shortage of qualified teachers remains a large problem in Thailand. The teacher shortage index is high (0.65) compared to the average OECD countries and the high-income East Asian economies (0.51 for Japan, -0.31 for Taiwan, China, and -0.2 for Hong Kong SAR, China). This shortage may hinder students' academic achievement—a unit increase in the teacher shortage index is correlated with an 18.2 point decrease in Thai students' average science test scores (World Bank, 2012).

Moreover, the Ministry of Education (2013) has announced the number of teachers who will retire from year 2013-2017. There was an estimation of 97,254 teachers retiring in these four consecutive years, which is around 18 % of the total teacher workforce and this may cause the shortage of teachers. Mathematics seems

to be the subject with the highest teacher shortage, followed by English and Thai, according to VarakornSamakoses (2013), a former deputy education minister.

Specifically in Thailand where we have many "out-of-field" teachers, we need to make sure that they feel confident in teaching and support them on their teaching practice. According to Prahakul and Traiwichikhun (2016), it is found that 59.4 % of Thai teachers who are working under the Office of Primary Education Service Areas have been assigned to teach out-of-field and there is a significant impact on students' academic achievement comparing to in-field teachers. While a lack of qualified teachers causes the school to put teachers out-of-field, private schools in Thailand can hire a person who does not have a degree in education to teach in schools through a temporary teaching license (Kurusapha, 2014). This means all private schools in Thailand can hire a person who does not have educational degree. As mentioned earlier, there is a significant difference between in-field and out-of-field teacher quality; it is urging us to look into ways to develop teachers who are out-of-field, especially those who are working in private schools. Some out-of-field teachers are assigned to positions for which they are not suitably qualified. One way to support them is through professional development. Teachers who go through a well-planned professional development will be equipped with capability to teach and ways to raise students' achievement.

However, there are many factors that contribute to a student's achievement, including individual characteristics, family, and community, for example. But research suggests that, among school-related factors, teachers matter most. When it comes to student performance, teachers are estimated to have two to three times in comparison with the impact of any other school factors, including services, facilities, and even leadership. (McCaffrey, Lockwood, Koretz, & Hamilton, 2003; Rowan, Correnti& Miller, 2002; Rivkin, Hanushek, &Kain, 2000) As we can see, school administrators are key people to drive schools and are those who bring success for all stakeholders including teachers, students, parents, and ultimately society.

Therefore, this research will investigate the aspects concerning the shortage of teachers and ministry of education policy that gear towards solving this problem. It also aims to find the ineffectiveness of the teaching permit without license system and to overcome its ineffectiveness through the development model. The priority-needs assessment analysis will give insight on the aspects of out-of-field teachers' needs towards effective instruction, while the model aims to benefit the performance of trained teachers and students' academic achievement. As a result, the researcher expects that the problems of out-of-field teachers can be effectively tackled when the school uses the model developed.

Research Objective

The research objective aims to explore current and desirable states of private school teacher development based on the concepts of TPACK and productive pedagogies.

Conceptual Framework

Private School Teacher Development Based on the Concepts of TPACK and Productive Pedagogies

