PERFORMANCE OF OUT-OF-FIELD TEACHERS IN BASIC EDUCATION: BASIS FOR PROGRAM INITIATIVES

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ABSTRACT: The matter of out-of-field teaching has been a persisting problem despite the interventions and reforms implemented. Consequently, this study was conducted to determine the proportion and profile of OFT and probe their mastery level in the subjects they are teaching, particularly teachers in the select Department of Education (DepEd) schools in the division of Cagayan de Oro City, El Salvador City, and Misamis Oriental. This study also investigated the extent of the challenges encountered by OFT in lesson planning and lesson delivery. A descriptive research design was employed. A survey was conducted to determine the number and profile of the out-of-field teachers. The recognized OFT teachers were subjected to the performance test and survey to assess their challenges in teaching the subject which is not their field of specialization. The data were analyzed using descriptive statistical tools. The study showed that among the three divisions, Cagayan de Oro City has a more serious problem of out-of-field teachers, particularly in small schools. Most OFTs were new in the service, with raw teaching experiences and low mastery levels in the subjects. However, this group of OFT was confident that they were able to carry out their tasks. Hence, school administrators are recommended to collaborate with the Teacher Education Institutions through its extension programs to design and organize an intensive, ongoing Teacher Professional Development (TPD) program.

Keywords: out-of-field teachers, teacher's profile, challenges of out-of-filed teachers

1. INTRODUCTION

Out-of-field Teaching (OFT) is a global phenomenon [1] that preponderantly exists in educational institutions. It usually occurs primarily when there are shortages of in-field teachers or when they have neither a major nor minor field of specialization required for the subjects they are teaching [2, 3, 4, 5]. Kenny, Hobbs, and Whannell [6] strongly believed that this problem arises from a problematic teacher supply and demand.

Despite the problem of supply and demand of in-field teachers, local and international schools continue to operate. Theoretically, some might have successfully ended the school year and produced learners moving to the next level of their education. Still, the performance of their out-of-field teachers has never been fully investigated. Without having this kind of scientific inquiry, other schools have formulated specific policies and designed specialized knowledge and skills development programs. Yet, the problem persists as most teachers tend to stay in their usual comfort zone than seriously improve their performance in teaching subjects out of their field. Despite everything, OFT teachers need to get updated and enhance their knowledge and skills [7, 8, 9] to sufficiently impart to the learners an adequate amount of knowledge that is expected of them.

Hobbs and Törner [7, 8, 9] argued that whether out-of-field teaching is considered a 'problem' for the teaching profession is ultimately determined by the impact on students. Along this line, the study claims that the performance of the OFT teachers, as well as the challenges they have faced, should be investigated prior to designing a well-thought-out intervention strategy and developing a policy that will sufficiently lower the increasing number of OFT teachers and minimize its adverse effect on the educational system in general and the teaching-learning process in particular.

Hence, this study was conducted to determine the proportion and profile of OFT, and probe their mastery level in the subjects they are teaching, particularly in the select Department of Education (DepEd) schools in the division of Cagayan de Oro City, El Salvador City, and Misamis Oriental. Further, this study investigated the extent of the challenges encountered by OFT in lesson planning and lesson delivery. As the study elicited valuable inputs to make an informed decision on crafting educational policies and intervention programs, and improved performance of OFT teachers may be considered accrued benefits of pursuing and finishing the proposed study.

2. Review of Related Literature Out-of-field teaching in the academia

Out-of-field teaching is a continuing global phenomenon and a prominent education policy and reform [10]. By and large, out-of-field teaching causes various problems on student learning. Some of the factors that affect student learning include quality of the instructional process [11], teaching preparation, pedagogy, content, and teacher quality which has been recognized as the primary influence on student learning [12]. Steyn and Du Plessis [13] asserted that these complexities add extra strain on school administration's obligation to provide quality management and jeopardize effective teaching and quality learning.

