

Beliefs About Professional Teaching Competency Development: A Case Study of Thai Pre-Service Teachers

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ABSTRACT

Effective use of first (L1) and second (L2) languages and digital technology (DT) has particular salience for professional competence that teachers should possess according to the latest Regulation of the Teacher Council of Thailand. Yet, there has been a lack of evidence to identify teacher preparation gaps and guide improvements on pre-service teachers' language and technology competency. The purpose of this investigation is to explore teacher candidates' beliefs towards the development of their L1, L2, and DT across the self-perceived proficiency levels. An Internet-based questionnaire, including dichotomous questions, rating scale, and open-ended items, was widely distributed among 523 student teachers throughout Thailand by employing a quantitative mode of inquiry. One-way ANOVA and Scheffé's method, followed by descriptive statistics, were run to analyse the collected data. Research findings suggested significant differences among pre-school teacher cohorts in three items of each L1 and L2 competence, but no difference was found in technological competence. The study concludes with a discussion on three vital professional competencies for enhancing teacher preparation programmes.

Keywords

Belief; First and second language; Digital technology; Pre-service teacher; Professional teaching competency

Introduction

In a borderless world, an excellent command of bilingualism and digital literacy is a significant contributory factor in reaching a job in the 21st-century teaching profession. Not surprisingly, the most recent Regulation of the Teachers Council of Thailand on professional standards (No 4) BE 2562 (2019) highlighted these issues. It indicates that those who practice the profession of teachers will perform their duties following the knowledge in Thai in use, English for communication, and digital technology for education [1]. Subsequently, these became three fundamental competencies for evaluating individuals who would enter the profession of teachers as appeared in the Teachers' Council of Thailand Board (commonly known as Khurusapha) on criteria and methods for testing and assessing professional competency of teachers in May 2020 [2]. It would be claimed that the integration of rigorous language and technology competencies has made a key challenge for researchers and practitioners in teacher education.

To date, little evidence has been associating languages with technology in Thailand's educational profession contexts. A study done by

the researchers [3], for example, has been of value in this regard. A small-scale study was conducted to examine the performance competence of 40 teachers in the use of language and technology. However, their collected data were not analysed in sufficient detail or depth to answer these overarching research questions. Thus, this current, large-scale study seeks to fill the gap in the literature, attempting to offers some crucial insights into the perception concerning students' language and technology competency development at tertiary level and the relationship between learner beliefs and their proficiency levels. It is aimed at answering the following questions: 1) What are the self-reported beliefs of pre-service teachers regarding L1, L2, and DT development? and 2) Are there any significant differences in these beliefs among pre-service teachers of different proficiency levels? The research results represent a further step towards developing a national project of the virtual language learning environment for enhancing student teachers' languages and digital technology abilities.

Literature Review

Why Should L1 Competency be Developed?

L1 or Thai language occupies a key position in Thailand’s school curriculum. The Ministry of Education specified in the National Education Act (NEA) that traditional Thai knowledge and skills should be taught to Thai people in national educational systems. It has been established as one of the core learning areas of the Basic Education Core Curriculum, identifying that students should be able to read and write standard Thai upon completing primary education [4]. Its importance as a national language and a medium of learning every subject in schools has exerted considerable influence over several issues of the

Regulation of the Teachers Council of Thailand on Professional Standards [1]. In it, three professional teaching competencies indicate that teachers who practice the profession of teachers must fulfil statutory duties under the understanding of 1) Thai usage, 2) communicative English, and 3) digital technology for education. Teachers at basic education levels should be aware of promoting standard Thai competencies of their students and may be expected to use it exclusively for classroom interactions [5]. However, as witnessed by the Thai Ordinary National Education Test (O-NET) scores used as one of the university entry requirements and an indicator of teachers' teaching performance, they have revealed secondary school students' low Thai proficiency in the past decade (see Figure 1).

