Dispositions of In-Service English Teachers towards Developing Pedagogical Competence by Technology Literacy

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Technology literacy is a must for living in Industry 4.0 includes English teachers who face millennial students. This study investigated the dispositions of in-service English teachers namely beliefs, enthusiasms, commitments, attitudes, initiatives, responsiveness, strong work ethics, open-mindedness, patience, lifelong learners, adaptations, collaborations, proactive, and reflections towards improving pedagogical competence by applying technology literacy during the PPG workshop especially during constructing lesson plan, simulation, and teaching practice at school. This is a case study of descriptive qualitative research which was conducted at Teacher Education Program (PPG) of Tanjungpura University in Pontianak in 2019. 47 in-service English teachers who were participating in this program were the subject of this study. Data were collected through the distribution of a questionnaire and in-depth interview, as well as classroom observation. Based on the result of data analysis, most of in-service English teachers (88.80%) have positive dispositions towards applying technology literacy. They showed their beliefs, enthusiasms, commitments, attitudes, initiatives, responsiveness, strong work ethics, open-mindedness, patience, lifelong learners, adaptations, collaborations, proactive, and reflections. Almost all of teachers (93,61-100%) had experiences to use technology to develop their pedagogical competence such as selecting techniques for teaching language skills, developing teaching materials, and selecting teaching media. Most of in-service English teachers (80-82%) had skills to use images/pictures, video, you tube. Factors such as digital literacy, infrastructure for internet access are needed by the teachers to use technology to improve their pedagogical competence.

 Keywords: teacher dispositions, in-service English teachers, pedagogical competence, technology literacy

Literasi teknologi sudah keharusan untuk hidup di Industri 4.0 termasuk guru bahasa Inggris yang sedang mengikuti pendidikan profesi guru (PPG) dalam menghadapi siswa milenial. Penelitian ini mengkaji disposisi guru bahasa Inggris yaitu pandangan, sikap, pengetahuan dan praktik terhadap peningkatan kompetensi pedagogik dengan menerapkan literasi informasi teknologi pada saat mengikuti

lokakarya PPG tentang pengembangan perangkat pembelajaran seperti pelatihan persiapan mengajar, simulasi praktik mengajar, dan praktik mengajar di sekolah. Penelitian ini dilaksanakan di Program Pendidikan Guru (PPG) Universitas Tanjungpura Pontianak pada tahun 2019. Ada 47 orang guru bahasa Inggris menjadi subjek penelitian ini. Pengumpulan data dilakukan melalui penyebaran kuesioner dan wawancara mendalam, serta observasi kelas. Berdasarkan hasil analisis data, sebagian besar guru bahasa Inggris (88.80%) memiliki disposisi positif terhadap penerapan literasi teknologi; hampir semua (93,61-100%) guru memiliki pengalaman menggunakan teknologi untuk mengembangkan kompetensi pedagogiknya seperti pemilihan teknik pengajaran, pengembangan bahan ajar, pemilihan model pengajaran, pengajaran pengucapan, pengajaran menyimak, pengajaran berbicara, pemilihan media pengajaran, pengajaran tata bahasa, pengajaran membaca, mengajar menulis, dan mengajar kosakata baru; sebagian besar guru bahasa Inggris in-service (80-82%) memiliki keterampilan menggunakan gambar / gambar, video, YouTube.

INTRODUCTION

Teachers in the era of Industry 4.0 have to be struggle with integrating technology in their teaching. However, several studies indicated that beginning teachers integrate technology insufficiently in their educational practices (Paratore et al. 2016). For instance, Tondeur (2012) indicated that teachers do not feel fully prepared to integrate technology in the classroom. As a consequence, teachers are poorly and unsatisfactory prepared to integrate technology successfully. Improving teachers to use technology to develop their pedagogical competence will help teachers in preparing for the future of milineal generation. Technology is considered as an important dimension of life for milineal students. It can be stated that they now live in a technologically designed world as technology is in all parts of their lives.