Over and above, several studies found several reasons for staffing out-of-field teachers in schools. One of the prominent reasons is the shortage of teachers to teach infield subjects apart from the overflowing number of learners to be managed by a limited number of teachers. For some reason, out-of-field teaching poses complications to the academic community [13]. And this holds for many schools all over the world, be it private or public. However, Ingersoll and Curran [14] averred that contrary to conventional wisdom, out-of-field teaching is not simply a response to teacher shortages. It occurs in schools and subjects where there are plenty of teachers available. They

maintained that out-of-field teaching is largely a function of school staffing choices.

To become effective, an out-of-field teacher must have acquired knowledge and skills in teaching an out-of-field subject. Corollary to this, schools introduce professional development initiatives such as specialized training and programs due to reforming existing educational policies. Despite the initiatives, the out-of-field teachers are still faced with challenges, particularly on their functions as out-of-field teachers.

Challenges of out-field teachers

The literature reveals various challenges that out-of-field teachers have experienced [6]. Ingersoll [15] stated in his exploratory analysis on out-of-field teaching several causes of insufficient student achievement. These include inadequate qualified teachers, quality of preparation among teachers, poor administration, and organization of schools, among others. Ingersoll theorized that the manner in which schools are organized and in which teachers are utilized can account for as much of the problem of underqualified teaching as do inadequacies in teacher training or the supply of teachers. This assumption can be analogized to the contention of Du Plessis, Carroll, and Gillies [16] that assigning teachers to a position for which they are not suitably qualified influences effective educational leadership.

Recent evidence suggests that research-based intervention strategies or programs should be institutionalized and implemented to address various challenges. One of these is upskilling of the out-of-field teachers in the subject areas they teach. Pacana, Ramos, Catarata, and Onocian [11] suggested introducing effective coping mechanisms for the survival of these teachers in an out-of-field-teaching environment. They maintained that crafting implementing doable programs aids in addressing their needs. Importantly, to ensure that teachers are highly qualified, policymakers should craft competencies or standards about teacher certification and teacher education programs [17,18]. In addition, alignment between the specific professional development needs of out-of-field teachers and the planned learning experiences is essential to maximize sustained learning and applicability to teachers' classrooms [6]. Hobbs [19] recommended that research into teachers' experience of learning to teach out-of-field ought to consider the teacher in setting and connection to teacher learning. Shah, Richardson & Watt [20] maintained that since teachers have a critical role in motivating students, they should possess appropriate subject matter knowledge.

3. Methodology

The study employed a descriptive research design. The data were collected from three select DepEd divisions in Northern Mindanao, namely, the Division of Cagayan de Oro City, the Division of El Salvador City, and the Division of Misamis Oriental.

The study population was comprised of out-of-field teachers who teach English, Filipino, Mathematics, Science, and Araling Panlipunan in Grade 10 from the different schools in the select Divisions in Northern Mindanao. To determine the study participants, a

probability sampling method, particularly a multi-stage sampling technique was used. A two-stage sampling process was carried out. In the first stage, a complete list of schools in the different divisions was prepared and stratified according to size (small, medium, and large). Schools were randomly selected from each category to ensure that each school size category was well represented. In the second stage, a complete list of out-of-field teachers from the selected schools of each school size category was prepared. Teachers were selected from each school category using a systematic sampling technique to determine the actual participants of the study, which is at least 20 percent of the target population. To determine the sufficiency of the sample size, G*Power version 3.1 was used considering the medium effect size (Cohen, 1988), 5 percent level of significance, and the minimum acceptable power of 80 percent [21].

The study utilized performance (or summative) tests to measure the content knowledge mastery level of the out-of-field teachers on their teaching subjects. These were researchers-made tests that were subjected to face and content validity. A profiling survey questionnaire and checklist were used to determine the extent of challenges encountered by OFT.

A well-planned survey was conducted to determine the profile of the out-of-field teachers using Google forms. This was to identify the number of out-of-field teachers and their group in terms of subjects taught. As soon as the data were obtained, the teachers were subjected to the performance test. Another survey was conducted to determine the OFT extent of challenges in teaching subjects that were not their specialization. This was conducted on the same schedule as the performance test to ensure a 100% retrieval rate of the questionnaire.

The data were analyzed using descriptive statistical tools indicating the mean, frequency, and percentage distribution, and standard deviation.