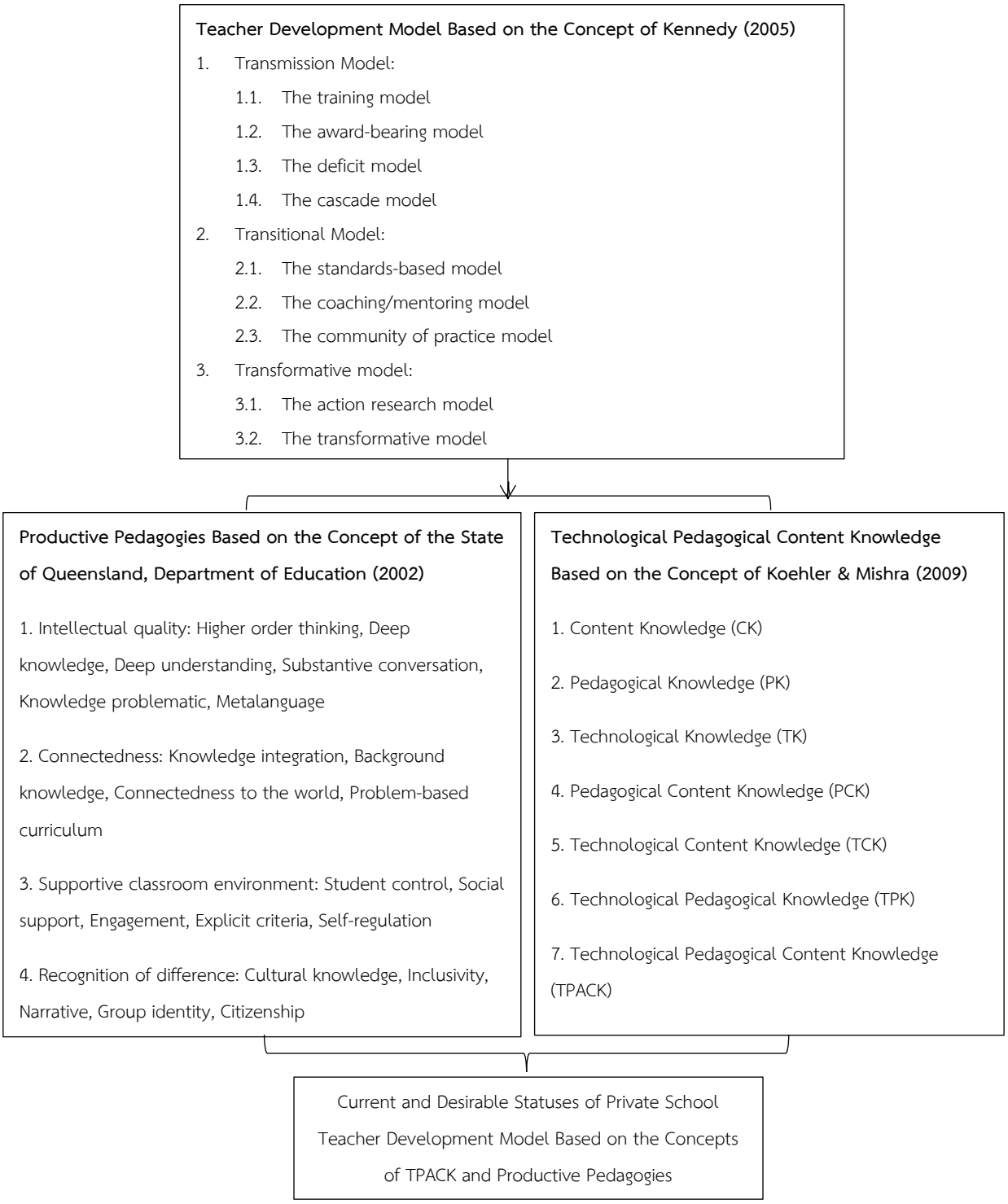

Figure 1 Conceptual Framework of This Study

Research Methodology

The research population included 3,850 schools under the Office of Private Educational Commission (Office of Private Education Commission, 2016). The sample size was calculated using the Krejcie and Morgan equation (Krejcie& Morgan, 1970) with 95% confidence level (Confidence interval), at the level of error (e) +-5%, to obtain the sample of 351 schools. A multi-stage random sampling and purposive sampling wereemployed by using stratified random sampling of schools based on the geographical location of schools locating in both urban and rural parts, size of schools, and geographical subdivision according to the number of schools by regions throughout Thailand as shown in Table 1.

