



Exploring Technical-Vocational Education Teachers' Challenges and Adaptation Strategies in Teaching Courses Outside their Specializations

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Abstract: Teaching subjects that are outside specialization is one of the major concerns of teachers in the Philippines, particularly in Ilocos Norte. This scenario also affects the learning of the students thus, creating gaps in their overall performance. Therefore, the study was conducted to explore the challenges and adaptation strategies of Technical and Vocational Education (TVE) Teachers in the northern part of the country who taught courses outside of their specialization. 85 teacher-respondents were involved in this study who were purposively selected. Qualitative design was used in the study that utilizes various data collection procedures, such as open-ended questionnaires and interview guide. Specifically, this study employed the phenomenological type of research where the TVE teachers' challenges and adaptations are entangled in their everyday teaching strategies allowing for the presentation of authentic and unique experiences. Furthermore, this study captured the feelings and in-depth phenomena about the pressing needs in the teaching-learning process. Also, it utilized narrative research that basically included all the inputs of the teachers in data gathering that further strengthened the research. Data was analyzed using thematic and narrative analyses. Results show that the TVE teachers are assigned to different subjects outside their specialization because of the following factors: type of schools in which they are working, lack of human resources, limited number of students, financial factors, limited learning resources, lack of training or seminars, and motivational factors coming from the school or administration. Hence, they faced various problems and concerns that need to be taken seriously since these result in a gap in the teaching process. With these findings, TVE teachers adapt various strategies to overcome their challenges. This research aids in policy development as an intervention to address the identified problems of the concerned TVE teachers and to sustain or strengthen performances of the students.

Keywords: General Education, TVET, specialization, instruction, teachers

1. Introduction

The school creates a learning atmosphere that promotes the development of information, skills, and values, as well as their application in real-life situations. It necessitates a person's acquisition of new learning experiences as well as the demonstration of their innate talents. Therefore, teachers are the first agent of moulding and transferring knowledge and skills to the students. Agreeing to this statement, Adu and Abe (2013) posited that the most important aspect in boosting student performance is to hire qualified teachers in all institutions. Teachers with unique talents are the foundation of

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effective learning and teaching. De Jesus and De Jesus (2021) added to the argument that public school teachers have an important role in students' growth since they are the ones who pass on competences and resources. Teachers are challenged to become the catalyst of change for particular behaviours on their students, as they are hoped to create positive impacts in the society. As for the perception of the students, Moreno (2009) shows that effective teachers motivate the teenage students on learning, especially when teachers boost their confidence amidst diversity. This way, their education foregrounds their full potential in learning. Such an assertion is also true with the study of Lupascu (2014), that in strengthening students' learning, teacher's qualities like having humour, patience, high tolerance level, and having an amiable stance should be demonstrated for the students to be highly motivated.

Technology and Livelihood Education (TLE), as well as Technical and Vocational Education (TVE), provide lifelong learning among the students and when realized, it has a rippling effect in the achievements of the students. Guiner (2013) maintained that TLE drives the attainment of socio-economic goals for the society; caters to diverse students with innate knowledge and skills; opens for a technological literacy that instigates oneness with the industry standards; and promotes the development of learning for actual experiences. In the concept of TVE, Golter et.al (2017) emphasized the influence of globalization in the lives of people throughout the world. With its means, TVE further promotes technological demand in the education of the students as they are able to focus on one specialization until they graduate from Junior High School (JHS), and can become a steppingstone for them toward their Senior High School (SHS) levels. Moreover, it highlights the underpinning principles of UNESCO 2001, as follows: the acquisition of practical skills in relation to occupational standards for economic purposes; a blueprint for occupation fields; teaches sustainable and responsible citizens; and a way of eradicating poverty.

In education, TVE asserts the significance of acquiring equal and productive skills. Competence, according to Tatlonghari (2014), is an educational concept that focuses on abilities and knowledge that lead to success. In Philippine secondary schools, TLE is utilized as a mandatory subject in the Secondary Education Curriculum. These are focused on Home Economics (HE), Industrial Arts (IA), Information Communication Technology (ICT), and Agriculture and Fishery Arts (AFA). Furthermore, given the difficulties, trends, and changes in the educational system, education is a necessity for individuals (Padolina, 2004). Therefore, teachers must fulfil their obligations to cater to the different competencies in each sector. Hogan (2015) provided a concept of the practical teacher with professional well-being in terms of understanding the needs of the students. Students need assistance throughout their learning and when they feel that the teacher empowers them, it gives them satisfaction in attaining something. Likewise, with the study of Loboeki (2004), these characteristics are considered as essential elements of educational pedagogy. It will teach a person to adapt to varying contexts with diverse conditions.

Teachers are the shapers of the youth, the basis of necessities, and the standard by which vital guidance and learning is provided. To boot, as claimed by Adedeji and Olaniyan (2011), teachers' training involves intensifying their skills to perform an excellent teaching. Indeed, they are making classroom engagements full of learning through engaging the students to increase their participation. With that, it is certainly easier for the teacher to promote engagement since the individual differences of the students are recognized. Since, often, learning is full of technicalities, students are engaged in hands on exercises, and teachers direct those hands into the reality of learning. This claim also correlates with Maurer's (2012) findings in his study that examines the importance of teacher's qualification. His study explained that there is a need to distinguish effective teaching from the ineffective ones as teachers' instructional activities serve as the driver of improving the behaviour, knowledge, and skills of the students.

Future teachers were fully educated on the fundamental competences and training that they must have to teach the skills properly. Teachers increased subject material knowledge has a positive influence on teaching and learning, according to Shulman (1986, 1987) and Tobin and Fraser (1988, 1990).

Teachers are recruited based on their basic qualifications. Nonetheless, there are instances when the school appoints teachers to subjects in which they are not experts. In line with this, it is evident that it could affect teacher credibility, making them feel inept in many parts of their assigned duties. To becoming a TLE teacher, one must possess the following qualifications: ⁽¹⁾ a graduate of Bachelor of Science in Industrial Education (BSIE)/Bachelor of Technical Teacher Education (BTTE); ⁽²⁾ at least an NC II holder in line with the field of specialization; ⁽³⁾ at least has an experience in teaching; and ⁽⁴⁾ has relevant training or seminars encountered. Bullock (2015) reinforced the study by offering the guides of being a professional teacher. In every track, may it be in general or specialized subjects, it entails that the teacher is expert or has specialized in his or her subject matter. Thus, having a professional, skilled teacher with sufficient training experiences shall eventually lead to successful learning among students.

Weldon (2016) in his study mentioned that one of the issues that has gotten attention is teachers teaching outside of their specialization, as well as mismatched topic assignments in elementary, high school, and tertiary levels. This is one of the reasons why teachers' personal and professional talents are affected. Hobbs (2012) asserted that the phenomenon of teachers with no educational experience or training teaching subjects outside of their specialty has been overlooked. In the Philippine education, and in most educational contexts, this is the persisting reality that TVE teachers had to deal with in their classrooms. However, teachers have a reputation for being resilient, imaginative, and adaptable. Therefore, to increase effective learning, motivate students, and stimulate engagement, teachers must boldly incorporate students in classroom planning, implementation, and execution of plans (Van der Westhuizen, 2004) without feeling intimidated.

This motivated the researchers to investigate the personal experiences of TVE Junior and Senior High School teachers who have been teaching subjects outside of their specialization for the previous five years. This research will look into the areas they taught outside of their field of expertise, as well as their personal experiences, issues and concerns, and teaching methodologies, and to identify the adaptation strategies they used in teaching out of their specialization.