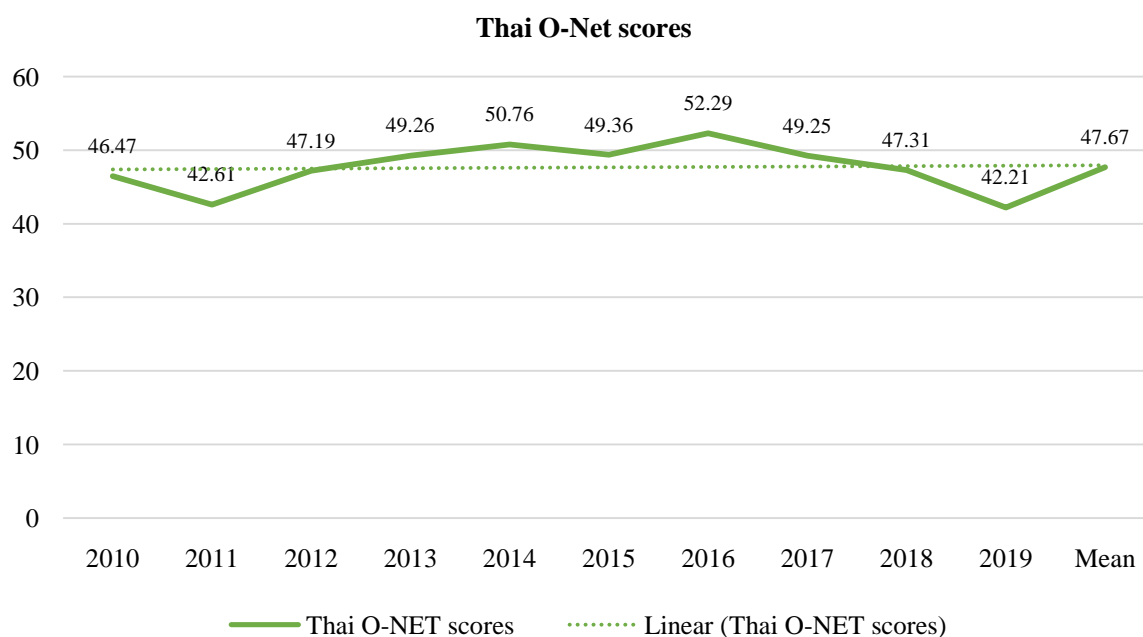


Figure 1. Secondary school students’ average scores of Thai O-NET between 2010-2019

The above line graph chronologically depicts fluctuations in high school students’ annual average scores in the Thai language which have exceeded the national expected minimum of 50 points out of 100 only in 2014 and 2016. These scores were much indicative of the unacceptable outcomes of Thai teaching and learning at the Basic Education level in Thailand. Furthermore, preliminary work on teachers’ L1, L2, and digital technology competency undertaken by the scholars [3] pointed out the low level of performance competence of schoolteachers in

using language and technology. By individual aspects, it showed that the competency in using Thai for communication was at an average level, followed by the competency in applying a computer to pursue knowledge and use English for daily conversation, which was at a low level.

It was worth noting that the quality of Thai language teaching for schools possessing low O-NET scores could be boosted by providing more professional development on skills and teaching techniques [6]. This rather intriguing finding may

be related to teacher preparation programmes, which failed to provide learners with the skills and experiences needed to be effective teachers. It is widely accepted that pre-service teachers' teaching experiences are pivotal for future professional endeavours [7], [8]; therefore, since the 2010s, there has been a growing number of publications focusing on pre-school teachers' L1 development (e.g., [9], [10], [11], [12]). A number of these researchers have attempted to foster proficiency in L1 competency of teacher candidate cohorts, who were affiliated merely to their institutes. As such, the findings can neither generalise nor make the results of their study transferable to another context. It indicates a need to scrutinise the perceptions of L1 competency development that exist among pre-service teachers. Moreover, to make the results potentially transferable, there should be more call on large-scale studies to investigate the prevalence of teacher candidates' cognitions in this regard prior to indicating trends or patterns and choose the research method determining the extent to which the results can be transferred to nationwide implementation.

Why Should L2 Competency be Developed?

Asserted by an academician [13], the average Thai student who graduates from the university will have studied English for as many as 15 years if, as is allowed when school conditions permit, they begin to study the language in Grade 1. Nonetheless, they cannot use English for general communication [14], not to mention their use as a tool for knowledge researching [15]. At the tertiary levels, universities in Thailand are required by the Office of the Higher Education Commission (OHEC) [16] to assess students' English proficiency compared to the CEFR. Those who are going to graduate from Thailand's university in 2021 were expected to place at the B2 level [14]. As revealed in the English O-NET results in the last decade (Figure 2), the mean scores have been lower than 30, except in 2018, and kept falling below in the last two years. Hence, it is questionable whether Thai undergraduates can reach the CEFR levels set by the OHEC before graduation.

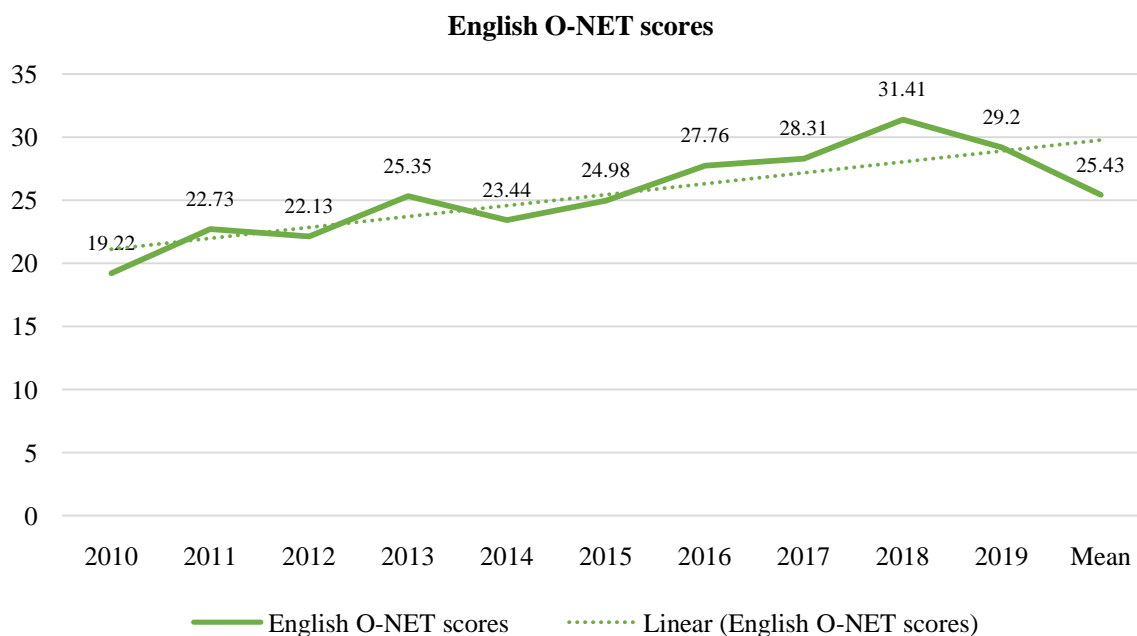


Figure 2. Secondary school students' average scores of English O-NET between 2010-2019