Table 1 Number and Percentage of Sent and ReturnedQuestionnaires fromSchools under the Office of Private Education Commission

No.	Region	School	%	Urban	%	Rural	%	Total %	Number of Questionnaires (352 Schools)	Informants (2 persons from each schools)
Sent Questionnaires										
1	Central	1423	37	1159	82	264	18	100	130	260
2	East	236	6	78	33	158	67	100	22	44
3	Northeast	831	21	258	31	573	69	100	76	152
4	North	335	9	126	38	209	62	100	31	62
5	West	136	4	49	36	87	64	100	12	24
6	South	889	23	225	25	664	75	100	81	162
Total		3850	100	1895	49	1955	51	100	352	704
Returned Questionnaires								46	163	326

Table 1 showed the number of sent and returned questionnaires by regions, then breaking it down into urban and rural partsin each region. The schools were mostly from the Central region, with the returned questionnaires from 130 schools (36.9%), followed by the Southern region, with the returned the questionnaires from 81 schools (23%),and the Northeastern region, with the returned questionnairesfrom 76 schools (21.5%). However, with some limitations, this study only has 46% of the number of returned questionnaires.

Table 2 General Information of Schools

School Background Information		Small	Medium	Large	Extra Large	Total
Size						
Geographical Location	Central	5	27	25	19	76
	North	1	9	8	2	20
	North East	1	14	9	5	29
	South	3	13	16	6	38
Educational Levels	PreK-Primary6	2	10	7	1	21
	Kindergarten1-Primary6	6	38	15	3	62
	PreK-Secondary3		4	5	2	11
	Kindergarten1-Secondary3		3	11	6	20
	Kindergarten1-Secondary6		7	17	19	43
	Primary1-Secondary6	1	1	3	1	6
Total Number of Schools						326

Table 2 showed the number of schools classified by school size and educational levels. The schools were mostly medium-sized with 121-600 children under attendance (46.62 %), followed by large schools with 601-1,500 children under attendance (23.31%).Schools offering kindergarten – primary 6 were the most in number (38.03%), followed by schools offering kindergarten – secondary 6 (26.38%).

Informants

The informants in this research are 163 administrators and 163 out-of-field teachers at 163 private schools under the Office of Private Education Commission. The informants are chosen by multi-stage random sampling and purposive sampling methods.

Random sampling of schools: The researcher used multi-stage random sampling method in order to choose the schools as samples in this research. There were two steps in the multistage random sampling:

1. Stratified random sampling of schools based on the geographic location of schools and location in both urban and rural parts of Thailand.

2. Stratified random sampling of school based on the size of schools. Schools consist of 120 students or less were categorized as small-sized schools, 121 - 600 students were categorized as medium-sized schools, and 601 – 1,500 students were categorized as large-sized schools.

Research Instruments

The questionnaire contained 2 parts: 1) general information of respondents, and 2) respondent's opinion on the current and desirable statuses of the teacher development based on the concept of TPACK and productive pedagogies. The procedural steps of questionnaire construction included the following:

1) Investigating documents, concepts, theories, and research pertaining the teacher development based on the concept of TPACK and productive pedagogies concepts, and making a synthesis on related research variables for constructing a questionnaire.

2) Bringing the variables synthesized from step 1 to construct a questionnaire for exploring the current and desirable statuses as for the research.

3) Having the constructed questionnaire reviewed by 5 specialists for its appropriateness of items and content validity, and determining the Index of Item-Congruence: IOC. The questionnaire's IOC was obtained between 0.80-1.00 which was applicable to the samples.

4) Revising the questionnaire based on the expert's comments, bringing it to a try-out in a population of 30 participants with similar characteristics of the research samples. The examination for Cronbach's Alpha coefficient suggested 0.998 respectively for the current and desirable statuses of private school teacher development model based on the concepts of TPACK and productive pedagogies. The result supported the item-objective congruence. The data analysis procedure employed descriptive statistics, i.e. frequency and percentage of respondents' general information, mean and standard deviation in the analysis of the current and desirable statuses of private school teacher development model based on the concept of TPACK and productive pedagogies.

Research Result

The summary of research result is presented below.

