Differentiated Instruction and Teaching Proficiency of Secondary Mathematics Teachers

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Abstract

The study aimed to determine the differentiated instruction (DI) and teaching proficiency of secondary mathematics teachers in Eastern Samar Division. Using descriptive-comparative and correlational research designs, data gathered using a survey questionnaire from 207 secondary math teachers and 59 immediate supervisors. Mann-Whitney U Test and Kruskal-Wallis Test for comparison and Spearman Rank Correlation Coefficient for testing the relationship between variables were used at 5% level of significance. The study revealed that most of the respondents were female, in the adulthood stage, with units in masters, holding Teacher I position, specializing mathematics, novice teachers, and attended a minimal number of DI training/seminars. The respondents displayed a "highly practiced" DI and "outstanding" level of teaching proficiency. Likewise, results showed no significant differences in the respondents' level of DI and teaching proficiency when grouped by sex, age, educational attainment, teaching position, specialization, teaching experience, and training/seminars attended related to DI. Lastly, the level of DI was found to explain variation in the level of teaching proficiency. The study recommends real-time professional development on DI, where respondents will be equipped with relevant and updated concepts and where they can share and showcase their experiences and best practices in teaching mathematics.

Keywords: Differentiated Instruction, Teaching Proficiency, Secondary Mathematics Teachers, Eastern Samar Division

1. Introduction

In a modern educational system like today, the diversity of learners demands that teachers use various strategies to accommodate different learning styles and needs (Darra & Kanellopoulou, 2019). Educating children with traditional methods is becoming outdated, especially for today's 21st-century learners who are constantly involved with technology. As such, teachers should have alternative ways of encouraging and motivating students that will suit their learning demands (Patalinghug & Arnado, 2021; Shareefa et al., 2019). On record, there has been a significant trend of improvement in primary and secondary education teaching methods (Stephan et al., 2019), including Differentiated Instruction (DI). The Department of Education issued DepEd Order No.

42, s. 2016, encouraging teachers to implement differentiated instruction (DI), a strategy that addresses students' diversity by tailoring teaching methods and assessments to individual learner needs (Langelaan et al., 2024).

Millen and Gable (2016) highlighted that differentiated instruction improves learners' participation and performance and creates the ability to close achievement barriers for disadvantaged groups. Differentiated instruction is an approach that assumes that there is diversity of learners in the classroom– they are not alike, that is, students learn in different ways and rates, and that all learners can be reached if a variety of methods and activities are used that are technologically assisted, would be more beneficial (Blaz, 2016). Rogayan (2019) added that educational technologies make it easier for teachers to differentiate. Likewise, Ghavifekr and Rosdy (2015) highlighted that technology integration in the educational learning process would enhance teaching and learning, learner's motivation, and encourage communication and sharing of ideas or knowledge.

However, despite DI's usefulness, implementation of DI is often found to be challenging. Sulaiman and Wok (2018) state that 80% of teachers still do not grasp the concept of differentiated pedagogy well enough. This means some teachers have not been exposed to the implementation of differentiated pedagogy and do not apply it in their teaching (Mokhlis, 2021). Shareefa et al. (2019) argued that teachers need to adopt this approach because it is difficult to implement considering the number of students, workload, time, resources, knowledge, number of goals or outcomes to attain, and support. In support, Nieves (2020) argued that many teachers still need more skills to design learning activities, processes, and products in a differentiated scheme. Likewise, Rogayan (2019) noticed that teachers need a mutual grip on the principle of differentiated instruction. As a result, only a limited amount of improvement has resulted in public education.

With the above premise, the researcher desired to conduct the study. Besides, determining and understanding the teachers' DI practice will lead to crafting practical policies and practices that can enhance mathematics teaching and improve student outcomes. In the same context, the study will provide valuable insights for the Department of Education to strategically invest in teacher training programs based on evidence and research, ultimately improving the quality of education in the Philippines. Overall, this study will address Sustainable Development Goal (SDG) 4, Quality Education, which aims to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

Therefore, the study aimed to determine the level of DI and the level of teaching proficiency of secondary mathematics teachers in the Division of Eastern Samar. Specifically, it answered the following questions: (1) What is the demographic profile of the secondary mathematics teachers in terms of sex, age, educational attainment, teaching position, specialization, length of teaching experience, number of trainings attended related to DI in the past 3 years?; (2) What is the level of DI of the respondents in terms of content, process, and assessment and feedback?; (3) What is the level of teaching proficiency of the respondents along the Philippine Professional Standards for Teachers in terms of content knowledge and pedagogy, learning environment, curriculum and planning, community linkages and professional

engagement, and personal growth and professional development?; (4) Is there a significant difference in the level of DI and teaching proficiency of secondary mathematics teachers when they are grouped according to their demographic profile?; and (5) Is there a significant relationship between the respondents' DI and teaching proficiency?