2. Literature Review

2.1 Challenges

In the Philippines, Ilocos Norte's Basic Education thrives to achieve excellence in the conduct of learning in the school. This implies that teachers are the sources of knowledge and power that contribute to the student's growth. TLE subjects are basically focused on skills-based orientation. In addendum, Hattie (2009), in his study, proved that teachers are irreplaceable as they are the most significant sources of education. Teachers undergo various trainings that enhance their personal and professional development in compliance with their vocation in dealing with various likelihoods in the school. Kim (2011) argues that due to teacher shortages, there are also disputes in hiring them. However, whenever a teacher has examined his or her teaching loads, there are cases when they need to teach subjects outside their field of specialization. Consequently, challenges become perennial that teachers need to take on. Such a dilemma is commonly due to the shortage of teachers that they are sometimes assigned to teach subjects that are not within their expertise. Caylao (2015) agrees that such misalignment of teacher's specialization and the subject matter that he or she teaches is a critical issue in education that needs to be addressed. This issue does not just occur in the Philippines; according to Weldon (2016), it is a global issue, whether in elementary school, high school, or even college education. It is also concluded in the study of (Ingersoll, 2001a), it is noticeable that assigning teachers to teach subjects in which they are not experts is a common practice across the world. With respect to the study of Ingvarson et al. (2004), they explained that 25% to 30% of teachers in Victoria, Australia, believed they are unqualified for the role they have. It can be concluded that it is globally affecting the educational world. One factor that contributes to the issue is the type of school in which the teachers are placed or designated. Resulting from the limited number of students to cater in a particular type of school, teachers are then encouraged to teach a particular subject that may not be their specialization. Additional challenge that the teachers face is the lack of subject specialists in the area, which should not hinder them from delivering the curriculum. Teachers felt indifferent to grasp the concepts that requisites time to prepare oneself and the instructional materials to fulfil the learning. In this study, the teachers that were tapped to answer the researcher-developed questionnaire came from different types of school namely small, medium, large, and mega schools to achieve representativeness of the different public-school contexts.

Consequently, Ingersoll (2001a) expressed that these teachers feel unqualified because of the unsuitability of their qualifications. There is also a connection in maintaining an effective classroom setting for teachers to deliver quality education. There are situations that teachers are bombarded with what effective teaching method to incorporate in teaching those subjects. Teachers will immediately feel distressed in accepting the challenge at hand. With that said, Du Plessis (2010) supports that there are times that these teachers are vulnerable to different subjects and year levels all-around yet lacking the necessary support. The situation gets worse when these teachers does not have an expert to rely on since books are not sufficient in learning. Furthermore, teachers faced the challenges of reading on the topics, mastering it, and show conviction while teaching it. In the contrary, it is also stipulated by Hall and Hord (2021) that these teachers lack sufficient time in engaging thorough research about the subject because they too have different assignments to attend to—this is especially true if the neophyte teachers are enrolled to a master's degree program. This indicates that teacher must have to juggle their jobs as teacher, graduate student, and a family member. So, assigning a subjects that are not related to their specialization is another frustrating task to do. However, when self-doubt, lack of interest, and engagement in teaching mean a total reflection in the learning process of the students, it impacts the whole educational process (Lingard, 2010).

Hobbs (2012), as well as McConney and Price (2009b), pointed out that teachers' issues are not often discussed because of a lack of comprehension of their situation. Thus, the stakeholders must effectively motivate and give them the materials they need to cope with the circumstances that they are facing. The Republic of the Philippines under the Department of Education, Culture, and Sports (DECS) issued a DECS Order No. 13, s. 1994 that sought to strengthen the rights of the teachers in teaching a particular subject based on their specialization. Nevertheless, teaching will always be a pleasure to teachers especially if it is coupled with enough support internally and externally. The commitment of teachers is instilled in their calling as to always enter the noblest profession. Quality education is the foundation of human capital resources for future generations. Furthermore, UNESCO is challenged to extend its Education for All program, which caters to all students with a variety of courses to choose from. UNICEF is also adamant in their belief that education does not always match the requirements for quality education and that the focus should be on the teacher's competency in teaching courses in which they are not qualified.

In summary, the problems encountered by the TLE teachers include: the lack of human and learning resources; lack of training in the said subject out of specialization; financial assistance, most especially for contingencies; and lack of instructional tools or equipment to utilize. Moreover, Valisno (2012) stated that the importance of having a great teacher in every classroom has long been a concern in the Philippine education system, as well as across the world. It has

remained a point of contention in the fight for changes, because nothing has a greater impact on the quality of a young citizen's education than a teacher. With all the presented problems, teachers find ways to strategize and overcome them.

2.2 Strategies

Teachers are to students, according to De Jesus (2021), learning methodologies are for the specific teacher to teach. When a person is given an unusual task, it is his or her responsibility to find a way out of it, likewise in being a teacher. Teaching loads are means of sharpening the teacher's skills whatever it offers to endure the different waves in the teaching environment, thus, strategies are being developed in its small steps. Carlson et al. (2016) asserted that teachers had a significant impact on students. To achieve their objectives, they must cover lessons using the appropriate learning skills and materials (Villaverde, 2017). The teachers started to tapped experts. They sought help from experts in the field through interviews. This method enlightened the teachers of a particular techniques especially it covers different topics with specified skills to master. It is not enough to rely on the books alone, thus, an expert is a way to exercise oneself in dealing with new subjects and motivation can also be captured. Teachers attempted to do research on the following topics and try the skill in real life. In such manner, they manage to handle the subject with what they learned and continuously improving themselves by thoroughly giving time in learning the subjects new to them. Additionally, they subjected themselves to attend trainings and seminars that will unlock possibilities of new learning. Indeed, it is crucial in the teaching process since it is required to achieve the goal of properly transferring knowledge and skills (Adeyemi, 2016).

In addendum, the Theory of Constructivism summarized by Kleickmann et al. (2012) as a technique of introspecting the demands of teachers in of paramount importance to this study. It underlines the foundation's philosophy of providing students with real-life experiences. They are obligated to learn from society's realities. Thus, it strengthened their morale and level of self-esteem since they had a background knowledge about it. It is a new undertaking among teachers to learn something outside their specialization and learn to embrace it with passion.

Also, since teachers cannot disagree on the teaching loads given to them, they are subjected to work on this throughout the school year. With that, they are challenged to provide ways in doing so. That school year is full of learning for the teachers since it involves commitment of time and resiliency. This is true, and according to Hobbs (2012), it is also ignored, even though teachers have a lack of education and even training. It is now a common occurrence that leads to misunderstandings. According to Ingresoll et al. (2015) and Zhou (2013), they may be seen as unqualified because of their assignment, and this will have a significant impact on the students' education. As a strategy, teachers continue to look for solutions to better give equity to the learning of the students.

2.3 Findings

With all the mentioned challenges and strategies, findings about the research gaps must be obtained. By all accounts, Kumar and Parveen (2015) agree that teachers are in charge of the students' proper learning process. The activities of the teachers reflect on the learning of the students and needs effort in executing positive feedback. Aside from the Philippines, the research of McConney and Price (2009a, 2009b) also shared that around 20% and 24% of teachers in Western Australia teach in areas beyond their field of qualification. Indeed, the stakeholders and authorities must be aware of the personal encounters of the teachers. The usefulness of hiring the qualified teacher can be a solution for the challenges of the teachers who are facing those subjects outside their specialization. Darling-Hammond (1999) adds to this by stating that education must hire teachers who are qualified and competent to manage their expertise. According to Adu and Abe (2013), it is now the obligation of educational authorities to do extensive background checks on teachers before they are hired, as they will be the stimulant for changes in student behaviour. Therefore, it will minimize the burden on the part of the teachers.

Zepada (2006) explicates that when it comes to recruitment, the department's authorities are in control. It takes time to consider the needs of the school and the decision of the authorities are viable. Also, it will depend on the immediate needs of the school. Thus, Gadamer (1979) clarifies that there must be a built-in awareness and consciousness in teaching a particular subject. It is indeed the internal motivation that the teachers are longing for.