Certain factors affecting the failure of teaching and learning English involved poorly motivated students, rare opportunities for schoolchildren exposure to English outside of class time [17]. As

living in a non-anglophone country, some other limitations may include a distinct lack of opportunity for learners to use English as a part of everyday life and unchallenging English lessons

[18]. More importantly, in-service teachers themselves frankly admitted to using Thai when teaching English. Also, learning activities did not necessarily develop students' English communicative competence [19].

Even though a plethora of studies have attempted to enhance students' English language abilities in the classes, changes in policies, which occur regularly, lead to confusion inadvertently [20]. There exists a mismatch between implementation in the classroom and expectations of stakeholders. Consequently, it demands the investigation into student teachers' beliefs connected with these new regulations to offer a more practical approach to developing their L2 competency further.

Why Should DT Competency be Developed?

Innovation, a digital economy based, high technological industries firstly appeared in a 20-year national strategy (2017-2036) plan to transform the Thai economy into an innovation-driven one. In order to achieve the goals, digital and information skill seems to be the vital ability for Thai people that need to possess. Based on the 2016-2017 global competitiveness report, Thailand was ranked 63rd among 138 countries concerning technological readiness [21]. The readiness of Thai people on essential skills among demographic groups revealed that the lowest skill set was digital and information skill [22]. It seems proper to claim insufficient ICTs skills and limited digital literacies of Thai teachers and students [23]. This also accorded with another study [24], which showed that teachers required training focused on achieving better practical skills and understanding of ICT. Similar to the data analysed from 500 Chinese teachers [25], it revealed that although digital-native teachers had greater comfort with necessary technology than digital immigrant ones, they still required effective technology integration in their teaching.

In classroom settings, effective technology integration begins with teacher preparation that provides the benefits, modes, and strategies for instruction that promotes learning in this digital culture [26]. DT competence development has emerged as a critical aspect of teacher education programmes. The research findings found by the

scholars [27] showed that Thai pre-service teachers had an above-average level of technology acceptance. The glaring inconsistency may be due to the emphasis on using technology at the primary education and the university levels in Thailand through the two ICT Master Plans (2002-2011). A strong emphasis was made to build ICT infrastructure and strengthen ICT literacy among students and teachers from K-12 levels at the national level [28]. Of course, a cohort of teacher candidates was given training in implementing guidelines and standards using technology for instructional purposes.

The question of whether to improve the DT of student teachers has been controversial. In another significant study, the researchers [29] reported that Thai students had not yet fully attained the levels of computer skills required for the 21st century. Thai teachers were less confident than those who lived in other countries in their ability to use technology. The needs for developing countries' improvements in fostering students' DT proficiency are suggested by identifying the technological competencies and teacher need as well as developing relevant and valuable professional development to help them acquire those competencies [25], [30]. In the current study, teacher candidates' DT is also investigated to fill a gap in the literature and offer some critical insight into their development.

Methodology

Participants

To obtain a nationwide picture of student teachers' beliefs in Thailand, G*Power 3.1.9.7 was utilised to compute effect sizes which were expected medium effect size ($f = 0.20$) with $\alpha = 0.05$ to achieve a power of 0.95. Although a total sample size of 436 was required, the participants in this study consisted of 523 subjects available. The sample of 143 male (27.3%) and 380 female (72.7%) student teachers came from sixteen major universities in every region of Thailand, selected via a multistage sampling method to gather a broader perspective from students belonging to various institutes, studying different majors of teacher training programmes, and located throughout the country. All learners used Thai as

their L1 and English as an L2. Regardless of their geographical area, students were asked to rate themselves compared to the description of L1 proficiency [31], [32]. They were also required to describe as L2 speakers according to Common European Framework of Reference for Languages

(CEFR) levels [33] and to judge themselves by levels description of digital technology for education [34]. Table 1 illustrates the demographic characteristics of the respondents.

Table 1. Descriptive statistics of the sample per competency and gender (*N* = 523)

Competency	All		Male		Female		
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	
L1	Basic	46	8.8	17	3.2	29	5.5
	Fair	53	10.1	16	3.1	37	7.1
	Intermediate	229	43.8	61	11.7	168	32.1
	Good	195	37.3	49	9.4	146	27.9
L2	A1	220	42.1	54	10.3	166	31.7
	A2	184	35.2	46	8.8	95	18.2
	B1	82	15.7	28	5.3	82	15.7
	B2	37	7.1	15	2.9	37	7.1
DT	Basic	170	32.5	56	10.7	114	21.8
	Elementary	234	44.7	57	10.9	177	33.9
	Applied	119	22.8	30	5.7	89	17.0

Instruments and Procedure

An online questionnaire developed for this study was administered at the beginning of the first semester in 2020. Before starting the survey, ethical approval, invitation letter, and consent from the institute administrators were obtained. All students were informed that participation in the study was voluntary.