4. RESULTS AND DISCUSSIONS

Table 1 shows the frequency and percentage of out-of-field and their field teachers by division and school size. It can be seen in the table that there were 221 teachers responded to the survey about determining the out-of-field teachers. Out of 221 teachers, 43 or 19% are out-of-field. In the Cagayan de Oro City division, 61 teachers answered the survey, of which 26% are out of the field. In the division of El Salvador, 28 answered the survey 11% were out of the field, and in the division of Misamis Oriental, 18% were out of the field. This result indicates that among the three divisions, Cagayan de Oro City has a more serious problem of out-of-field as compared to other divisions under survey.

In terms of school size, it can be noted that the problem of out-of-field teachers is evident in all sizes of schools, but it is more serious in small schools. Forty-five percent of the respondents from small schools are out-of-field, 15% are medium schools, and 20% are large schools. However, in the division of Cagayan de Oro, the problem of out-of-field teachers is also critical in medium (43%) and large (24%) schools.

Table 1. Frequency and percentage of out-of-field and within their field by division and school size (n=221)

School Size			Division							
	Teachers Classification	Cagayan de Oro City		El Salvador		Misam	is Oriental	<u>Total</u>		
		F	% within Division	${m F}$	% within Division	\boldsymbol{F}	% within Division	F	% within Division	
	Out of Field			1	25%	4	57%	5	45%	
Small	Within their Field			3	75%	3	43%	6	55%	
	Total			4	100%	7	100%	11	100%	
	Out of Field	3	43%	1	13%	6	12%	10	15%	
Medium	Within their Field	4	57%	7	88%	46	88%	57	85%	
	Total	7	100%	8	100%	52	100%	67	100%	
	Out of Field	13	24%	1	6%	14	19%	28	20%	
Large	Within their Field	41	76%	15	94%	59	81%	115	80%	
	Total	54	100%	16	100%	73	100%	143	100%	
Total	Out of Field	16	26%	3	11%	24	18%	43	19%	
	Within their Field	45	74%	25	89%	108	82%	178	81%	
	Total	61	100%	28	100%	132	100%	221	100%	

Table 2. Profile of the out-of-field respondents by division (n=23)

		DIVISION								
			CDO	E	l Salvador		Mis.Or.	<u>Total</u>		
Variable	Level	F	(n=13) % within Division	F	(n=1) % within Division	F	(<u>n=9)</u> % within Division	<u>(1</u> F	<u>n=23)</u> % within Division	
	Female	7	54%	1	100%	9	100%	17	74%	
Sex	Male	6	46%	0	0%	0	0%	6	26%	
	≤25 years old	2	15%	0	0%	1	11%	3	13%	
	26 to 35 years old	7	54%	1	100%	3	33%	11	48%	
Age	36 to 45 years old	1	8%	0	0%	3	33%	4	17%	
	46 to 55 years old	2	15%	0	0%	2	22%	4	17%	
	56 to 65 years old	1	8%	0	0%	0	0%	1	4%	
	Less 5 years	7	54%	1	100%	3	33%	11	48%	
Experience	5 to 10 years	3	23%	0	0%	4	44%	7	30%	
(in years)	11 to 15 years	0	0%	0	0%	0	0%	0	0%	
	More than 15 years	3	23%	0	0%	2	22%	5	22%	
Rank/Position	Teacher I	8	62%	1	100%	8	89%	17	74%	
	Teacher II	1	8%	0	0%	1	11%	2	9%	
	Master teacher I	1	8%	0	0%	0	0%	1	4%	
	Baccalaureate Degree	8	62%	1	100%	5	56%	14	61%	
Highest	Full-fledge Masters	3	23%	0	0%	1	11%	4	17%	
Educational	Master's Unit/Ongoing	2	15%	0	0%	3	33%	5	22%	
Attainment	Doctoral Unit/Ongoing	0	0%	0	0%	0	0%	0	0%	
	Full-fledge Doctorate	0	0%	0	0%	0	0%	0	0%	
Field of	English	3	23%	1	100%	2	22%	6	26%	
Specialization	Filipino	1	8%	0	0%	0	0%	1	4%	
	Mathematics	2	15%	0	0%	2	22%	4	17%	
	Science	1	8%	0	0%	2	22%	3	13%	
	Social Science/AP	2	15%	0	0%	1	11%	3	13%	
	TLE	3	23%	0	0%	2	22%	5	22%	
	Values Education	1	8%	0	0%	0	0%	1	4%	