It is the teachers who are responsible for educating the milineal generations. In order to discharge the responsibility at desired level, teachers must prepare themselves for the future. For this purpose, they need to develop and update themselves constantly. Thus, they will be able to both get personal development and be useful to their students by creating effective learning and teaching processes. It is possible to realize this task by being aware of ways to access to information and actively making use of it.

To be successful in integrating technology with teaching, the most important contributor is from the teachers' demonstration of their dispositions. In the past, Dewey has started to define disposition as teacher moral exemplars. National Council for Accreditation of Teacher Education (NCATE) in USA (2012) defines it as professional attitudes, values, and beliefs demonstrated through both verbal and non-verbal behaviors as educators and teachers in interacting with students, families, colleagues, and communities. These teacher behaviors influence student learning and development (NCATE, 2010). In addition, Varol (2011) has given the indicators of teacher dispositions such as belief, enthusiasm, commitment, attitude, initiative, responsiveness, strong work ethic, open-mindedness, patience, being life long learners, adaptive, collaborative, proactive, and reflective of teachers. For example, teacher's belief in the use of technology in education is a necessary condition for successful technology integration. What teachers believe about technology will affect their teaching. The choice of technology and how teachers use technology in teaching are both related to the teachers' beliefs (Prestridge & de Aldama, 2016), Anderson et al., (2011).

In short, students can be most affected by their teachers who have both the teaching skills and the dispositions. The use of technology in the classroom is influenced by the teachers' beliefs about the value of technology so; teachers need to believe that the use of technology will contribute to good teaching and the expected learning outcomes. Therefore, to be professional, the teachers must be qualified by not only have knowledge and skills, but also have dispositions. Several studies have also proved that teachers' dispositions have impacted to the student performance (Fonseca-Chacana,2019;Altan et al, 2018; Lim Chin Yin, 2019).

In Indonesian education context, knowledge, skills and disposition of teachers have been stated in Law Number 14 Year 2005 regarding Teachers and Lecturers in Article 10 paragraph (1): "Teacher competence as referred to Article Eight which covers pedagogical competence, personality competence, social competence, and professional competence gained through professional education. Pedagogical competence is stated in National Ministry of Education Regulation Number 16 Year 2007 about Standard of Teacher Competence which includes: teachers' understanding of: (a) educational foundation, (b) students' characteristics, (c) curriculum development, (d) lesson plan, (e) implementation of educational learning, (f) implementation of dialogic learning, (g) ICT utilization, (h) learning outcome evaluation, (i) students' potential development and (j) reflective action (Permendiknas No. 16 The Year 2007). The components of pedagogical Competence cover the understanding students' characteristics, basic principles in teaching, curriculum development, lesson plan, ICT mastery, students' potential development, teachers' talk, evaluation and reflective action (Permendiknas No. 16 Tahun 2007). These teacher pedagogical competences are assessed during *PPG dalam Jabatan*.

In-service Teacher professional education (*PPG dalam Jabatan*) is an educational program held for civil servant and non-civil servant teachers who have been teaching at least five years at schools. This program is held by the collaboration with the central government, local government, and community education providers who already have work agreements or work agreements together. The inservice teachers applied the program of *PPG dalam jabatan* in order to get professional teacher certification.

This study has investigated the dispositions of the in-service English teachers who joined Teacher Professional Education (*PPG dalam jabatan*) in April- June in the academic year of 2019 towards technology literacy and how technology literacy supports them to develop their pedagogical competence as well as what varied sources of technology that they have been using to develop their Pedagogical Competence. This study aims to provide a framework to assess the dispositions of inservice English teachers towards developing pedagogic competence by applying technology literacy specifically their belief, enthusiasm, commitment, attitude, initiative, responsiveness, strong work ethic, open-mindedness, patience, life long learners, adaptive, collaborative, proactive, and reflective towards technology in teaching.