2. Methodology

A descriptive–comparative and correlational research design was employed in this study. The study was descriptive since it described the secondary mathematics teachers in terms of their demographic profile, level of DI, and level of teaching proficiency. It was also comparative since significant differences in the respondents' DI and teaching proficiency were tested when grouped according to their demographic profile. Likewise, the study was correlational since it determined the relationship between the level of DI and teaching proficiency. A total of 207 secondary mathematics teachers and 59 immediate supervisors from public High Schools of the Eastern Samar Division were utilized in the study. The researcher selected regular permanent secondary math teachers with permanent plantilla of Teachers I-III since they have the same access to the programs, training, and seminars provided by the Department of Education, Eastern Samar Division.

Meanwhile, to gather the needed data, two instruments were used in the study. The first instrument was intended for mathematics teachers and comprises two (2) parts. Part I determined the demographic profile of the respondents, and Part II of the questionnaire measured the level of DI adapted from Siam and Al-Natour (2016) and organized in a 5-point Likert rating scale. The second instrument measured mathematics teachers' teaching proficiency. The indicators of the instrument were developed based on the domains and standards of the Philippine Professional Standard for Teachers (PPST). The instrument was answered by the immediate supervisors of the math teacher respondents, who were guided with the following scale: 5 – Very High, 4 – High, 3- Moderate, 2 – Low, and 1 – Not at All. The instruments were subjected to validation and reliability tests. Instruments were found to be valid and reliable with Cronbach's Alpha of $\alpha = 0.872$ for DI and $\alpha = 0.$ 0.887 for teaching proficiency.

Moreover, data were analyzed using frequency, percentage, mean score and confidence interval for the descriptive part of the study such as the demographic profile of the respondents, DI, and teaching proficiency. Mann-Whitney U Test and Kruskal-Wallis Test for comparison and Spearman Rank Correlation Coefficient for testing the relationship between variables. The level of significance was set to 5%.

3. Results and Discussion

3.1 Demographic Profile of Secondary Mathematics Teachers

This study investigated the demographic profile of the secondary mathematics teachers of Eastern Samar Division as presented in Table 1.

Table 1
The Demographic Profile of the Respondents

Variable	Categories	Frequency	Percentage
Sex	Male	82	39.61
	Female	125	60.39
	Total	*207*	*100.00*
Age	60 years old and above	3	1.45
	45 – 59 years old	28	13.53
	26 – 44 years old	170	82.12
	18 – 25 years old	6	2.90
	Total	*207*	*100.00*
Educational Attainment	Master's Graduate with Units in Doctorate	7	3.38
	Master's Degree Holder	31	14.98
	BS Graduate with Units in Masters	133	64.25
	BS Graduate	36	17.39
	Total	*207*	*100.00*
Teaching Position	Teacher III	70	33.82
	Teacher II	64	30.92
	Teacher I	73	35.26
	Total	*207*	*100.00*
Specialization	Math Major	173	83.57
	Non-Math Major	34	16.43
	Total	*207*	*100.00*
Length of Teaching Experience	21 years and above	14	6.76
	16 – 20 years	16	7.73
	11 – 15 years	28	13.53
	6 – 10 years	72	34.78
	5 years and below	77	37.20
	Total	*207*	*100.00*
Training/Seminar Related to DI	7 Training/Seminars and above	1	0.49
	5 – 6 Training/Seminars	4	1.93
	3 – 4 Training/Seminars	24	11.59
	2 Training/Seminars and below	178	85.99
	Total	*207*	*100.00*

As reflected in the table, it is worth noting that public High Schools of Eastern Samar Division are dominated by female math teachers accounting for 125 or 60.39%. In terms of age, 170 or 82.12% of the respondents are between 26 and 44 years old who are in the adult stage. Similarly, the schools are staffed by math teachers who are BS Graduates with units in Masters (133 or 64.25%), holding Teacher I (73 or 35.26%) teaching position, specializing in mathematics (173 or 83.57%), and have been in the service for 5 years and below (77 or 37.20%). In terms of training/seminars attended, it can be gleaned that the majority of the respondents attended only 2 trainings and below related to DI (178 or 85.99%) implying lack sufficient training in modern pedagogical strategies such as differentiated instruction among the respondents.