Table 3 General Information of Respondents

Informant's Background Information		School Administrators					Teacher	Total (N:326)
		School Director	School Principal	School Manager	Vice Principal	Head of Department		
Gender	Female	4	68	6	32	33	95	243
	Male	4	38	3	16	4	18	83
Age	< 25 yrs.	0	0	0	0	0	7	7

	26-30 yrs.	0	1	1	0	5	20	27
	31-35 yrs.	0	1	0	6	9	13	29
	36-40 yrs.	0	5	0	6	9	16	36
	41-45 yrs.	1	13	1	12	5	21	53
	>46 yrs.	7	86	7	24	14	36	174
Highest Educational Attainment	Bachelor's Degree	3	16	1	10	29	83	142
	Graduate Diploma	1	0	1	5	2	5	14
	Master's Degree	4	68	6	25	9	16	128
	Doctoral Degree	0	15	1	4	0	0	20
	Not Specified	0	8	0	4	2	8	22
Work Experience	<6 mos.	0	0	0	0	1	3	4
	6 mos.- 1 yr.	1	0	0	0	0	6	7
	1-2 yrs.		2		1	1	12	16
	2-5 yrs.	1	7	1	3	2	15	29
	5-10 yrs.	0	12	1	6	15	22	56
	>10 yrs.	6	85	7	38	23	55	214

Table 3 showed the number of respondents classified by informants including 8 school directors, 106 school administrators, 9 school managers, 48 vice principals, 37 heads of department, and 113 teachers, making a total of 326 informants. The dominant respondents were female, mostly aged over 46 years (53.37 %), and 41-45 years (16.25 %). The majority attained a bachelor's degree (43.55 %), followed by a master's degree (39.26 %). Most of them had more than 10 years of work experience in private schools (65.64 %), followed by 5-10 years (17.17 %).

Table 4 Current and Desirable Statuses of private school teacher development model based on the concepts of TPACK and productive pedagogies

TPACK	*Current Status*			*Rank*	*Desirable Status*			*Rank*
	$\bar{x}$	*S.D.*	*Level*		$\bar{x}$	*S.D.*	*Level*	
Content Knowledge	3.720	0.866	High	1	4.179	0.843	High	1
Pedagogical Knowledge	3.685	0.849	High	2	4.175	0.849	High	3
Technological Knowledge	3.661	0.893	High	3	4.176	0.859	High	2
Pedagogical Content Knowledge	3.645	0.884	High	4	4.166	0.865	High	4
Technological Content Knowledge	3.603	0.889	High	5	4.161	0.871	High	5
Technological Pedagogical Knowledge	3.596	0.890	High	6	4.157	0.859	High	6
Technological Pedagogical Content Knowledge	3.594	0.895	High	7	4.161	0.870	High	5
Overall	3.643	0.880	High		4.167	0.859	High	
Productive Pedagogies								
Intellectual Quality	3.462	0.451	High	4	4.006	0.909	High	4
Connectedness	3.648	0.890	High	2	4.141	0.846	High	2
Supportive Classroom Environment	3.598	0.908	High	3	4.113	0.867	High	3
Recognition of Difference	3.664	0.895	High	1	4.149	0.861	High	1
Overall	3.593	0.786	High		4.102	0.870	High	

Table 4 presented thecurrent and desirable statuses of private school teacher development model based on the concepts of TPACK and productive pedagogies**,** with the findings of productive pedagogies current status of meanat high level ($\bar{x}$ = 3.593, S.D. = 0.786), and the desirable status of mean at high level ($\bar{x}$ = 4.102, S.D. = 0.870).

With respect to the current status of private school teacher development model based on the concept productive pedagogies, the findings suggested the high level of recognition of difference with the highest mean

($\bar{x}$ = 3.664, S.D. = 0.895), followed by connectedness ($\bar{x}$ = 4.141, S.D. = 0.846),and supportive classroom environment ($\bar{x}$ = 4.113, S.D. = 0.867), respectively.

For the desirable status of private school teacher development model based on the concept productive pedagogies, recognition of difference was at high level with the highest mean ($\bar{x}$ = 4.149, S.D = 0.861), followed by connectedness ($\bar{x}$ = 4.281, S.D. =0.743) and supportive classroom environment ($\bar{x}$ = 4.153, S.D. = 1.078), respectively.