METHOD

This is a case study of descriptive qualitative research which has investigated the dispositions of in-service English teachers towards developing pedagogical competence by applying technology Literacy. Through five weeks PPG workshop, the in-service English teachers' dispositions toward

technology literacy in developing pedagogical competence have been analysed. The study was conducted within the framework of a survey research model.

Subjects

47 in-service English teachers were taken as the subject of the research. They were English teachers who registered in PPG Program in 2019 at Faculty of Teaching and Education in Tanjungpura University Pontianak, West Kalimantan. Their ages were around 30-49 years old. They had been teaching for five to fifteen years in remote area. They came from 14 districs in West Kalimantan.

Data collection and Analysis

Data collection and analysis are integral components of the research design. Data were collected through questionnaire, observation, and interview. All research data were interpreted by narrative descriptive analysis. Questionares were calculated by the percentage of teachers' answers. Interviews were audio taped, transcribed, and interpreted. Observation was noted in the field note and interpreted.

Questionnaire

The primary data was collected through a questionnaire. This questionnaire was designed to assess in-service English teachers's dispositions towards technology literacy in developing pedagogical competence. In April 2019, the questionnaire was distributed to the teachers. The questionnaire consists of three parts. The first part includes information questions about in-service English teachers' dispositions about Technology Literacy in developing pedagogical competence. This part has total 23 statements. In this part, the in-service English teachers responded by choosing one the best answer of four choices namely completely agree, agree, neutral, disagree. The second part has total 13 statements about how technology literacy has supported the in-service English teachers in developing their pedagogical competence. The in-service English answered by putting a checklist (√). The third part has 23 statements which collected the information about the varied sources of technology information that the in-service teachers have been using to develop their pedagogical competence. In this part the in-service English teachers put a checklist (√) to their answers that they chose.

Observation

The observations were conducted in April to Mei 2019. The researcher observed in-service English teachers'attitudes and behaviours during the workshop and peer teaching of PPG program such as constructing lesson plan, developing materials, selecting teaching media, selecting techniques of teaching, constructing instrument for evaluation, The researcher also observed teachers' teaching performance during teaching simulation, teaching practice at school, and teacher teaching performance (UKIN). Through field notes, the researcher observed in a manner that she didnot disrupt the in-service English teachers when they were teaching. She placed herself as an instructor as well as an examiner who trained and examined in-service teachers to be professional teachers such as constructing lesson plan, teaching simulation, teaching practice, and the examination of teacher teaching performance. The observations were noted in the filed note, interpreted by narrative descriptive analysis.

Interviews

The interviews were conducted in Mei 2019. The interview was given to in-service English teachers to confirm what they had answered in the questionnaire namely their belief, enthusiasm, commitment, attitude, initiative, responsiveness, strong work ethic, open-mindedness, patience, life long learners, adaptive, collaborative, proactive, and reflective of teachers. The questions and responses from the interview provided a way to triangulate the findings of the research. Interviews were audio taped, transcribed, and interpreted.

FINDINGS AND DISCUSSION
1. Findings

In this part, the results obtained are discussed in the view of the fundamental aims of the research namely what dispositions of the in-service-teachers towards technology literacy; how technology literacy supports the in-service teachers to develop their pedagogical competence; and what varied sources of technology that the in-service teachers have been using to develop their pedagogical competence.

1.1. The Dispositions of the In-Service English Teachers towards Developing Pedagogical Competence by Technology Literacy

From the result of questionnaire analysis which consisted of 60 questions grouped into the disposition indicators namely belief, enthusiasm, commitment, attitude, initiative, responsiveness, strong work ethic, open-mindedness, patience, life-long learners, adaptive, collaborative, proactive, and reflective to the use technology literacy and from the analysis of observation and interview, the in-service English teachers had demonstrated positive dispositions. It has been proved that the in-service English teachers had performed positive disposition. The following table is the result of the analysis:

Table 1: In-service Teacher Disposition of Applying Technology

No	Teachers 'Views/Beliefs/attitudes, behavior about willingness to use Technology Literacy to Develop Pedagogical Competency	Indicators of Disposition	Number of Responses	Number of Subjects	%
1	Although my school does not provide internet access but I can use my private internet access for my teaching	Enthusiasm/ Proactive/co mmitment	44	47	93.61
2	Internet access is not expensive now	Belief	39	47	82.98
3	I feel as a left behind teacher if I don't use technology	Reflective	38	47	80.85
4	Using technology as an instructional tool in teaching makes me confident	Reflective confident	43	47	91.49
5	Technology is very important for me as an English teacher	Belief	46	47	97.87
6	I have no problems if my knowledge and skills digital is insufficient because I can ask others	Enthusiasm/c onfident/ Open	38	47	80.85

		mindedness/ collaborative			
7	With technology, I can teach based on my student interest	commitment	40	47	85.10
8	Using YouTube videos is the first thing makes me confident to update my teaching and stimulate my students to learn	Confident/res ponsiveness	45	47	95.74
9	I use Smart Phone as instructional or learning tool which makes exciting to teach	strong work ethic	40	47	85.11
10	The use of technology in teaching and learning makes me afraid	Belief	2	47	4.25
11	The LCD Projector, lap top, and internet are valuable instructional tools for me	Reflective	42	47	89.36
12	Technology has changed the way my preparation and my teaching	Belief/patient /strong work ethic/	44	47	93.61
13	The Technology has changed the way my students learn in my classes	strong work ethic Adaptive	45	47	95.74
14	The teaching with the use of technology is more interesting than conventional ways of teaching	BeliefAdapti ve	46	47	97.87
15	Technology is easy to be used by teachers and students	Reflective	15	47	31.91
16	My students understand the materials effectively through the use of technology	Beliefadaptiv e	37	47	78.72
17	Using technology helps students get the language model from native speakers.	Belief /Adaptive	44	47	93.61
18	Technology helps me to teach the language skills in more interesting	Belief /Adaptive	44	47	93.61
19	I can use varieties of EFL teaching techniques by browsing from webs	Belief/Patien ce/ strong work ethic	47	47	100
20	I can update my teaching materials, from internet	Initiative/Pro active	44	47	93.61
21	I can update my teaching media	Initiative/Pro active	46	47	97.87
22	I can update my teaching assessment	Initiative Proactive	46	47	97.87
23	I must be selective and adaptive in using teaching sources from internet.	Attitude	47	47	100
	Total		40	47	88.80

From the questionnaire given to the in-service English teachers, 40 teachers out of 47 teachers (88.80%) had demonstrated positive *disposition* towards technology literacy to improve their pedagogical competence. From the statements of the questionnaire they had chosen, they showed their beliefs, enthusiasms, commitments, confident, attitudes, initiatives, responsiveness, strong work ethics, open-mindedness, patience, life long learners, adaptations, collaborations, proactions, and reflections. Most of the in-service English teachers (93,61%) were enthusiastic and proactive in integrating technology to develop their pedagogical competence. Although their school does not provide internet access, they proactively used their private internet access such as using their smart phone to get internet access for their teaching. They believed that Smart Phone can be used as instructional or learning tool which made them exciting to teach (85.11%). Only few teachers (4.25%) had negative attitude towards technology as they stated that the use of technology in teaching and learning made them afraid.

Most of the in-service English teachers (95.74%) believed that technology has changed the way they prepare and teach as well as changed the way their students learn. To prepare for teaching, they have to learn, try out the technology they integrate in their classroom. All of in-service English teachers agreed that they had to be selective and adaptive in using teaching sources from internet. In short, the in-service English teachers have shown positive dispositions such as commitment, patient, strong work ethic, and lifelong learners to develop their teaching skills by using technology. The in-service teachers stated that internet is very important for them as an English teacher. This finding supports what Voogt, et al, (2013) stated that technology literacy is one of the most important 21st century competencies for teachers. Most of the teachers (89.36%) had the belief that LCD Projector, lap top, and internet are valuable instructional tools to develop their pedagogical competence. They also stated that technology literacy had helped them teach their students the language skills because they could get the language model from native speakers through internet. Also, almost all the in-service English teachers (97.87%) believed that the teaching with the use of technology is more interesting than conventional ways of teaching. This statement means that the in-service English teachers demonstrated positive dispositions of proactive, inntiative, and adaptive teachers especially in developing and updating teaching materials, teaching media, and assessments.