Out of forty-three identified out-of-field teachers in the three divisions (Cagayan de Oro, El Salvador, and Misamis Oriental), only 23 teachers participated in the survey for the performance and challenges of out-of-field teachers. Only 13 teachers participated from the division of Cagayan de Oro, 1 from El Salvador, and 9 from Misamis Oriental. Table 2 presents the profile of the 23 out-of-field respondents.

Further, it can be seen in Table 2 that in the division of Cagayan de Oro City, there is an almost equal number of male and female participants, while in the other divisions, all are female. In terms of age, the majority are 26 to 35 years old in the division of Cagayan de Oro and El Salvador City while 26-45 years old in Misamis Oriental. In terms of experience, most of the respondents from Cagayan de Oro and El Salvador have less than 5 years of teaching experience as of the time of survey while Misamis

Oriental respondents have 5 to 10 years. In addition, most of the respondents from these three divisions are Teacher I position and are Baccalaureate degree holders. Furthermore, the field of specialization of most respondents from Cagayan de Oro are English and TLE, from El Salvador is English and from Misamis Oriental are English, Mathematics, Science, and TLE.

In summary, the majority of the respondents are female (74%), with ages ranging from 26 to 35 years old (48%), who are Less 5 years in the service (48%), Teacher I (74%), Baccalaureate degree holder only (61), and major English (26%), TLE (22%) and Mathematics (17%). It can also be observed in the table that there is only one Filipino major, which is only 4% of the total respondents.

When the respondents are grouped according to the subjects they are teaching, it was found out that teachers are teaching more than one subject which is not their field

of specialization. The distribution of out-of-field teachers by subjects is presented in table 3.

Table 3 presents the profile of the out-of-field respondents by subject. It can be observed in table 3 there that there are only very few out-of-field teachers in English, Math, and Science. This is because the majority of the teachers are majoring in English, Maths, Science, and TLE. It is also worth noting that more OFT was in Filipino and Araling Panlipunan. This can be attributed to the fact that only a few Teacher Education Institutions in the region offer specializations in Filipino and Araling Panlipunan.

Table 3. Profile of the out-of-field respondents by subject

Variable	Level	Eng	glish (n=2)		ilipino n=10)	Out	of-filed in Math (n=1)		ence (n=3)		AP (n=9)
variable		F	within Subject Taught	F	within Subject Taught	F	within Subject Taught	F	within Subject Taught	F	within Subject Taught
Sex	Female	2	100%	6	60%	1	100%	2	67%	6	67%
	Male	0	0%	4	40%	0	0%	1	33%	3	33%
Age	≤ 25	0	0%	1	10%	1	100%	0	0%	1	11%
(in years)	26 to 35	1	50%	5	50%	0	0%	2	67%	4	44%
	36 to 45	0	0%	3	30%	0	0%	0	0%	2	22%
	46 to 55	1	50%	1	10%	0	0%	0	0%	2	22%
	56 to 65	0	0%	0	0%	0	0%	1	33%	0	0%
Experience (in years)	Less 5	1	50%	3	30%	1	100%	2	67%	5	56%
	5 to10	0	0%	6	60%	0	0%	0	0%	2	22%
	11 to 15	0	0%	0	0%	0	0%	0	0%	0	0%
	More than 15	1	50%	1	10%	0	0%	1	33%	2	22%
Position	Teacher I	2	100%	8	80%	0	0%	2	67%	7	78%
	Teacher II	0	0%	0	0%	1	100%	0	0%	1	11%
	Master teacher I	0	0%	0	0%	0	0%	1	33%	0	0%
	Baccalaureate Degree	2	100%	4	40%	1	100%	3	100%	5	56%
Highest	Master's Unit/Ongoing	0	0%	2	20%	0	0%	0	0%	3	33%
Educational	Full-fledge Masters	0	0%	4	40%	0	0%	0	0%	1	11%
Attainment	Doctoral Unit/Ongoing	0	0%	0	0%	0	0%	0	0%	0	0%
	Full-fledge Doctorate	0	0%	0	0%	0	0%	0	0%	0	0%
Field of	English	0	0%	4	40%	0	0%	0	0%	3	33%
Specialization	Filipino	0	0%	0	0%	0	0%	0	0%	1	11%
	Mathematics	0	0%	0	0%	0	0%	3	100%	1	11%
	Science	0	0%	1	10%	1	100%	0	0%	1	11%
	AP	1	50%	1	10%	0	0%	0	0%	1	11%
	TLE	1	50%	4	40%	0	0%	0	0%	1	11%
	Values Education	0	0%	0	0%	0	0%	0	0%	1	11%