Method

3.1 Research Design

This study was carried out using a qualitative design. It describes the different strategies and adaptation strategies used by the TLE teachers in teaching subjects that is out of their specializations. More particularly, this study conforms with the underpinning principles of phenomenological research where the teaching experiences of the teachers were elicited based on the number of years that that have been teaching a set of specific subject matters that are not within their field of specialization. Using a researcher-developed questionnaire and an interview schedule as the primary instruments, data were gathered from the participants. Thematic and narrative analyses were used in examining the data.

3.2 Locale of the Study

This study was conducted in the northern part of the Philippines. The participants were from the three divisions of the Department of Education (DepEd) in Ilocos Norte namely, Laoag, Batac and Ilocos Norte. These divisions cater to the basic education of the children from kindergarten, elementary, junior high school (JHS), to senior high school (SHS). They offer various specializations of the TLE area. Table 1 presents the TLE specializations enrolled and the number of the students. The table shows that the course mostly offered in both JHS and SHS is Home Economics. From the table, there are 317 TVE teachers handling the different TLE specializations.

3.3 Sample and Sampling Procedure

There were 317 respondents who answered the survey and only 85 were qualified to be included in the sample of the study. From this sample, 65 are from public schools while the 20 are from private school. The 85 participants were selected via purposive sampling. The participants were chosen based on the following criteria: 1) must be a board passer; 2) specializes in any TLE components; 3) teaching subjects other than TLE; 4) must be a full-time teacher in private or in public school; and 5) and must have at least 5 years or more teaching experience. Conforming with ethical guidelines, the respondents voluntarily answered the survey and participated in the interview sessions. The TVE teachers in Ilocos Norte are holders of the different components and specializations in TLE (Table 2). The specialists are those TVE teachers who only focus on one specialization while the generalists are those TVE teachers who focus on the fundamentals of every component of TLE.

Table 1 - Number of students enrolled and the number of teachers in the different TLE specializations

	Specializations	Students n(%)	TVE Teachers n(%)
Senior High School	Agriculture and Fishery Arts	204 (9.29)	7 (9.46)
	Industrial Arts	410 (18.67)	14 (18.92)
	Information and Communication Technology	354 (16.12)	12 (16.22)
	Home Economics	1228 (55.92)	41 (55.40)
Junior High School	Agriculture and Fishery Arts	1702 (17.78)	43 (17.92)
	Industrial Arts	1670 (17.44)	42 (17.50)
	Information and Communication Technology	1643 (17.16)	41 (17.08)
	Home Economics	4559 (47.62)	114 (47.50)

TLE has a lot of areas, out of 85 respondents, 30 or 35.29% of them have majors in HE. This includes bartending, beauty care, bread and pastry, caregiving, commercial cooking, dressmaking, events management services, fashion design, food and beverages, front office services, hairdressing, handicraft, housekeeping, and tailoring as the other sub-components of HE. The general TLE, that have 21 (24.71%) respondents. Areas within the general TLE encompass all areas in TLE. The industrial arts as another component of TLE has 20 or 23.53% respondents. The areas of specialization in IA are automotive, carpentry, electrical, furniture and cabinet making, welding, machining, plumbing, and tile setting. For ICT, there are 12 or 14.12% participants who are teaching the following subjects: animation, computer programming, computer servicing, and technical drafting. Lastly, AFA has the least number of participants (2 or 2.35%). The AFA teachers are teaching the following subjects: agricultural crops production, animal production, animal health care management, landscaping installation and maintenance, and organic agriculture.

Table 2 - Profile on the Specializations of TVE Teachers in Ilocos Norte (n=85)

Category	TLE components	Specialization	f	%	Rank
Specialists	Home Economics	Cookery	30	35.29	1
		Clothing and Textile			
		Bread and Pastry			
		Handicrafts			
		caregiving			
		Bartending			
Specialists	Industrial Arts	Food and beverage			
		Electrical	20	23.53	3
		Drafting			
		Electronics			
		Automotive			
		Masonry			
		Plumbing			
		Refrigeration			

	Information Communication Technology	Animation Computer programming Computer system servicing Technical drafting	12	14.12	4
	Agri-Fishery Arts	Agriculture arts Fishery arts	2	2.35	5
Generalists	TLE exploratory courses		21	24.71	2

3.4 Research Instrument

A researcher-developed questionnaire and an interview guide were utilized to gather data needed in this study. The first part of the questionnaire asked the individual specialization of the participants. The researcher-developed questionnaire was created based on the background check of the TLE teachers handling those subjects. With that, the questionnaire focused on the respondents’ personal demographic profile, number of years in teaching the subjects outside their field of specialization, subjects taught with their field of specialization, subjects taught outside their field of specialization, their personal experiences in terms of obstacles, problems, and concerns they encountered, the solutions they performed in relation to their specified challenges, and finally, the recommendations they needed to minimize those encounters. These data were used to determine their fields of specialization that are assigned to them. The second part focused on the general subjects that they taught not within their specialization. And the third part emphasizes on the authentic experiences on the issues that they encountered while handling those subjects. The second gathering tool used in this study is the interview schedule. This tool investigates the challenges and adaptation strategies employed in teaching subjects outside of their specialization. These researcher-developed instruments—questionnaire and interview protocol—were both subjected to pilot testing before these were used for actual gathering of data. The questionnaire was also subjected for face and content validation. Such validation measures were performed to determine if the participants can understand the questionnaire and what needs to be improved to get the data needed so that the problem can be addressed. All the comments and recommendations from the validators were incorporated in the final instrument.

3.5 Data Gathering Procedure

After the approval for the conduct of this research, a request was made for the selected TLE teachers of Ilocos Norte. The gathering of data was administered in a hybridized manner, using both online applications for the questionnaire and in-person platforms for the interview sessions.

First, the researchers provided the link to the Google form via messenger, an online program for the selected respondents. The link was sent to the different target samples and provided ample time to answer the questionnaire online for at least one month in the process and TLE teachers were encouraged to answer the Google Form. To accommodate an increase in the number of respondents, it was also circulated in selected group chats of TLE Teachers of Ilocos Norte. Upon reading all the responses of the TLE teachers in the researcher-made questionnaire, the researchers evaluated the 317 respondents and agreed to focus on the 85 respondents only who were qualified to attain the criteria for the research. The criteria were: ⁽¹⁾ has teaching experience for at least five years; ⁽²⁾ at least teaching the subjects out of their specialization for five years; ⁽³⁾ possible instructional materials created by the teachers; and ⁽⁴⁾ adaptation strategies of the teachers while teaching the subjects.

Second, personal interviews to the 85 selected TLE teachers were done to explicitly collect their personal experiences and adaptation strategies in teaching subjects outside their specialization. A covert interview session was also utilized to further strengthen the elaborations on the teachers’ challenges, as well as strong set of recommendations that propose minimizing identified gaps. A letter was sent to the three Department of Education in Ilocos Norte to conduct the personal interview among teachers and the request was approved. Five interview sessions were conducted to fully encapsulate the experiences of the respondents resulting in the appropriate representation of their narratives in this study. The data gathering took five months to further validate the responses of the teachers. Once target samples have provided their answers online and their responses through the personal interview sessions, the researchers tabulated, tallied, described, and interpreted the data collected.

3.6 Data Analysis

Descriptive statistics was used in the study where frequency counts and percentages were performed to make sense of the numerical data. Data gathered from the interview were reported using thematic and narrative analyses. Using Microsoft Office Word, the interviews were transcribed by the researchers using a transcription convention that placed premium on the content, rather than the segmental and suprasegmental linguistic elements. Copies of the transcribed interview manuscripts were also provided to the respondents to verify the accuracy of the transcriptions; this step ensures that their responses were correctly represented. After a week of verification, open and axial coding were carried out to emerge themes and categories that are essential in discussing the challenges faced by the respondents, and the adaptation strategies that they employed to cope with the problems that they encountered.