The quantitative questionnaire included 49 questions, starting with 4 items of demographic data from which the above information was retrieved. Following this, participating pre-schools teachers were asked to gauge their perceptions. This part comprised 45 questions separated into three sections (15 statements each) about the beliefs of their professional teaching competencies in L1, L2, and DT: the options ranged from ‘strongly disagree’ – 1, ‘disagree’ – 2, ‘slightly disagree’ – 3, ‘slightly agree’ – 4, ‘agree’ – 5, and ‘strongly agree’ – 6.

The initial list of 45 items was piloted on 15 students, drawn from the possible sample at one of the universities, and excluded from the study. Readability levels for the target audience were

checked, and the ambiguities and difficulties in wording were eliminated. Content validation was conducted through the non-face-to-face approach. A content validation form was sent by post to three experts with explicit instruction. The specialists were requested to critically review the statements before rating a score on each item based on the degree of relevance (ranging from ‘not relevant’ – 1, ‘somewhat relevant’ – 2, ‘quite relevant’ – 3, and ‘highly relevant’ – 4) [35] and to provide any written comments to improve the items. The average of I-CVI scores across all items was equal to 1, which was acceptable for three to five experts [35], [36].

To ensure that the multiple-question Likert scale survey developed in this current study were reliable and had significant coverage, Cronbach’s alpha and exploratory factor analysis were conducted. In order to measure participants’ perceptions on boosting professional teaching competencies, principal component analysis with Kaiser-Varimax rotation was calculated. This procedure is essential in suppressing indicators with a correlation lower than .300 or whose exclusion increased the Cronbach’s alpha value, which should be approximately 0.7 [37]. Items in

each component had a loading corresponding ranging from $r = 0.311$ to 0.835 ; some with loading below $.300$ was omitted.

The scree plot confirmed that three components had an eigenvalue greater than 1. It indicated that a three-component solution would be extracted for the study. The final solution demonstrated the first factor ($\alpha = .861$) comprising 10 items on beliefs about L1 competency, the second one ($\alpha = .821$) with 10 items on L2 competency, and the last one ($\alpha = .734$) comprised 8 items on technology competency. The reliability of the Internet questionnaire (Cronbach's alpha test score) was 0.972 with the entire sample ($N = 523$), which was high internal consistency reliability [38].

Data Analysis

A descriptive statistical analysis (means and standard deviation), One-way ANOVA and Scheffé's test were run by the IBM SPSS Statistics 22. Descriptive statistics were used to analyse the demographic information of the participants and their perceived levels of proficiency. One-way ANOVA was chosen to clarify whether the value of variables differed significantly among the groups, followed by post-hoc Scheffé's method. The results were defined using the interval calculation from the 6-point Likert scale, as shown in Table 2.

Table 2. Definitions of each mean range

Mean range	Interpretation
1.00-1.83	Strongly disagree
2.67-1.84	Disagree
3.50-2.68	Slightly disagree
4.33-3.51	Slightly agree
5.17-4.34	Agree
6.00-5.18	Strongly agree

Results

Pre-Service Teachers' Beliefs About Professional Teaching Competencies

To order to answer research question 1, Tables 3, 4, and 5 present selected items from three factors and show the considerable differences among participants at different proficiencies in the mean average of answers provided.

In Table 3, it was considering the basic and the fair groups as a single dataset (low-level) and the intermediate and the good cohorts as another dataset (high-level), pre-school teachers who marked themselves as high-level speakers would like to be drawn attention to four language abilities rather than those who self-portrayed as lower-level users. Not surprisingly, students at

high levels held a firmer belief in the idea that their future teaching profession needed to equip with the L1 competence than the low-level teacher candidates. Furthermore, the high proficiency students were more likely to agree that three learning modalities (offline, online, and blended) fostered this language skill. Similarly, undergraduates at high levels of L1 proficiency were more motivated to develop such skill than students at fundamental levels. With pertinence to the surrounding physical and traditional/digital technology, advanced students reported more agreement supporting them to boost their native language skills than did the low proficiency groups.

In contrast, the lower groups had more time to join the professional training provided than the high-proficient ones.

Table 3. Descriptive statistics of selected items for Factor 1 (beliefs about L1 competency development)

Item	Proficiency	M	SD	Sig
1. Developing Thai language competence should focus on	Basic	4.52	1.14	.070