The analysis of TPACK reported high level of overall current status($\bar{x}$ = 3.643, S.D. = 0.880) and high level of overall desirable status ($\bar{x}$ = 4.167, S.D. = 0.859). Considering the current status, content knowledge ranked first at high level with the highest mean ($\bar{x}$= 3.720, S.D. = 0.866), followed by pedagogical knowledge ($\bar{x}$ = 3.685, S.D. = 0.849), and technological knowledge ($\bar{x}$ = 3.666, S.D. = 0.893), respectively. In terms of the desirable status, content knowledge also ranked first at high level with the highest mean ($\bar{x}$ = 4.179, S.D. = 0.843), followed by technological knowledge ($\bar{x}$ = 4.176, S.D. = 0.859), and pedagogical knowledge ($\bar{x}$ = 4.175, S.D. = 0.849), respectively.

Discussions

The findings were discussed by aspects of TPACK and Productive pedagogies as follows:

1. Based on the current statuses of private school teacher development based on the concepts of TPACK, the overall current status was at high level of mean for TPACK. For individual aspects, however, technological pedagogical knowledge was found at the lowest level status. Koehler and Mishra (2009) stated that the meaning of technological pedagogical knowledge means knowing the pedagogical affordances and constraints of a range of technological tools as they relate to disciplinarily and developmentally appropriate pedagogical designs and strategies.This may be explained that someteachers still have a lack of knowledge on how to integrate technological knowledge and pedagogical knowledge; most of themdon't use much technology in teaching, henceresulting in the lowest mean of technological pedagogical knowledge.

The overall TPACK concept desirable status reportedhigh level of mean for the overall desirable status. For individual aspects, content knowledge presented the highest mean of desirable status. It is probably that teacherswho are teaching out of field focus or concern more about the contentof the subjects as it is closely related to student's understanding.Shulman (1986) noted that this knowledge would include knowledge of concepts, theories, ideas, organizational frameworks, knowledge of evidence and proof, as well as established practices and approaches toward developing such knowledge. Knowledge and the nature of inquiry differ greatly between fields, and teachers should understand the deeper knowledge fundamentals of the disciplines in which they teach.

2. Based on the current statuses of private school teacher development model based on the concepts of productive pedagogies, the overall current status was at high level of mean for productive pedagogies. For

individual aspects, however, intellectual quality was found at the lowest level status. This maybe because teachers who are teaching out of field feel that there is room for improvement as there are many challenges, such as teacher's own content knowledge, lower socioeconomic backgrounds, etc. Intellectual quality is concerned with learners developing a substantive understanding of multiplication via conversations and constructing other forms of representations, including the identification of patterns of relations that embody this operation (Chinnappan, 2007). As mentioned by Chinnappan, teachers need to have deep knowledge of the content to be able to develop student's substantive understanding of the content.

The overallproductive pedagogies concept desirable status reported high level of mean for the overall desirable status. For individual aspects, recognition of difference found the highest mean for overall desirable status. Recognition of difference means that dimension of working and valuing difference provides an insight that different cultures are equally valued in all curriculum knowledge, content and form. It encourages the attempts made to ensure that all individuals and groups have rights and responsibilities (Education Queensland, 2010, pp. 20-24). The teachers feel there is a high need for all the subjects to value the importance of social context in which students live in. This statement is support that by Hayes et al. (2006) that connectedness is characterised by challenging and connecting the new knowledge with the learner's background knowledge and in a larger social context. Students become more effective learners when they engage in learning experiences that have value and clear sense of purpose.

Recommendations

Research should consider interview out of field teacher as TPACK and Productive Pedagogies are new concepts to some. The result would be more insightful and we can track down out of field teacher's real problem more deeply.

Research should focus on comparing the results of those in rural and urban areas to explore if there are more needs and concerns between rural and urban areas we then can further explore their professionalknowledge development.

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