One of the teacher pedagogical competence aspects based on National Ministry of Education Regulation Number 16 Year 2007 about Standard of Teacher Competence is teachers' understanding of students' characteristics such as interest and motivation. Many teachers (85.10%) believed that they could adapt their teaching with their students's characteristics as they stated that technology help them teach based on their student interests They could update their teaching media and assessment (97.87%). All of in-service English agreed that they could use varieties of EFL teaching techniques by browsing from webs (100%). They could update their teaching materials from internet (93.61%). By updating their techniques, materials, media, assessments of teaching, the in-service English teachers actually had developed their pedagogical competence.

The in-service English teachers showed their commitment towards applying technology. They had no problems if their technology literacy was insufficient because they could ask for help (80.85%).Teachers also viewed that internet access was no longer expensive now. 80.85% of

teachers felt that they were as a left behind teachers if they did not use technology literacy.
Using technology as an instructional tool in teaching makes the English teachers confident (91.49%) in teaching. For example most of the teachers (95.74%) felt confident when Using YouTube videos to update their teaching and stimulate the students to learn. Although some in-service English teachers (31.91%) stated that technology was not easy to be used by students but the majority of in-service English teachers stated they had no problems if their digital knowledge and skills was insufficient because they could ask others and only very few teachers are afraid to the use of technology in teaching and learning (4.25%). From the interview, the in-service English teachers stated that electricity, accessibility, and facility were the reasons why they thought that using technology was not easy for them and made them afraid of.

1.2. Developing Pedagogical Competence by Technology Literacy

Table 2 below shows the experiences of in-service English teachers to use technology literacy to develop their pedagogical competence. In general, almost all in-service English teachers had experiences applying technology to develop their pedagogical competence. Teacher pedagogical competence which is stated by National Ministry of Education Regulation Number 16 Year 2007 has the indicators namely the understanding students' characteristics, basic principles in teaching, curriculum development, lesson plan, ICT mastery, students' potential development, teachers' talk, evaluation and reflective action. From table 2, all of teachers(100%) stated that they had experiences to select teaching techniques from internet. The other aspects of pedagogical competence that they develop by using technology are such as selecting materials for teaching pronunciation, listening, grammar, reading texts, new vocabularies, writing and speaking (97.9%). Most of in-service English teachers (93.61-95.74%) stated that they used internet also for selecting teaching media (95.74%). Also, in-service English teachers had experiences using technology to construct lesson plan (97.9%), to read the information about the newest curriculum and syllabus on English teaching and learning (76.6%). However, not many teachers used technology for improving classroom Management (27.65%). From the result of teacher interview, the reason was that the teachers did not much concern using technology for classroom management.

Table 2: Using Technology to Develop Pedagogical Competence

NO	The Use of Technology Literacy To Develop Pedagogical Competence	Dispositions	Percentage (%)
24	Reading the newest curriculum and syllabus on English teaching and learning	36	76.6
25	Constructing Lesson plan	46	97.9
26	Developing Teaching materials	46	97.9
27	Selecting Learning model	46	97.9
28	Selecting teaching techniques	47	100
29	Selecting Media	45	95.74
30	Teaching pronunciation	46	97.9
31	Teaching new vocabularies	44	93.61
32	Teaching grammar	45	95.74
33	Teaching Listening	46	97.9