Item	Proficiency	M	SD	Sig
all language skills.	Fair	4.43	0.93	
	Intermediate	4.72	1.01	
	Good	4.80	1.03	
	Total	4.70	1.02	
2. Your future professional teaching practices require Thai language competence.	Basic	4.91	1.15	
	Fair	4.77	1.12	
	Intermediate	5.23	1.01	
	Good	5.19	1.00	
	Total	5.14	1.04	.013*
3. You have enough time to attend training to improve your Thai language competence.	Basic	3.91	1.09	
	Fair	3.57	0.90	
	Intermediate	2.67	1.03	
	Good	2.78	1.09	
	Total	3.72	1.05	.275
4. Traditional technologies such as books, TV, radio can help you improve your Thai language competence.	Basic	4.30	1.09	
	Fair	4.03	0.91	
	Intermediate	4.20	1.05	
	Good	4.26	1.05	
	Total	4.22	1.02	.484
5. Digital technologies such as e-books, websites, smartphones can help you improve your Thai language competence.	Basic	4.30	1.33	
	Fair	4.32	1.05	
	Intermediate	4.51	0.94	
	Good	4.61	0.94	
	Total	4.51	0.99	.121
6. Offline or onsite learning helps you to develop Thai language competence.	Basic	4.30	1.11	
	Fair	4.18	0.98	
	Intermediate	4.30	0.90	
	Good	4.49	0.85	
	Total	4.35	0.91	.067
7. Online learning helps to improve your Thai language competence.	Basic	3.78	1.05	
	Fair	3.70	1.23	
	Intermediate	3.80	1.02	
	Good	3.99	1.07	
	Total	3.86	1.07	.169
8. Blended learning helps to improve your Thai language competence.	Basic	3.83	1.12	
	Fair	4.08	1.03	
	Intermediate	3.94	1.14	
	Good	4.23	1.00	
	Total	4.05	1.08	.022*
9. Environments around you (e.g., homes, dormitories, schools) are conducive to developing Thai language competence.	Basic	3.85	1.17	
	Fair	3.85	1.00	
	Intermediate	3.87	0.98	
	Good	4.20	1.07	

Item	Proficiency	M	SD	Sig
	Total	3.99	1.04	.005*
10. You are self-motivated to improve your Thai language competence.	Basic	3.96	1.03	
	Fair	3.79	1.00	
	Intermediate	4.21	0.93	
	Good	4.47	0.95	
	Total	4.24	0.97	.000*

* *p*-value significant if < .05.

Table 4 demonstrates similar items as appeared in the previous table. As classified earlier, the high groups consisted of B1 and B2, whereas A1 and A2 were categorised as the low-proficient ones. The high-level learners had a stronger belief than novice users that traditional and online technology helped gain English competence. In terms of instructional approaches, more B-level than A-level speakers also indicated that face-to-face, electronic, and hybrid learning assisted them in developing L2. Compared to the basic students,

the advanced learners seemed to have more time to take a training course and felt more motivated to learn wherever they happened (e.g., house, student accommodation, or university).

Nonetheless, Thai EFL trainees who were at the beginner’s level believed more strongly than independent users. All language skills should be highlighted while gaining English competence, which demanded their future teaching career path.

Table 4. Descriptive statistics of selected items for Factor 2 (beliefs about L2 competency development)

Item	Proficiency	M	SD	Sig
1. Developing English language competence should focus on all language skills.	A1	4.64	1.13	
	A2	4.94	0.95	
	B1	4.68	1.23	
	B2	4.62	1.00	
	Total	4.75	1.08	.034*
2. Your future professional teaching practices require English language competence.	A1	4.79	1.10	
	A2	4.93	0.99	
	B1	4.81	1.18	
	B2	4.78	1.13	
	Total	4.84	1.08	.575
3. You have enough time to attend training to improve your English language competence.	A1	3.60	1.10	
	A2	3.66	1.03	
	B1	3.75	1.03	
	B2	3.95	1.15	
	Total	3.67	1.07	.275
4. Traditional technologies such as books, TV, radio can help you improve your English language competence.	A1	3.78	1.05	
	A2	3.98	0.98	
	B1	4.32	1.05	
	B2	4.35	0.94	
	Total	3.97	1.03	.000*
5. Digital technologies such as e-books, websites, smartphones can help you improve your English language	A1	4.25	0.97	
	A2	4.44	0.95	

Item	Proficiency	M	SD	Sig
competence.	B1	4.56	0.99	.052
	B2	4.43	0.83	
	Total	4.37	0.96	
6. Offline or onsite learning helps you to develop English language competence.	A1	3.80	1.05	.003*
	A2	4.00	1.02	
	B1	4.22	1.00	
	B2	4.27	0.90	
	Total	3.97	1.03	
7. Online learning helps to improve your English language competence.	A1	3.73	1.05	.332
	A2	3.85	1.06	
	B1	3.90	1.03	
	B2	4.00	1.13	
	Total	3.81	1.06	
8. Blended learning helps to improve your English language competence.	A1	3.75	1.08	.085
	A2	4.00	1.05	
	B1	3.98	1.13	
	B2	4.00	1.20	
	Total	3.89	1.09	
9. Environments around you (e.g., homes, dormitories, schools) are conducive to English language competence development.	A1	3.48	1.18	.119
	A2	3.60	1.27	
	B1	3.83	1.22	
	B2	3.78	1.03	
	Total	3.60	1.21	
10. You are self-motivated to improve your English language competence.	A1	3.78	1.11	.000*
	A2	4.02	1.03	
	B1	4.41	0.99	
	B2	4.19	1.10	
	Total	3.99	1.08	

* *p*-value significant if < .05.

As depicted in Table 5, applied-group teacher candidates had a stronger belief that they had adequate time for participating in the teacher training and motivation for boosting technological skills than the others. In addition, more advanced than basic and elementary users believed that digital instruments improved their abilities. Concerning modes of delivery, middle-level learners agreed that in-person classroom, fully

online instruction, and blended learning brought more benefits to them than the rest.

It was no surprise that traditional technology and physical environments were considered to enhance the technology skills by more students in the basic group than those at the elementary and applied stages.