4.0 Results

4.1 Challenges of TVE Teachers Teaching Courses Outside of Their Specialization

TVE Teachers in Ilocos Norte are handling subjects that are out of their specializations as presented in Table 3. These subjects are being taught by the TVE teachers that they are not within their expertise. These subjects are: Edukasyon Sa Pagpapakatao [Values Education], MAPEH (Music, Arts, Physical Education and Health, Araling Panlipunan [Social Studies], Pagbasa at Pagsusuri ng Iba't Ibang Texto [Reading and assessing different text], Komunikasyon at Pananaliksik [Research and Communication], Biology, Algebra, English, Earth Science, Chemistry, Physics, History, Logic and Philosophy, English for Academic and Professional Purposes, Statistics, Probability, and Oral Communication are the subjects. These subjects are not an allied and even related courses to their area of preparation, thus, they are encountering various challenges. It can be gleaned from the table that TLE teachers are teaching mostly the ESP (or Values Education) in the elementary which is an exploratory course for elementary. This subject can be taught by anyone in the school since there is a scarcity of this specialization, but it could have been better if this taught by a major in values education teacher.

Table 3 - Subjects taught by TLE teachers outside their specializations (n=85)

Subjects Taught Outside Specialization	f	%	Rank
Edukasyon Sa Pagpapakatao [Values Education] 8	15	17.60	1
Edukasyon Sa Pagpapakatao [Values Education] 9	11	12.90	2.5
Edukasyon Sa Pagpapakatao [Values Education] 7	11	12.90	2.5
Music, Arts, Physical, Education and Health 7	10	11.80	4.5
Edukasyon Sa Pagpapakatao ESP 10	10	11.80	4.5
Music, Arts, Physical, Education and Health 8	9	10.60	6.5
Music, Arts, Physical, Education and Health 10	9	10.60	6.5
Music, Arts, Physical, Education and Health 9	7	8.20	8
Araling Panlipunan [Social Studies] 7	5	5.90	9
Pagbasa at Pagsusuri ng Iba't Ibang Texto [Reading and assessing the different texts]	4	4.70	12
Komunikasyon at Pananaliksik [Communication and Research]	4	4.70	12
Biology	4	4.70	12
Araling Panlipunan [Social Studies] 8	4	4.70	12
Algebra	4	4.70	12
English	3	3.50	16.5
Earth Science	3	3.50	16.5
Chemistry	3	3.50	16.5
Araling Panlipunan [Social Studies] 9	3	3.50	16.5
Physics	2	2.40	20
History, Logic and Philosophy	2	2.40	20
English for Academic and Professional Purposes	2	2.40	20
Statistics	1	1.20	23.5
Probability	1	1.20	23.5
Oral Communication	1	1.20	23.5
Araling Panlipunan [Social Studies] 10	1	1.20	23.5

Other subjects being taught by the TVE teachers are MAPEH (Music, Arts, Physical Education and Health), which is a very far subject from their specialization. There are four topics included in this subject. They have different approaches when conveying knowledge to students. Through composition, documentation, and performance in music, arts, and dances, and making students aware of the importance of health and physical education by keeping their minds, bodies, and spirits healthy, its curricular and co-curricular programs aim to promote the highest levels of human aspiration and artistic integrity of students' cultural and unique identity through composition, documentation, and performance in music, arts, and dances.

One of the most unacceptable subjects that TVE teachers can teach is *Araling Panlipunan* [Social Studies]. Because of the passage of “No Child Left Behind” in 2001, social studies also became the priority of the department. No Child Left Behind's main goal is to close the achievement gap by giving all children a fair, equal, and significant chance to get a good education. Thus, TVE teachers are obliged to teach this subject that are out of their specialization.

Another unacceptable subject being taught by the TVE teachers are Mathematics and Science. This is an interesting finding because we never taught that TVE teachers are given subjects like these knowledge-based subjects. Moreover, teaching Mathematics and Sciences requires a lot of preparation of time to read, understand, develop material, and deliver the lesson.

There were other unacceptable subjects assigned to the TVE teachers to teach. The implication of teaching subjects that are outside the specialization of TVE teachers may lack considerable knowledge and skills as they are not prepared for these subjects. Also, allowing TVE teachers to teach this subject may fail to diagnose learner's misconception, plan

suitable task, and present quality explanation and demonstration. Thus, may lead to poor performances in national or international examinations.

Table 4 - Problems and concerns encountered by TVE Teachers teaching course outside their specialization

Problems and Concerns	f*	%	Rank
Time requirement needed in researching appropriate teaching strategies to suit the topics	61	71.76	1
Limited content and pedagogical skills	48	56.47	2
Loaded teaching assignment	47	55.29	3
There is no assurance in the successful delivery of the curriculum content	37	43.53	4
Questions raised during class discussions are ignored or diverted to another topic due to limited knowledge about the lesson	25	29.41	5
Not confident in giving performance task	30	35.29	6

Note: n=85; *Multiple response

The capability of teachers in inculcating learning must be effective. Nevertheless, problems and concerns are inevitable especially with the TVE teachers who are teaching subjects that are out of their expertise. Table 4 shows the dilemmas of the TVE teachers that are mismatched with the subjects they taught.

Time requirement in learning the concepts. The problem time requirement needed in researching appropriate teaching strategies to suit the topics got the highest frequency of 61 respondents. As such, TVE teachers are finding ways in which they can deliver their topics in the best way that they can. However, since they are teaching subjects outside their specializations, they find it hard to find appropriate ways to deliver the topics. The time they spend researching for appropriate teaching strategies for every topic gives them unnecessary burden by allotting more time to study, rather than to polish what they already know. They must read, analyse well the concepts to be taught so that they can deliver them satisfactorily to the students. Educators must be knowledgeable enough in addressing and relating lessons with accurate strategies. However, they need more time in exploring other subjects’ strategies.

Limited content and pedagogical skills. Another pressing problem encountered by the TVE teachers teaching subjects outside their specializations is on *limited content and pedagogical skills*. This problem has a frequency of 48 of the total respondents. According to Mea, et al (2019), teachers’ performance in teaching out-of-field subjects get affected because they could only explain ambiguously about a particular topic. Respondents admitted that they don’t have enough knowledge on the content and strategies to use in teaching the subject. This makes them spend extra times to research which leads to the problem of *time requirement*.

Loaded teaching assignment. Another concern that leads to minimal time spent on researching content and pedagogy appropriate for topic is *loaded teaching assignment* as reported by 47 of the respondents. Teacher 5 opined that “it’s difficult to teach subjects that are not in line with one’s specialization since you need enough time to read about the lessons to be able to deliver it effectively. The quality and quantity of knowledge and skills learned by the students are being sacrificed if this is the case. There was even a time when I thought of quitting the teaching profession. The demand of the job is high but the payment is low.” It is really an embarrassing experience to have a teaching load that are not with in your specialization but, as an educator, we must lift the quality of education with all our heart and souls. Even the hardest part of imparting lessons to learners, we must have a way or solution to conquer all the odds no matter how hard it is. In accordance with the loads of the teachers, they are bombarded with a bunch of works yet, they still need to familiarize other subjects such as ESP, MAPEH, social studies and many more.