It can also be observed from Table 3 that the out-of-field in English are all female, one is 26-35 years old while the other is 46-55 years old, all are teachers I, all with Baccalaureate degree only, one is major in AP while the other one is major in TLE. The out-of-field in Filipino are all female, 26-35 years old, have 5-10 years teaching experience, and teacher I. However, in terms of highest educational attainment, 40% are only baccalaureate degrees and 40% are full-fledged master's degrees. In terms of specialization, 40% is English major and 40% is TLE, 10% is science and 10% is AP. The only one out-offield in mathematics is a female, less than 25 years old, with less than 5 years of teaching experience, teacher II, with baccalaureate degree only, and major in Science. The majority of the out-of-field in Science is female, 26-35 years old, with less than 5 years teaching experience, a teacher I, all are with a baccalaureate degree only and major in mathematics. In the out-field in Araling Panlipunan, the majority are female, 26-35 years old, with

less than 5 years teaching experience, a teacher I, with baccalaureate degree only and major in English.

Table 4 shows the mean, mean percentage score, and mastery level of out-of-field teachers in their teaching subjects. It can be gleaned in the table that the mastery level of the teachers in the subjects, not their field of specialization is the beginning level. This is because the respondents are less than five years in the service, and their highest educational qualification is only a bachelors' degree. Since they are new in the service, most of them have not undergone training on their handled subjects. In early 2000, the DepEd conducted training and certificate programs in collaboration with the Department of Science and Technology (DOST) and selected tertiary training institutions to enrich teachers' content and pedagogical knowledge teaching subjects that were not their specializations. Examples of these are the mass training for teachers K to 12 basic education program and the Project Rescue Initiatives in Science Education [22]; and the Certificate Program for High School Non-Major Teachers of Science and Mathematics [23]. Hence, the result presented could be sufficient evidence to subject OFT teachers for further training. This supports the claim of [7, 8, 9] that OFT teachers need to get updated and enhance their knowledge and skills to sufficiently impart to the learners an adequate amount of knowledge that is expected of them. Teachers have a critical role in motivating students. They should possess appropriate subject matter knowledge [20].

This result also supports the findings of Tan [24], who found out that teachers who do not have mastery in the subject they are teaching and who still have raw teaching experiences are not competent enough to teach. This proves then that the length of experience in teaching is also a factor of teachers' competence.

Table 5 shows the mean, standard deviation, and extent of the challenges encountered by the out-of-field teachers in the subjects they are teaching. It can be observed that the mean of the extent of challenges encountered by the out-of-field teachers ranges 1.10-1.86 which means a *very little* to a *little extent*. The degree of challenges they experience in connecting concepts, facilitating performance tasks, preparing a lesson plan, using a variety of teaching strategies in class (e.g. explaining, raising questions, group work), managing a class (e.g. drawing up clear class rules, creating a friendly atmosphere in class, and developing a good relationship among students), constructing tests,

constructing a rubric which will be used in assessing student performance, engaging learners in the topic(s), using ICT tools is *very little* only while *little extent* on the other indicators. Generally, the overall extent of challenges uncounted by the out-of-field teachers is *little extent*. It means that the respondents generally perceived that they could carry out the tasks in lesson planning and lesson delivery.