Table 5. Descriptive statistics of selected items for Factor 3 (beliefs about technology competency development)

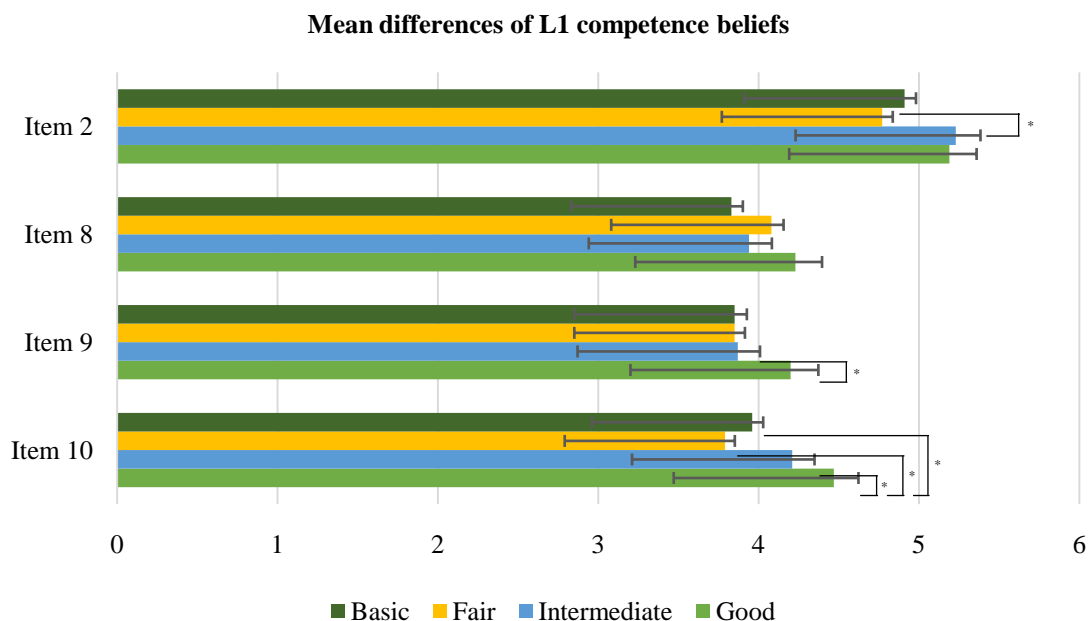
Item	Proficiency	M	SD	Sig
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Item	Proficiency	M	SD	Sig
1. You have enough time to attend training to develop your digital technology competence.	Basic	3.91	1.10	.650
	Elementary	3.82	1.11	
	Applied	3.93	1.21	
	Total	3.88	1.13	
2. Traditional technologies such as books, TV, radio can help you develop your digital technology competence.	Basic	3.85	1.09	.889
	Elementary	3.79	1.14	
	Applied	3.83	1.45	
	Total	3.82	1.20	
3. Digital technology such as e-books, websites, smartphones can help you develop your digital technology competence.	Basic	4.03	1.05	.071
	Elementary	4.12	1.17	
	Applied	4.34	1.17	
	Total	4.15	1.14	
4. Offline or onsite learning promotes the development of digital technology competence.	Basic	3.79	1.07	.728
	Elementary	3.88	1.14	
	Applied	3.84	1.24	
	Total	3.84	1.14	
5. Online learning promotes the development of digital technology competence.	Basic	3.90	1.11	.122
	Elementary	4.12	1.07	
	Applied	4.08	1.09	
	Total	4.04	1.09	
6. Blended learning promotes the development of digital technology competence.	Basic	3.89	1.00	.754
	Elementary	3.97	1.10	
	Applied	3.95	1.07	
	Total	3.94	1.06	
7. Environments around you (e.g., houses, dormitories, institutes) are conducive to developing digital technology competence.	Basic	3.75	1.09	.732
	Elementary	3.74	1.11	
	Applied	3.66	1.18	
	Total	3.72	1.12	
8. You are self-motivated to develop your digital technology competence.	Basic	4.05	1.12	.728
	Elementary	4.12	1.01	
	Applied	4.14	1.05	
	Total	4.10	1.06	

Differences Between Pre-Service Teachers' Beliefs at Different Levels of Proficiency

The second research question was answered by using post-hoc tests. Scheffé's procedure ($p < .05$) was performed to examine all possible contrasts among learners' proficiency levels on their cognition of L1, L2, and DT competence development.

The first factor (see Figure 3) showed statistical differences on three issues. The f -test in One-way ANOVA pointed out that pre-school teachers at the intermediate level held more positive beliefs than fair-level students in the requirement for future teaching career ($F(3, 519) = 3.648, p = .013$), and less favourable perception of the physical environment ($F(3, 519) = 4.320, p = .005$) than those at the good stage. The good-level teacher candidates' belief in self-motivation ($F(3, 519) = 9.137, p = .000$) was different from the rest.