There is no assurance in the successful delivery of the curriculum content. With the lack of time for researching content and strategies for effective delivery of lessons, *there is no assurance on the successful delivery of the curriculum content*. This is the fourth problem encountered by TVE teachers teaching outside their specializations with 37 respondents reported. This is somewhat connected to the problem on *limited content and pedagogical skills* and *time requirement needed in researching appropriate teaching strategies to suit the topics*. Quality education must always be on top. However due to misalignment of teachers and subject, education is now at stake. Thou teachers has a million works to accomplish yet, they still need to learn and be familiar with the strategies and most specially the lessons they are about to teach that are not within their knowledge

Questions raised during class discussions are ignored. With the lack of content knowledge as well as pedagogical knowledge and skills in teaching subjects outside their specializations, together with loaded teaching assignment which lead to scarcity of time to spend in researching, the respondents really admitted that they have a limited knowledge of what they are teaching outside their specializations. These gave one more concern in which *questions raised during class*

discussions are ignored or diverted to another topic. Teacher 10 confessed that “teaching different subject from my field of specialization is hard. I must learn new topics and learn different strategies so I can deliver the lesson effectively and some important questions were ignored. In my experience, I did have a hard time teaching science subject. Science subject specifically in physics requires experimentation yet I don't know how to teach it or deliver it to my student. So, what I did is I seek help from my co-teachers and science, gave me ideas and help me with the materials I need to teach the subject effectively.”

Not confident in giving performance task. The fifth problem or concern encountered by the respondents is that they are *not confident in giving performance tasks* with 30 of the respondents reported. This concern is deeply rooted from the limited content and pedagogical knowledge of teachers. One of the respondents pointed out that instead of asking his learners to do the required performance tasks, he just moved to next the lessons because he cannot understand the mechanisms and essentials of the performance tasks. Lack of confidence in teaching and delivering lesson is one of the obstacles of teacher in teaching mismatching of subjects into their field.

4.2 Adaptation Strategies Used by TVE Teachers in Teaching Courses Outside of Their Specialization

TVE teachers have been facing various problems during their first five years of teaching in their respective workplaces due to some lack of human and money resources. However, TVE teachers were receptive enough to adapt to these challenges and use different strategies to give solution their challenges (Table 5).

First adaption strategy they use was **learning from seasoned teachers**. In the field of teaching, some constraints may hinder the quality of the learning process imparted to the students, specifically in handling subjects that they did not specialize in. Teachers are burdened with mental constrictions in dealing with the time pressure to have a piece of deep content knowledge in a particular subject or topic. Therefore, learning from experienced teachers in the fields are big help since they are seasoned with expertise, mastery, and experience. First, they can share their knowledge and teaching skills in a certain subject. Also, they can boost the teacher’s confidence to look at its brighter side as learning is a continuous process. Experienced teachers can help them adjust to the current situation with acceptance. It is a guarantee that they can supervise and may provide constructive feedback as to the presentation of goals in instruction. They can ease the teacher's load by emphasizing the importance of investing in professional development in all areas of learning. Thus, this can be a result of acquiring methodological, professional knowledge, and a deeper calling for teaching.

Table 5 - Adaption strategies used by the TVE teachers teaching courses outside their specialization

Adaption strategies	f*	%	Rank
Learning from seasoned teachers	52	61.18	1
Learning from textbooks	40	47.06	2
Learning from schemes of work	31	36.47	3
Training and seminar for non-majors	27	31.76	4

Note: n=85; *Multiple response

Second adaption strategy of teachers in teaching subjects that are out of their specialization is **learning from textbooks**. Since textbooks have a systematic and wide range of details, teachers may utilize textbooks in teaching subjects that are not within their specialization. Textbooks provide a well-organized work unit. The textbook's educational content should be current and valuable. Above all, the textbook should cater to the various learning styles of students. The textbook is the main carrier of the curriculum and represents the dominant role in school subject teaching and learning (Limon, 2021; Sherman et al., 2016; Hadar, 2017). A textbook contains all of the plans and lessons necessary to thoroughly cover a topic. Textbooks helps teachers to grasp professional and policy context on a local, as well as national level, allowing teachers to teach and lead more strategically. It also supports professional knowledge, skill, and understanding learning. It also serves as a supplementary materials and references for teachers. Moreover, it should also promote active learning, a full comprehension of teaching materials, the connectivity of multiple disciplines (Limon, 2022; Turk kraba, 2006), students' motivation to learn and be creative, and students' willingness to learn and be creative and provide them with the chance for personalization.

Third, **learning from schemes of work**. Learning from colleague is one way of adapting strategies that teachers could do to impart lessons that are not within their specialization. Asking the experts as well as gaining suggestions to colleague can lend a help to perceive a better understanding into subjects that they are not specialized in. With this adaptation, teachers can truly comprehend a specific lesson that they can inculcate into the minds of learners. Considering that other teachers are expert in their field, they can direct a colleague into better understanding.

Lastly, **Training and Seminars**. In this approach, teachers will gain a deeper understanding of the subject, opening the potential of experimenting with a teaching context for professional development while also strengthening themselves. It will also encourage the teacher to enhance his or her skills to teach a subject. It also eliminates the need to reliance on professionals. There is a significant increase in information, tactics, procedures, and abilities required to discuss certain lessons or topics. In a nutshell, it offers a holistic opportunity for career growth. Such as improving teacher

morale, perspective, and acceptance of dualities and responsibilities, increasing techniques, strategic innovation, and the relationship of trust amongst his educational sectors. DepEd and other local agencies should provide training and development programs and activities aligned with the subjects taught by the teachers, which will be a great support system for them to cope with the aforesaid problems.

TVE teachers teaching out of their specializations need to adapt various strategy to just to be accommodated in the service/have work and make money and to help the school finances by not hiring for another teacher. TVE teachers should not be a filler teacher in any subject. This might attribute in affecting the performance of the students in national and even international standards, hence must be addresses immediately to put a halt to this concern.

5. Discussion

TVE teachers stumbled into issues and concerns while delivering courses outside of their realm of experience, but they have no option but to accept the loads that have been placed on them. In this study, problems encountered by teachers include time requirement, limited content and pedagogical skills, loaded with teaching assignment, the assurance of the quality of curriculum content offered, questions avoided, and likewise in giving performance tasks. Thus, the aim of this paper is to discuss the challenges and adaptation strategies of the TVE teachers based on their concrete experiences.