This group of out-of-field teachers was confident that they carried out their responsibility based on their perspective and adapted concept and practice in lesson planning and teaching-and-learning. However, this perceived extent of challenges experienced by the out-of-field teachers did not match the results presented in Table 4 on the mastery level of out-of-field teachers in the subjects they are teaching. This is because the lesson designing was done daily and by topic at a time. Meaning teachers just focused on one particular content topic to study at a time. However, the test given to measure their mastery level was a comprehensive test covering all grade-level competencies. This indicates that there are issues on the teachers' retention and profound understanding of the content they were teaching. Hence, to be able to cause an impact on the students' achievement, all teachers must be trained to have a profound understanding of content and pedagogy in the subjects they are teaching [25].

Table 4. Mean, mean percentage score, and mastery level of out-of-field teachers in the subjects they are teaching

Subjects	n	Mean (Mean Score/Highest Possible Score)	Mean Percentage Score (MPS)	Mastery Level
Filipino	10	29 / 50	58	Beginning
Araling Panlipunan	9	34 / 60	57	Beginning
English	2	33 / 58	56	Beginning
Math	1	23 / 60	38	Beginning
Science	3	26 / 60	44	Beginning
Overall			51	Beginning

0<75 Beginning 75-79 Developing

80-89 Approaching Proficiency

90-100 Proficient

Table 5. Mean, standard deviation, and extent of the challenges encountered by the out-of-field teachers in the subjects they are teaching

Indicators	Mean	SD	Extent of Challenges
Understanding the curriculum	1.71	0.72	Little Extent
2. Understanding the out-of-field subjects	1.67	0.80	Little Extent
3. Guiding and directing learners thinking processes	1.67	0.80	Little Extent
4. Assisting learners in analyzing subject matter	1.67	0.86	Little Extent
5. Connecting concepts	1.43	0.93	Very Little Extent
6. Integrating out-to-field subjects with other subjects	1.52	0.93	Little Extent
7. Contextualizing the curriculum	1.67	0.97	Little Extent
8. Facilitating performance task	1.29	0.90	Very Little Extent
9. Constructing learning objectives	1.57	0.98	Little Extent
10. Formulating an updated sequence of information of the subject taught	1.76	0.89	Little Extent
11. Constructing a detailed description of the lesson	1.76	0.86	Little Extent
12. Preparing a lesson plan	1.43	0.81	Very Little Extent
13. Preparing table of specifications (TOS)	1.67	0.80	Little Extent
14. Using a variety of teaching strategies in class (e.g. Explaining, raising questions, group work)	1.43	0.93	Very Little Extent
15. Using different assessment methods and techniques (e.g. Quiz, report, role-playing)	1.52	0.87	Little Extent
16. Understanding students learning difficulties	1.62	0.97	Little Extent
17. Adjusting the ways of teaching that enhance student performance	1.52	0.87	Little Extent
18. Managing a class (e.g. drawing up clear class rules, creating friendly atmosphere in class, and developing a good relationship among students)	1.10	0.89	Very Little Extent
19. Constructing tests	1.10	0.89	Very Little Extent
20. Constructing a rubric that will be used in assessing student performance	1.48	0.98	Very Little Extent

21. Engaging learners in the topic(s)	1.19	0.87	Very Little Extent	
22. Using ICT tools	1.14	0.85	Very Little Extent	
23. Preparing and using appropriate instructional materials	1.52	0.98	Little Extent	
24. Designing remedial and enrichment sessions	1.86	1.01	Little Extent	
Overall	1.51	0.57	Little Extent	

0.00-0.74: Not Challenging 0.75-1.49: Very Little Extent 1.50-2.24: Little Extent 2.25-3.00: Great Extent

Moreover, the analysis Tables 4 and 5 presents sufficient evidence that intervention strategies or programs designed explicitly for OFT should be institutionalized and implemented to address various issues observed. Particularly on enhancing their content knowledge on the subjects, they are teaching. As suggested by Pacana, Ramos, Catarata, and Onocian [11; 17], effective coping mechanisms for these teachers to survive in an out-offield-teaching environment should be crafted and implemented. In addition, according to Kenny, Hobbs, and Whannell [6], alignment between the specific professional development needs of out-of-field teachers and the planned learning experiences is essential to maximize sustained learning and applicability to teachers' classrooms.