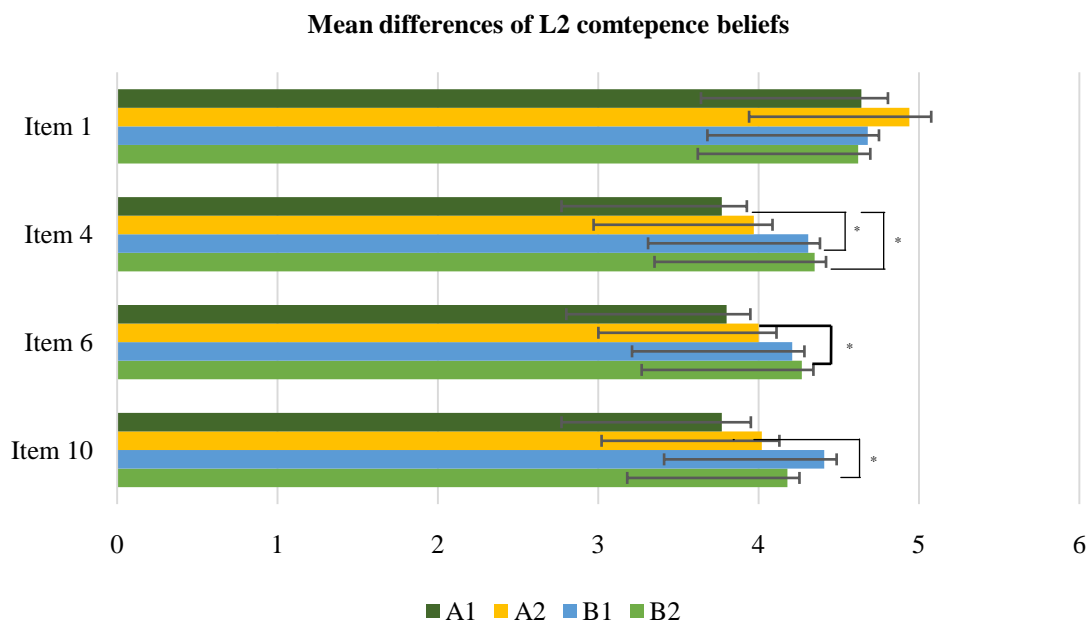
Note: an asterisk shows a statistically significant difference between the groups.

Figure 3. Mean and standard errors of beliefs in L1 competence development

Concerning the second factor, L2 competence, as illustrated in Figure 4, a list of three items yielded significant differences associated with self-perceived English proficiency levels. The *f*-test revealed that A1-level students differed from learners at level B1 of CEFR in terms of onsite instruction ($F(3, 519) = 4.602, p = .003$) and self-motivation ($F(3, 519) = 7.718, p = .000$), which B1 users expressed more favourable beliefs. Likewise, beliefs about traditional technology (F

(3, 519) = 7.506, $p = .000$) varied between A1 speakers and B-level learners.

With respect to the third factor or technology competence, it should be recalled that no statistically significant difference was presented. This indicated there was a resemblance between students' beliefs, regardless of their proficiency.



Note: an asterisk presents a statistically significant difference between the groups.

Figure 4. Mean and standard errors of beliefs in L2 competence development

Discussion

The study presented here is one of the first investigations to explore L1, L2, and DT competence development beliefs shared by teacher candidates. The findings suggested that the undergraduate students recognised the value and necessity of language and technology training and development in the programmes of study.

Beliefs About L1 Competency Development

Noticeably, the advanced proficiency group was involved in almost all between-group differences. This group held a stronger belief in L1, L2, and DT competence development and confidence in fostering these abilities by various modes and approaches. Among the ten items representing the L1 domain (Table 3), the most robust agreement was pertinent to the belief that the native language was crucial to the future teaching profession's success. A study on the teaching competency factor of Thai teachers revealed that Thai language usage was one out of four core competencies [39]. It was also consistent with findings in another study [40]. Not surprisingly that pre-school teachers assigned a heavyweight for this regard.

In order to enable communication effectively, as the researchers [40] argue, both the sender and the receiver share the burden of responsibility in reaching an understanding. It is inevitably required to draw particular attention to sharpen the four necessary language skills. This argument is supported by teacher candidates' belief that developing proficiency in Thai should highlight listening, speaking, reading, writing abilities. Therefore, students approved that they were motivated by a desire to boost their language skills. A plausible explanation is that the native language was acclaimed as the fundamental principle to Thai undergraduate education policy. The finding appears to contradict the other study [42], which found that undergraduate students took a negative attitude towards Thai language learning since there existed a considerable degree of overlap between the contents of the national curriculum for primary/secondary schools and higher education curriculum, leading to boredom and apathy. It should be noted here that more agreement was associated with adequate time to receive a training session. These beliefs may lead to positive consequences on language difficulty.

In terms of modes and approaches, the strongest belief was associated with the development of L1 competence utilising both traditional and digital

technology. The findings are in concordance with those of the academicians [43]. Their study of Thai students' achievement through computer technology use revealed that the learners' post-test scores were significantly higher than the pre-test scores at the 0.05 level. Other scholars reported comparable findings (see [44], [45]). For example, the researchers [45] reported a statistically significant difference in the students' achievement after implementing the classroom activities with multimedia. Concerning modes of teaching and learning, students in the current study also agreed that traditional classroom or face-to-face instruction had boosted their language ability, where the environment is physical. It can be asserted that since the respondents were from the universities where generally traditional learning method was used, they might have a lack of adaptation to other learning modes. Therefore, learners were more likely to learn in a traditional lecture-style class or supported by a physical environment rather than hybrid or online. University students in the investigation [46] also indicated that F2F learning promoted the learning of world knowledge and improved their interests in learning a language.