34	Teaching Speaking	46	97.9
35	Teaching Reading	45	95.74
36	Teaching writing	45	95.74
37	Classroom Management	13	27.65

1.3. Varied Sources of Technology to Develop Pedagogical Competence

The positive disposition of in-service English teachers to develop their pedagogical competence also could be seen from the use of varied sources of technology (see table 3 below). Most of them (80-82%) used images/pictures, video, you tube. From the field notes taken from Peer Teaching during the workshop, Teaching Practice at school, and Examination *(UKIN)* , the researcher found that all of in-service English teachers used images, video, and You Tube as media and selecting teaching materials. The video, film, images, pictures that they had used were presented using power points, lap top, and LCD. When the teachers were asked how often they could use technology in their teaching at their school, most of them said that they seldom did it because the school had only one LCD. Therefore they had to stand in line with other teachers to use LCD. Besides, electricity sometimes was off.

Table 3 also presents responses of the sample respondents under survey about the statement that the idea of skills in using varied sources of technology tool and application. Nearly 75% of teachers got the benefits from WA and Google. More than a half number of teachers had experiences in using English Teacher/Forum/Group/online courses, Face book, Online games for language teaching, eBooks.

Not many teachers (10-14%) had skills to use Blogs, On line maps, Digital story, Apps (Kahoot, Flickers, Potatoes), online quiz, and Tweeter. Those teachers stated that such technology application like On line maps, Digital story, Apps (Kahoot, Flickers, HotPotatoes), Online quiz, helped them to use varieties of media, techniques, materials, and assessment. Communication to other English teachers is also supported by Blogs and Tweeter. Other sources that had beed heard but never bee applied by few teachers (3-9%) are Graphic, Wikipedia, Google classroom, Tweeter, Telegram, Instagram, Google classroom, Mainstream news sites, Niche news sites. In other words, in-service English teachers should update their skills to varieties of technology sources to develop their pedagogical competence.

Table 3: Varied sources of technology used by in-service English teachers

No	Varied Sources of technology used to develop Pedagogical Competence	Number of teacher	Precentage (%)
37	Images/pictures	39	82.98
38	Presentations using power points, lap top, and LCD	38	80.85
39	video	38	80.85
40	Online games for language teaching	26	55.31
41	Graphic	7	14.9
42	eBooks	25	53.19
43	blogs	14	29.78

44	Wikipedia	21	44.68
45	You tube	38	80.85
46	Mainstream news sites	3	6.38
47	Niche news sites	5	10.63
48	Google classroom	9	19.14
49	On line maps	11	23.40
50	Apps (Kahoot, Flickers, Potatoes)	11	23.40
51	Whatsapps (WA)	35	74.47
52	Google	35	74.47
53	Face book	28	59.57
54	Instagram	22	46.80
55	Tweeter	10	21.27
56	Telegram	9	19.14
57	Google scholar	4	8.51
58	Digital story	12	25.53
59	Online quiz	12	25.53
60	English Teacher/Forum/Group/online courses	26	55.31

2. Discussion

The findings of this research indicate that almost all in-service English teachers have positive dispositions towards technology in teaching. Although they are teachers from remote areas but they have belief, enthusiasm, commitment, attitude, initiatives, responsiveness, strong work ethic, open-mindedness, patience, lifelong learners, and eager to adapt, collaborate, and reflect in teaching with technology. These positive dispositions are very important contributions to the successful of teaching with technology as stated by Schiler, (2003) that personal characteristics such as educational level, age, gender, educational experience, experience with the computer for educational purpose and attitude towards computers can influence the adoption of a technology.

The positive dispositions will lead the young English teachers to the implementation of pedagogical innovation which focuses not only on student achievement but also on the process of learning and the integration of technology support student active learning during the process of teaching and learning. **For students,** the teachers'dispositions will have an effect to internalize the importance of technology both in their individual and lives because technology innovation have been familiar when they are at school. However, the use of technology by students has to be controlled by teachers and parents in wiseful ways.