Hence, it is proposed to organize an intensive, ongoing professional development model to be provided to out-offield teachers. A development model connected to teaching practices focused on student learning and addressed specific curriculum content aligned to school improvement priorities and goals which also build strong working relationships among teachers [26], such as the Lesson Study (LS). LS is a school-based collaborative activity for teachers to a continuous cycle of meticulous planning, prudent and mindful demonstrating, and perceptive improvement of a lesson. The teachers are of different levels of ability but with interest in working collaboratively, with specific objectives for lesson planning, to carry out the planned and researched lesson [26]. Through LS, teachers who are new in the service and with lower educational qualifications can work with experienced teachers and with advanced content knowledge of the subject. Teachers can be classified as presented in Tables 2 and 3.

DepEd in collaboration with Teacher Education Institutions (TEI's) may organize short-term certificate programs for OFT to enroll in courses on subjects they are teaching that are not their specializations. This is to enrich their content knowledge and earn course units that can be credited if they pursue graduate programs in these specializations. Scholarship grants may be provided to encourage teachers to continue their professional development.

5. CONCLUSION

Based on the findings of the study, the following conclusions were drawn: (1) Among the three divisions, Cagayan de Oro City has a more serious problem of out-of-field teachers as and was more serious in small schools; (2) Majority of the out-of-field are in Filipino and Araling Panlipunan; (3) Most of the OFT were young, new in the service, in teacher I rank and with raw teaching experiences. All are with a baccalaureate degree only, with low mastery levels in the subjects they were teaching. Therefore, they were not competent to teach the topic assigned to them; and (4) This group of out-of-field teachers was confident that they could carry out their tasks. However, this little perceived extent of

challenges experienced did not match the observed mastery level in the subjects they are teaching. Hence, OFT could not perceive the wider impact of the profound understanding of content in the subjects they teach in students' achievement.

6. Recommendations

Henceforth. the researchers forwarded the following recommendations: (1) School Administrators may collaborate with the Teacher Education Institutions through its extension programs to design and organize an intensive, ongoing Teacher Professional Development (TPD) program, like the Lesson Study, to provide out-of-field teachers' opportunity to collaborate with the more experienced teachers and experts in the field of they are teaching; (2) DepEd in collaboration with Teacher Education Institutions (TEI's) may forge an agreement to craft short-term certificate programs for OFT for them to enroll in courses to enrich their content knowledge and for them to earn course units that can be credited, if they pursue graduate programs in this specializations; (3) Scholarship grants may be provided to encourage teachers to continue their professional development, and (4) School administration may review the hiring plan and teachers loading assignment policies and practices.

REFERENCES

- [1] Kim, E. (2011). Out-of-field secondary school teachers in Korea: Their realities and implications. KEDI Journal of Educational Policy, 8, 29–48.
- [2] Du Plessis, A. E. (2020). Connecting the Dots: Policy Development and the Out-of-Field Teaching Reality in Education. In Out-of-Field Teaching and Education Policy (pp. 1-45). Springer, Singapore.
- [3] Ríordáin, M. N., Paolucci, C., & Lyons, T. (2019). Teacher professional competence: What can be learned about the knowledge and practices needed for teaching?. In Examining the Phenomenon of "Teaching Out-of-field" (pp. 129-149). Springer,
- [4] Price, A., Vale, C., Porsch, R., Rahayu, E., Faulkner, F., Ríordáin, M. N., & Luft, J. A.
- (2019). Teaching out-of-field internationally. In Examining the Phenomenon of "Teaching Out-of-field" (pp. 53-83). Springer, Singapore.
- [5] Vale, C., & Drake, P. (2019). Attending to out-of-field teaching: Implications of and for education policy. In Examining the Phenomenon of "Teaching Out-of-field" (pp. 195-215). Springer, Singapore.
- [6] Kenny, J., Hobbs, L., & Whannell, R. (2020). Designing professional development for teachers teaching out-of-field. Professional development in education, 46(3), 500-515.
- [7] Hobbs, L., & Törner, G. (2019). Teaching Out-of-Field as a Phenomenon and Research Problem. In Examining the Phenomenon of "Teaching Out-of-field" (pp. 3-20). Springer, Singapore.
- [8] Hobbs, L., and Törner, G. 2019. The out-of-field phenomenon: synthesis and taking action. In L.Hobbs & G. Törner (Eds.), Examining the Phenomenon of