Every subject is regarded as a beehive of important discussion; everything is significant. However, the TVE teachers' general subjects being taught, as shown in Table 2, require adequate time to delve into the many topics that became a strain for the teachers. On the contrary, teachers who have the self-motivation, performance, and even the capacity to appreciate the subjects presented can have full-time management as a challenge (Brigitte, Claessens, Eerde, & Rutte, 2005). Teacher 16 admitted that *“Teaching a subject which is not within my comfort zone is hard.... But having a subject that is not my major is also good, I learned new things, verified learnings from the past when I am still studying and discovering things is something enjoyable. We need to always think that, Learning is a continuous process even if it is not in line with our major.”* Learning is a continuous process as they say. Thou teachers has a million works to accomplish yet they are eager to give ample time which motivation beats their hearts. On the other hand, in the Department of Education, teachers are required to teach 6 hours per day (DepEd Memorandum no. 291 series of 2008) This leaves only 2 hours for other functions, like making reports, lesson plans, checking of requirements, meetings, cleaning of rooms, responding to students concerns, etc. The above result is parallel to the findings of the study of Gwambombo (2013) that teachers face bulky teaching load in the delivery of the curriculum and this can bring the following negative effect to teachers; stress, burnout, mistakes in work, poor work-life balance, physical affects and mental effects. In addition, Wakoli (2013) also expressed that teacher do not have a humble time to prepare and teach the learners since there are many duties and outside responsibilities to investigate. These findings also support the statements of teachers expressing that they spend most of their time in making teaching materials and the bulk of tasks required in teaching TVE subject's demands most of their time. The educational system's curriculum is its beating heart. As a result, teachers must teach information, concepts, and even principles in a subject. Teacher 14 explained, *“I need to research and read more before teaching the subject because I'm afraid I can give them wrong information. I need also to consult my colleagues who are experts of these subjects. If I will be pretending that I know everything about the subject, then maybe my students will acquire wrong learning”*. Arzi and White (2008), on the other hand, claimed that even if a teacher can learn the subject, reaching the degree of skill required to teach the subject can be challenging. As a result, it can only be obtained through adequate training, such as advanced college courses. When students' curiosity grows during the discussion, teachers become distant, fearful, and anxious in answering queries and even transmitting concrete answers owing to a lack of information. This finding corroborates with the results of study conducted by Fulgado (2017). In relation to this problem, Teacher 7 responded, *“When someone is asking Questions that I'm not sure of the answer I divert to other topics and after the class I feel down because I didn't satisfy to end my class”*. Diverting questions have impact to the learners which may lead to doubts to the knowledge of the teacher. Another response from Teacher 8, quoted *“I'm not confident in teaching”, “the incompetent in the subject, I need to advance my reading in other to deliver the lesson clearly.”* In addition, even in general subjects, there are still specific exercises that accommodate the students' individual ability to adapt. According to Mea, et al (2019), out-of-field teaching triggers incompetence and lack of self-confidence. Of the (85) respondents, Teacher 13 recalled that *“During my first year in teaching, I was tasked to handle grade 9 students to teach cookery as field of their specialization. I am not confident to perform task in connection with the field because it is not my expertise. I practice myself first in doing the task before implementing to my students. Thus, it is an opportunity for me to learn new things.”* The diverse courses offered in the Technical and Vocational track under the K to 12 curriculum makes it difficult for TVE teachers to teach only their specialization. One section in one school may need one teacher specialized in their chosen course, however, as iterated, DepEd cannot just hire one teacher to teach only one subject with one section. In accordance with all the problems stated, this clearly demonstrated that teachers who specialized in key areas had difficulty handling subjects that were unconnected to their specialization. Around the world, it is a major concern that enjoins the claim of Fajonyomi (2007) and Limon et al. (2022a) that the availability of qualified teachers is crucial to the success of a school. The specialized teacher is the expert in his own field, however, if it's out-of-field, it would be harder to teach the learning concepts. Also, Childs and McNicholl (2007) strengthens the assertion of Fajonyomi that there are challenges to be faced when teaching those subjects.

To pinpoint, the quality of knowledge and skills they will provide the students will be sacrificed and must be stopped to improve the ranking of the National Achievement Test (NAT) in the Philippines. According to Edith Cowan University (2007), Gerard Daniels (2007), Home (1999), and PhillipsKPA (2007), this recruitment procedure failed to meet unsatisfied needs, resulting in a reduction in the quality of the school's learning process. The results fall short of the required levels of proficiency. In the Philippines, education is a necessity for addressing a widespread challenge. The fact that the Philippines placed 79th out of 79 high and middle-income countries in the 2018 PISA (Program for International Assessment) is a chance to seize, settle, and clear strategy together to scrutinize the overall Philippine education and develop a strategic plan to keep improving the teaching and learning process that takes place in every school, as the Philippine Business of Education is strongly challenged by the result. The performance of the students is directly related to the teaching performance of the teachers as the result wishes to foresee a part of it. Bulman (2008) further states that the school system's recruiting procedure should be enhanced with the teachers' duties and responsibilities in their own field.

TVE teachers, on the other hand, are standing firm in their Socratic Oath to be dedicated and embrace obstacles that may arise in their profession for their own advancement and to demonstrate that they are credible, trustworthy, and reputable in their field and with their great contribution to the school. With the problems spotted in this study, there were adaptations that the TVE teachers conquered in teaching. Based on the findings of the study, learning from experienced teachers can be in a form of mentoring that the TVE teachers adapted likewise with learning from textbooks is a form of gaining resources. Due to the globalization of technology in the twenty-first century, it is also suitable to use the library, as well as technology and fuse it together, to research for and master a specific subject. Hence, the pressure placed on teachers will be relieved by working with mentors who can help them improve their skills (Limon et al., 2021; Stanulis & Floden, 2009).

There will be many surprises in the field of work as a teacher. Accepting truth and becoming a catalyst in reforming the educational system requires an open heart. Therefore, teachers are willing to clasp trainings and seminars to provide the greatest possible instruction. It would be a good start in dealing with those subjects, according to Guskey (2002), if they had a positive attitude in learning new ideas, implementing improvements, and having positive acceptance of the subjects. According to the Education and Training Committee (2009), teacher learning is universal and ongoing. Therefore, with the assistance of specialists, teachers can receive appropriate support and impart knowledge that will assist them in becoming adept in teaching the topic. Richards and Farrell (2005), who discuss the two types of professional development for teachers, individual and institutional professional development, also advocate this. Pelochino (2014) added to this by introducing five key categories of professional development for teachers as a means of ongoing progress in the teaching profession. These developments need to be an eye-opener for the authority in the Department of Education to help the teachers.

Curry (2013) emphasizes that teachers can achieve success using their actions and attitudes in the classroom. With the problems that the teachers encountered, it is evident that there is a gap in the recruitment with regards to the skills of the teachers in teaching. On the contrary, Clarke and Hollingsworth (2002) concur that several interventions are required to assist teachers, and that stimulus is required to induce teachers to reflect. Hence, teachers are given with possibilities to broaden their development and hope that they are given credits for their gloomy experiences. The study is limited to the experiences, learning strategies, and adaptations of the teachers in Ilocos Norte. This study would be a great help to start new related studies that aim to address the gaps in teaching those subjects. Moreover, this study is also limited to the succeeding points. Firstly, the study focuses on the specialization of the TVE teachers per se and it doesn't discuss the minor courses of the teachers which are also covered in their specialization skills. Secondly, the result may not generalize for the other TVE teachers as it involved 85 respondents only. Despite its limitations, the findings of the study imply that there is a need to propose an intervention for the TVE teachers who experienced the dilemma in teaching subjects that they are not specialized in.

6. Implication

Supporting the professional development policies of out-of-field teachers needs considerable work. According to preliminary interviews, out-of-field teachers may develop into specialists with the right help, distinctive leadership traits, commitment, and hard effort. School leaders have increased accountability, authority, and influence over what happens within their facilities as education departments progressively delegate power and decision-making to local school communities. Misconceptions and misunderstanding have a big influence on how schools make policy decisions. A basic lack of appreciation of the complexity of out-of-field teaching's life experiences leads to mismanagement of out-of-field educators. Education departments have a responsibility to assist school leaders with strategies for coping with out-of-field situations. Leaders who are separated and alienated from real-life classroom experiences produce misconceptions and assumptions about complex challenges in out-of-field teaching. Parents have worries about leadership's intentions because of their leaders' misunderstanding of the intricacies of an out-of-field teaching. When it comes to out-of-field teaching, we feel that open communication is crucial. Leaders' mistakes and misconceptions of the consequences of out-of-field teaching practices for the teaching and learning environment harm not just teachers, but also other stakeholders in the greater school community, such as parents. The tactics discussed in this article offer direction to educational leaders and school leaders, with a particular focus on decision-making and the ramifications of decisions made based on

misunderstandings about the usefulness of out-of-field instruction for effective teaching and learning. When leaders show a high degree of connection, it may have a big influence on how this phenomenon is handled. The new facts and crucial points about leaders, their leadership abilities, and styles revealed in this study provide an opportunity to change leadership models to address the rising phenomenon of out-of-field teaching in schools. It is necessary to develop a crucial leadership model that supports and focuses on leaders' connectedness, awareness, need analysis, negotiation, action, and support for out-of-field staff.