Beliefs About L2 Competency Development

In Thailand, English language proficiency and performance are assessed against the standardised O-NET under the National Institute of Educational Testing Service (NIETS). The results have revealed students' low English proficiency for nearly the past decade [47]. According to the study [48], despite several years Thai students spend on English learning in formal education, they have limited competence in using English for communication. When students' L2 beliefs were assessed using ten statements (Table 4), it was manifested that English competence required for their future teaching profession was the highest total mean score. This belief reflected in the salience of English ability development. With regard to English as a compulsory subject at the primary school level (Grades 1-6) since 2008, this is, of course, become more evident with equipping learners with language proficiency by numerous Thai institutions. Such attempts have enabled students to acquire favourable attitudes towards English development [48]. This view is supported

by the international scholars [49], who argue that teachers' language proficiency is deemed to be a highly necessary condition for an effective teacher. The researcher [50] considers that the language proficiency of teachers is encompassing all the language skills needed in informal and formal communications. As previously stated, participating students held an agreement emphasising the four-skill development to perform their duties well. It can be claimed that teachers in Thailand are expected to have the necessary language abilities to meet the stakeholders' needs [51].

Since English is regarded as beneficial for a better job and future career, it requires many Thai institutes to offer various teacher training programmes for undergraduates. Student teachers approved that they had been provided adequate training opportunities. Thus, participating students reported strong beliefs about the motivation of self-learning English. It should be noted that learners may be driven to learn by two sources: internal and external, based on self-determination theory [52]. With extrinsic motivation, students are driven to pursue their development in order to, as mentioned previously, fulfil their future teaching job requirement. These results partly echo those in other Thai EFL contexts (e.g., [53], [54], [55], [56]).

Among the five statements that represented the materials used to raise students' L2 skills, the strongest agreement was pertinent to the belief that digital technology enhanced their English language learning experience. A result has been supported by the research's findings [57] which argues that technology can be very beneficial in supporting ELL students. The participants in the study viewed technology as an interactive way to learn the English language. Nonetheless, with regards to the instructional methods, the highest mean response was associated with the belief that F2F learning in the classroom yielded better results than online and hybrid instruction. This result reflects those of the practitioner [46] who also found that F2F learning promoted the learning of knowledge and helped to improve learners' interests in learning English.

Moreover, the participants in this study held the agreement to some extent, believing that the surrounding physical environment supported them to raise L2 abilities. A possible explanation for this may be that English is not widely spoken or used in Thailand. Particularly in schools and universities, English is not used as a medium of instruction [58]. It seems possible that there may be a lack of opportunities for the students to practice their English language communication skills.

Beliefs About Technology Competency Development

The way pre-service teachers perceived the nature of DT competence development was represented by eight statements (Table 5). The current study found that the strongest belief in the significance of equipping students with DT abilities for their future teaching profession. This further supports the idea of the scholars [27], who pointed out that as student teachers were the future in the teaching profession, they realised to expose the latest technologies that were designated for schools. In terms of technology types used to foster the ability, teacher candidates held a stronger belief that digital technologies could enhance their skill than traditional ones. It is in line with previous studies [e.g., 59]. Among the three modes of delivery in learners' beliefs, student teachers generally had more positive opinion towards online instruction than the others. As confirmed by the academicians [60], student views their achievement differently depending on the instructional approaches. However, regardless of methods, learners approved that they were motivated to boost their digital technology, which corroborated with students in another study [61], who also demonstrated a willingness to learn technology skills. According to the concept of Education 4.0 in Thailand, the primary purpose of this education era is to produce graduates which much higher skills in innovation and digital technology [22].

Consequently, a myriad of Thai post-secondary institutes prepared much technology integration into pre-school teacher training in order to serve the demand of qualified teachers in the future. Not surprisingly, teacher candidates in the current

study reported an adequate number of courses in their teacher training programmes and enough time to attend extracurricular activities to raise digital skill. Besides, they agreed with the beliefs that the physical environment promoted the development of digital technology ability.

Conclusion

This study presents student teachers' beliefs towards their professional teaching competency development of L1, L2, and DT. Findings revealed that these teaching competencies for future career path were a high priority in students' beliefs. Teacher candidates in this study tended to use traditional and digital media to acquire their competences, which seemed to be the motivation for self-improvement by different environments. Interestingly, it was paramount to note that although learners perceived that all skills were acquired by digital technology, they were likely to apply it in a traditional classroom. This requires much technology integration in the programmes of study at their universities; practitioners and policymakers should seriously consider the issues concerning pre-school teachers' training and development to ensure their readiness for future employment as qualified teachers according to the latest Regulation of the Teachers Council of Thailand.

The experiences of these student teachers and their beliefs on L1, L2, and DT in Thailand threw light on pedagogical issues in the country. Understanding the perceptions among participating students contributes to the literature by providing a cross-cultural perspective to teacher education research, many of which have been conducted in non-Asian contexts. As Thailand is one of the largest countries in Asia, the findings of this study may be generalised to other countries with similar demographic and economic profiles. Moreover, the findings presented in this study add to an understanding of adequately developing programmes, curricula or learning technologies in order to enhance essential skills in a borderless world.

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