Finally, the positive dispositions of teachers on applying technology to develop pedagogical competence need to be supported by the government and school which are related to school conditions, technology infrastructure such electricity, internet with sufficient power, computers for students, LCD and lap top for teachers need to be provided since these access contribute teachers' positive dispositions about the effectiveness of digital technology as Perrota's (2013) found that school-level conditions mediate and significantly affect teachers' perceptions of the instructional benefits of digital technology.

CONCLUSIONS

In 21st century, technology affects the world includes in education world. However, there are some issues about less commitment and ability of school and teachers to apply technology to develop pedagogical competence. In this study, the descriptive qualitative analysis resulted in three themes namely the dispositions of in-service English Teachers toward technology, professional experiences' of using technology in developing their pedagogical competence, and technological application that have been used by the in-service English teachers.

The results show that almost all teachers have positive dispositions towards technology literacy namely have positive dispositions towards applying technology literacy. They showed their beliefs, enthusiasms, commitments, attitudes, initiatives, responsiveness, strong work ethics, open-mindedness, patience, lifelong learners, adaptations, collaborations, proactive, and reflections. 93,61-100% of in-service English teachers had experiences to use technology to develop their pedagogical competence such as selecting teaching techniques, developing teaching materials, selecting teaching model, tselecting teaching media, and teaching language skills (listening, speaking, grammar, reading, writing, and language features such as grammar and vocabularies. Most of in-service English teachers (80-82%) have skills to use images/pictures, video, you tube but they need to develop their skills to use the varieties of technology sources. Factors such as teaching area, digital literacy, educational ICT training, and Internet access are needed by the teachers to use technology to improve their pedagogical competence.

REFERENCES

Altan, S., Lane, J., & Dottin, E. (2017). Using habits of mind, intelligent behaviors, and educational theories to create a conceptual framework for developing effective teaching dispositions. *Journal of Teacher Education, 1-15.*

Chacana, Jannett Fonseca. 2019. Making teacher dispositions explicit: A participatory approach. *Teaching and Teacher Education 77 (2019) 266e276*

Ertmer, P. (2005). Teacher pedagogical beliefs: the final frontier in our quest for technology integration. Educational Technology, Research and Development, 53(4), 25e40.

Lim Chin Yin. 2019. The Dispositions towards Loving Pedagogy (DTLP) scale: Instrument development and demographic analysis. *Teaching and Teacher Education 86 (2019) 102884*

Martin, B. (2018). Faculty technology beliefs and practices in teacher preparation through a TPaCK lens. Education and Information Technologies, 1-14. https://doi.org/10.1007/s10639-017-9680-4.

National Council for the Accreditation of Teacher Education, (2007). *NCATE News*. Retrieved from (http://www.ncate.org/public/102407.asp?ch=148).

National Council for the Accreditation of Teacher Education. (2008). *Professional standards for the accreditation of teacher preparation institutions.* Washington,

National Council for the Accreditation of Teacher Education, (2010). *NCATE accredited schools.*Retrieved fromhttp://www.ncate.org/public/stateInstit.aspx?ch=106&state=FL.

Paratore et al. 2016. Engaging preservice teachers in integrated study and use of educational media and technology in teaching reading. Teaching and Teacher Education 59 (2016). Available at www.elsevier.com/locate/tate

Prestridge, S., & de Aldama, Carlos (2016). A classification framework for exploring Technology-Enabled Practice–Frame TEP. Journal of Educational Computing Research,

54(7), 901e921. https://doi.org/10.1177/0735633116636767.

Tondeur, J., van Braak, J., Ertmer, P. A., & Ottenbreit-Leftwich, A. (2016). Understanding the relationship between teachers' pedagogical beliefs and technology

Varol, Volkan. 2011. Teacher Educators' Perceptions about Teacher Dispositions. Florida: Florida State University

Voogt, J., Erstad, O., Dede, C., & Mishra, P. (2013). Challenges to learning and schooling in the digital networked world of the 21st century. *Journal of computer assisted learning*, *29*(5), 403-413.