7. Conclusion

Overall, the research on the challenges and adaptation strategies of the TLE teachers provided means of freeing prospects for a new learning among students, and that is by addressing the gaps in relation to teaching those subjects they do not specialize in. It was found that TLE teachers of Ilocos Norte have challenges in dealing with the subjects that they are not expert with. They juggle time in researching deeper about the topic and in providing a justifiable assessments and constructive feedbacks for the students. Thus, it seeks to provide an intervention that would help the TLE teachers in constructing the best method to employ. It will mean a lot if the stakeholders thoroughly supervise that they hire teachers that are really specialized in a certain subject. However, it could be a great chance for the TLE teacher to attend training and development seminars, have a dialogue with the experts regarding the subject, coaching and mentoring, and the commitment of being a flexible TLE teacher. This situation may help the teachers gain more trust, confidence, and willingness to teach the subject if the educational sectors will also boost their personal and professional development. Further studies can be conducted so that it would answer different perspectives of TLE teachers in handling subjects that they are not specialized in. Through this research, administrators could utilize the findings as bases for teacher hiring and recruitment, and for future commitment to reconsidering the challenges of the TLE teachers in dealing with the subjects they do not specialize with. Careful educational planning will certainly include the assessment of the needs of the teachers to disclose their everyday challenges and provide feasible solutions that will motivate and assist them to continue teaching those subjects despite being misaligned with their fields of specialization. Thus, this data-driven research will contribute to the success of teaching in educational conditions that pose issues related to misalignment of specialization and subject matter taught, and consequently enable teachers situated in such contexts not only to survive, but also to thrive.

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Conflict of interest

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References

- Adeyemi, K. J. (2016). *Effect of teachers' academic qualification on students' performance at the secondary level*. City: Publisher
- Adedeji, S. O., & Olaniyan, O. (2011). *Improving the conditions of teachers and teaching in rural schools across African countries*. UNESCO: Addis Ababa.
- Adu, E. I., & Abe, T. O. (2013). Influence of qualification on development and assessment of computer programmed instructional package on energy concept in upper basic technology in Ekiti state. *ARPJ Journal of Science and Technology*, 611-618.
- Akkerman, S. F., & Bakker. A. (2011). Boundary crossing and boundary objects. *Review of Educational Research*, 81(2), 132-169.
- Arzi, H. J., & White, R. T. (2008). Change in teachers' knowledge of subject matter: A 17-year longitudinal study. *Science Education*, 92(2), 221-251.
- Bulman, J. M. (2008). *Outfielder stories: Supporting primary teachers teaching secondary science to come in from the margins*. Unpublished doctoral thesis, Central Queensland University.
- Bullock, M. (2015). What makes a good teacher? Exploring student and teacher beliefs on good teaching. *Rising Tide*, 7.
- Carlson, J., Newsome, J. G., Gardner, A. & Taylor, J. A. (2016). A framework for developing pedagogical content knowledge: the role of transformative professional development and educative curriculum materials. Presented at the European Science Education Research Association Conference, September 2016, 1-37.

- Caylao, F. (2015). My thoughts of out-of-field teaching. <https://federationpress.com.au/product/encouraging-ethics-and-challenging-corruption/>
- Clarke, D., & Hollingsworth, H. (2002). Elaborating a model of teacher professional growth. *Teaching and Teacher Education*, 18(8), 947–967.
- Edith Cowan University. (2007). Attraction and retention in the Western Australian public sector regional workforce. Institute for Service Professionals. ECU, Bunbury
- Curry, C. (2013). Charter school leadership: Elements for school success. Laham, MD: R & L Education. https://www.researchgate.net/publication/284715116_International_Journal_of_Leadership_in_Education_Theory_and_Practice_The_meaning_of_out-of-field_teaching_for_educational_leadership.
- Childs, A., & McNicholl, J. (2007). Science teachers teaching outside of subject specialism: Challenges, strategies adopted and implications for initial teacher education. *Teacher Development* 11(1): 1–20.
- Darling-Hammond, L. (1998). Teachers and teaching: Testing policy hypotheses from a national commission report. *Educational Researcher*, 27, pp. 5–14.
- Darling-Hammond, L. (1999). Teacher quality and student achievement: A Review of State Policy Evidence. *Education Policy Analysis Archives*, 8, 1-44. https://www.education.uw.edu/ctp/sites/default/files/ctpmail/PDFs/LDH_1999.pdf.
- DepEd (Department of Education). (2008). Guidelines for the Implementation of CSC Resolution No. 080096 on Working Hours for Public School Teachers. <https://www.deped.gov.ph/2008/06/16/june-16-2008-dm-291-s-2008-guidelines-for-the-implementation-of-csc-resolution-no-080096-on-working-hours-for-public-school-teachers/>
- DEpEd (Department of Education). (2016). Academic Track. <https://www.deped.gov.ph/k-to-12/about/k-to-12-basic-education-curriculum/academic-track/>.
- DepEd (Department of Education). (1994). Guidelines for Matching Specialization in Teaching Preparation with Teaching Assignments for Public School Teachers. <http://www.deped.gov.ph/orders/do-13-s-1994>
- Du Plessis, A. (2010). Continuing professional development and the out of field phenomenon: The implications for school management. (Doctoral dissertation, University of South Africa, UNISA, 2010: Pretoria). https://link.springer.com/chapter/10.1007/978-981-13-3366-8_9.
- De Jesus, F. S., & De Jesus, M. B. (2021). Spending Habits of Public School Teachers in Palayan City. Open Access Library Journal, 8, Article No. e6332. <https://doi.org/10.4236/oalib.1106332>
- ETC (Education and Training Committee). (2009). Inquiry into effective strategies for teacher professional learning. Melbourne: Parliament of Victoria. https://www.parliament.vic.gov.au/images/stories/committees/etc/PL_Report/Preliminaries.pdf.
- Fajonyomi, A. A. (2007). Reviving higher education relevance in Nigeria. A paper presented at the 3rd Faculty of Week and Annual National Conference, Faculty of Education. University of Maiduguri on the theme Higher education reforms in Nigeria from 26th to 27th September. <https://files.eric.ed.gov/fulltext/EJ1079503.pdf>
- Frenzel, A., Goetz, T., Stephens, E., & Jacob, B. (2009). Antecedents and effects of teachers' emotional experiences: an integrated perspective and empirical test. In P. Schutz, & M. Zembylas (eds.), *Advances in teacher emotion research: The impact on teachers' lives* (pp. 129–152). Dordrecht: Springer.
- Fulgado, J. S. T., & Ison, G. M. (2017). Teachers qualification: Status, experiences and concerns in a fourth class municipality in Eastern Rizal, Philippines. *International J. of Advanced Research*, 5(Dec). 826-835] (ISSN 2320-5407).
- Gerard, D. (2007). Review of teacher recruitment practices: Final report. Perth, Department of Education and Training. http://www.det.wa.edu.au/docs/DET_Teacher_Recruitment_Practices_Review.pdf.
- Gwambombo, I. (2013). The effect of teachers' workload on students' academic performance in community secondary schools: A study of Mbeya City. Masters thesis, The Open University of Tanzania.
- Gadamer, H. (1979). The problem of historical consciousness. In P. Rabinow & W. Sullivan (Eds.). Retrieved Dec 2021 from https://www.pdcnet.org/gfpj/content/gfpj_1975_0005_0001_0008_0052
- Guskey, T. R. (2002). Professional development and teacher change. *Teachers and Teaching* 8 (3): 381–391.
- Hall, G., & Hord, S. (2001). *Implementing change: Patterns, principles and potholes*. Allyn and Bacon: Massachusetts.
- Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. London: Routledge.
- Hobbs, L. (2012). Teaching out-of-field: Factors shaping identities of secondary science and mathematics. *Teaching Science*, 58(1), 21–29.