- "Teaching Out-of-field": International Perspectives on Teaching as a Non-specialist, 309-322. Dordrecht: Springer
- [9] Hobbs, L., & Törner, G. (2019). Teaching Out-of-Field as a Phenomenon and Research Problem. In Examining the Phenomenon of "Teaching Out-of-field" (pp. 3-20). Springer, Singapore.
- [10] Vale, C., Campbell, C., & White, P. (2020). Beliefs and practices of secondary teachers crossing subject boundaries to teach mathematics out-of-field. MEdRJ.
- [11] Pacana, N. S., Ramos, C. D., Catarata, M. N., & Onocian, R. B. (2019). Out-of-Field Social Studies Teaching through Sustainable Culture-Based Pedagogy: A Filipino Perspective. https://eric.ed.gov/?id=EJ1239341
- [12] Darling-Hammond, L. (2000). Teacher quality and student achievement. Education Policy Analysis Archives, 8, 1. ttps://doi.org/10.14507/epaa.v8n1.2000
- [13] Steyn, G.M. & Du Plessis E. (2007). The implications of the out-of-field phenomenon for effective teaching, quality education and school management. Africa Education Review 4, No. 2 (2007): 144-158.
- [14] Ingersoll, R., & Bridget K. Curran (2004). "Out-of-field teaching: The great obstacle to meeting the "highly qualified" teacher challenge." Washington, DC: NGA Center for Best Practices Issue Brief.
- [15] Ingersoll, R. (2002). "Out-of-field teaching, educational inequality, and the organization of schools: An exploratory analysis.
- [16] Du Plessis, A. E., Carroll, A., & Gillies, R. M. (2017). The meaning of out-of-field teaching for educational leadership. International Journal of Leadership in Education, 20(1), 87-112.
- [17] Darling-Hammond, L., Amrein-Beardsley, A., Haertel, E., & Rothstein, J. (2012). Evaluating teacher evaluation. Phi Delta Kappan, 93(6), 8–15.
- https://doi.org/10.1177%2F003172171209300603
- [18] Organization for Economic Co-operation and Development (2009). Creating effective teaching and learning environments: First results from TALIS . http://www.oecd.org/education/school/creatingeffective teachingandlearningenvironmentsfirstresultsfromtalis.ht m

- [19] Hobbs, L. (2020). Learning to teach science out-of-field: A spatial-temporal experience. Journal of Science Teacher Education, 1-21.
- [20] Shah, C., Richardson, P., & Watt, H. (2020). Teaching 'out of field'in STEM subjects in Australia: Evidence from PISA 2015 (No. 511). GLO Discussion Paper. Singapore.
- [21] Aguirre-Urreta, M., & Rönkkö, M. (2015). Sample size determination and statistical power analysis in PLS using R: an annotated tutorial. Communications of the Association for Information Systems, 36(1), 3.
- [22] Department of Education Memorandum no. 135, series 2003
- [23] Department of Education Memorandum no. 125, series, 2006)
- [24] Tan, R. (2019). Profiling the competence of alternative learning system (ALS) teachers to teach a particular math topics in high school. Sci. Int. (Lahore) 31 (3), 499-502
- [25] Tandog V., Roble, D., Maglipong, C., Luna, C. (2019). Impact of the profound understanding of fundamental Mathematics (PUFM) professional development Training-workshop of mathematics teachers. Science International (LAHORE) 31 (6), 859-861
- [26] Lomibao, L. S. (2016). Enhancing mathematics teachers' quality through Lesson Study. SpringerPlus, 5(1). https://doi.org/10.1186/s40064-016-3215-0