- Home, S. (1999). Teacher supply and demand workshop: Collaborating for change, Paper 1. Perth: Rural and Remote Education Advisory Council and Centre for Excellence in Teaching. <http://www.iier.org.au/iier12/sharplin.html>.
- Hogan, P. (2005). Learning Anew: Development the professional self-understanding of teachers. *Kwartalnik Pedagogiczny*.
- Limon, M. R. (2022). Assessing knowledge and skills retention of junior high school students on food safety lessons using modified Kirkpatrick's model. *Food Control*, 135, 108814.
- Limon, M. R., Vallente, J. P. C., Chua, C. T., Rustia, A. S. (2022). Situating curriculum in context: Using Glatthorn's Standards-Based Curriculum Development Model to contextualize food safety learning competencies. *Food Control*, 132, 108538.
- Limon, M. R. (2021). Validation of a researcher-developed food safety curriculum guide for junior high school students using Delphi technique. *Food Control*, 125, 108011.
- Limon, M. R., Consuelo, C. T., & Gabriel, A. A. (2021). Place of food safety education in the Philippine K to 12 Curriculum. *Philippine Journal of Science*, 150(3), 617-632.
- Lupascu, A. R., Pânisoară, G., & Pânisoară, I.-O. (2014). Characteristics of Effective Teacher. *Procedia - Social and Behavioral Sciences*, 127, 534–538. <https://doi.org/10.1016/j.sbspro.2014.03.305>
- Lobocki, M. (2004). Some factors in Effective Teacher Education (As a matter of Pedagogics). In European integration through education: traditions, the present and the future.
- Golter, P., Van Wie, B., & Brown, G. (2017). Foundations for validating a critical thinking rubric. *Journal of STEM Education* 17 (4).
- Ingersoll, R. (2001). The realities of out-of-field teaching. *Educational leadership*, May 2001, 42. <http://www.EducationalLeadership/ingersoll>
- Ingersoll, R. (2003). Is there a shortage among mathematics and science teachers? *Science Educator*, 12(1), 1–9.
- Ingersoll, R., & Smith, T. (2004). Do teacher induction and mentoring matter? *NASSP, Bulletin*, 88(638), 28–40.
- Ingersoll, R., Merrill, L. & May, H. (2015). what are the effects of teacher education and preparation on beginning teacher attrition? Research Report No. #RR-82, Consortium for Policy Research in Education, University of Pennsylvania, Philadelphia.
- Ingvarson, L., Beavis, A., & Kleinhenz, E. (2004). Teacher education courses in Victoria: Perceptions of their effectiveness and factors affecting their impact. Report prepared by the Australian Council for Educational Research (ACER) for the Victorian Institute of Teaching (VIT). Retrieved January 2022, https://www.academia.edu/8989292/Factors_Affecting_The_Impact_Of_Teacher_Education_Courses_On_Teacher_Preparedness.
- Kim, E. G. (2011). Out-of-field secondary school teachers in Korea: Their realities and implications. *KEDI Journal of Educational Policy*, 8, 29-48.
- King Rice, J. (n.d.). Teacher Quality: Understanding the effectiveness of teacher attributes. Retrieved Feb 2022, from <https://eric.ed.gov/?id=ED480858>.
- Koehler, M. J., Mishra, P., Kereluik, K., Shin, T. S. & Graham, C. R. (2014). The technological pedagogical content knowledge framework. In: Spector, M., Merrill, M.D., Elen, J. and Bishop, M.J., Eds., *Handbook of Research on Educational Communications and Technology*, 4th Edition, Springer-Verlag, New York, 101-111.
- Kleickmann, T., Richter, D., Kunter, M., Elsnér, J., Besser, M., Krauss, S. & Baumert, J (2012). Teachers' content knowledge and pedagogical content knowledge: The role of structural differences in teacher education. *Journal of Teacher Education*, 64, 90-106.
- Kumar, I. A., & Parveen, S. (2015). Teacher education in the age of globalization. *Research Journal of Educational Sciences*, 1, 8-12.
- Lingard, B. (2010). *Towards a sociology of pedagogies*. In M. Apple, S. Ball, & L. Gandin (Eds.), *The Routledge international handbook of the sociology of education* (pp. 167–178). London: Routledge Taylor & Francis Group.
- Maurer, A. B. (2012). *The Impact of positive traits on teacher performance within a systems driven charter school management organisation*. Unpublished Thesis. Philadelphia: University of Pennsylvania.

- McConney, A., & Price, A. (2009a). An assessment of the phenomenon of “Teaching-Out-of-field” in WA schools: Final report. Perth: WACOT.
- McConney, A., & Price, A. (2009b). Teaching out-of-field in Western Australia. *Australian Journal of Teacher Education*, 34(6), 86–100.
- Mea, N. & Pacaña, S., Ramos, C., Catarata, M., & Inocian, R. (2019). Out-of-Field social studies teaching through sustainable culture-based pedagogy: A Filipino perspective. *International Journal of Science Education*. 7, 230-341.
- Moreno Rubio, C. (2009). Effective teachers –professional and personal skills. ENSAYOS. Revista de la Facultad de Educación de Albacete, N° 24, 2009, (35-46) https://www.academia.edu/65195732/Efective_teachers_profesional_and_personal_skills
- Nava, M. (2000). Teachers' choice of teaching strategies for dealing with socio-moral dilemmas in the elementary school, *Journal of Moral Education*, 29:4, 429-444,
- Padolina, (2004). “Educational Reform”- The Philippine education in the third millennium. problems encountered by the teachers. Retrieved Dec 2021 from <http://www.slideshare.net/teenjoy/thesis-37517506>.
- Pelochino, M. (2014). Designing what’s next in teachers’ professional development. Retrieved November 2021 from <https://dschool.stanford.edu/fellowships/2014/03/27/designing-whats-next-in-teachersprofessional-development/>.
- Phillips, K. P. A. (2007). Research on career change pathways into teaching: Final report. Department of Education Science and Training.
- Richards, J. C., & Farrel, T. S. C. (2005). Professional development for language teachers: Strategies for teacher learning. Cambridge: Cambridge University Press.
- Samillano, J. (2015). Competency among MAPEH teachers in teaching performing arts in selected public secondary schools in North Cotabato. (Unpublished Undergraduate Thesis Writing). University of Southern Mindanao.
- Stanulis, R., & Floden, R. (2009). Intensive mentoring as a way to help beginning teachers develop balanced instruction. *journal of teacher education*, 60(2), 112-122.
- Tatlonghari, A. A. (2014), The curriculum in the k to 12 program and performance of teacher in selected public high school: Input to teacher readiness, Laguna State Polytechnic University, San Pablo City Campus.
- Valisno, M. D. (2012). The nation’s journey to greatness: Looking beyond five decades of Philippine education, FAPE.
- Villaverde, N. (2017). *Impact of collaborative specialization on 5th grade student achievement in a title i school*. Harvard University Press, Cambridge.
- Van der Westhuizen, P. (2004). Management as an action. In P. Van der Westhuizen (Ed.), *Effective educational management* (12th ed., pp. 135-235). Retrieved Jan 2022 from <https://www.scirp.org/journal/PaperInformation.aspx?PaperID=27781>. Cape Town: ABC Press.
- UNESCO (United Nations Educational, Scientific and Cultural Organization). (2017). *Education for All 2015 National Review*: Bangkok, 2017. UNESCO, Paris.
- UNESCO (United Nations Educational, Scientific and Cultural Organization). (2001). Retrieved Feb 2022, from <http://www.ibe.unesco.org/en/glossary-curriculum-terminology/t/technical-and-vocational-education-tve>
- UNICEF (United Nations Children’s Fund). (2016). *Defining Quality in Education*. Working Paper Series, United Nations Children’s Fund (UNICEF), New York.
- Weldon, P. R. (2016). Out-of-field teaching in Australian secondary schools. Australian Council for Educational Research, Victoria.
- Zepeda, S. (2006). High stakes supervision: We must do more. *International J. of Leadership in Edu.*, 9(1), 61–73.
- Zhou, Y. (2013). The relationship between school organizational characteristics and reliance on out-of-field teachers in mathematics and science: Cross-national evidence from TALIS 2018. *Asia-Pacific Education Researcher*, 23, 483-497.