3.2 Practice of Differentiated Instruction (DI) of Secondary Mathematics Teachers

The study determined the level of DI of secondary mathematics teachers, but it was limited to factors of content, process, assessment, and feedback.

Table 2
Differentiated Instruction (DI) of Secondary Mathematics Teachers

No.	Statement	$\bar{x}$	CI	VD	LDI
Content					
1.	I modify mathematical content based on students' prior knowledge and skill levels.	4.12	4.03 – 4.21	O	HP
2.	I design tasks that cater to different student learning styles and interests in mathematics.	4.05	3.96 – 4.15	O	HP
3.	I provide multiple resources (e.g., videos, worksheets, manipulatives) for learning mathematical concepts.	4.00	3.90 – 4.11	O	HP
	Composite	**4.06**	**3.98 – 4.14**	**O**	**HP**
Process					
1.	I use a variety of teaching methods (e.g., direct instruction, group work, inquiry-based learning) to engage students in mathematics.	4.27	4.18 – 4.36	A	EP
2.	I allow students to choose activities that match their preferred learning style during mathematics lessons.	3.69	3.57 – 3.80	O	HP
3.	I provide scaffolding or step-by-step instructions for students who need additional support in mathematics.	4.26	4.16 – 4.35	A	EP
	Composite	**4.07**	**3.99 – 4.15**	**O**	**HP**
Assessment and Feedback					
1.	I use formative assessments (e.g., quizzes, and exit tickets) to adjust my mathematics teaching strategies.	4.49	4.40 – 4.57	A	EP
2.	I provide individual feedback to help students improve their understanding of mathematical concepts.	4.13	4.04 – 4.27	O	HP
3.	I analyze assessment results to identify and address the diverse needs of my students in mathematics.	4.30	4.21 – 4.39	A	EP
	Composite	**4.31**	**4.23 – 4.38**	**A**	**EP**
	Overall	**4.14**	**4.08 – 4.21**	**O**	**HP**

Note:	**Mean Score**	**Verbal Description (VD)**	**Level of Differentiated Instruction (LDI)**
	4.21 – 5.00	Always (A)	Extremely Practiced (EP)
	3.41 – 4.20	Often (O)	Highly Practiced (HP)
	2.61 – 3.40	Sometimes (S)	Moderately Practiced (MP)
	1.81 – 2.60	Rarely (R)	Slightly Practiced (SP)
	1.00 – 1.80	Never (N)	Not Practiced (NP)

Content. The table indicates that respondents highly practiced content differentiation that supports diverse learners, with a composite mean score of 4.06. This result indicates that respondents often engage in differentiating specific content of mathematics based on how learners process information, learners' readiness, and interest (Smets et al., 2020), so that it will be accessible, challenging, and relevant to learners with different levels of academic attributes. This finding conforms to the study of Nieves (2020), which showed that the level of teacher-differentiated instruction practice in terms of content was high. However, the result of the study contradicts Mengistie (2022), who found that the implementation of differentiated instruction was lower than expected compared to their level of understanding, particularly in differentiating content. Key obstacles included insufficient knowledge of strategies, time constraints for lesson preparation, limited resources, and large class sizes.

Process. The study found that respondents highly practiced process differentiation to meet the diverse needs of their students with a mean score of 4.07. This result highlights that respondents often design and deliver math instruction that allows their learners to engage with the material in diverse, meaningful, and personalized ways through varied approaches and activities that would help learners make sense of or master the content. Epitropoulos (2023) stressed that differentiated instruction takes multiple approaches. Differentiation allows flexibility in managing what, how, and how well students learn, promoting individual growth and tailored learning experiences. In support of the above idea, Walker (2023) underscored that differentiated instruction can personalize learning experiences. Thus,

teachers' instruction can be tailored to each student's unique needs and abilities, and learning activities aligned with individual interests, strengths, and challenges.

Assessment and Feedback. Results indicate that teachers reported to extremely practiced differentiating assessment and feedback to guide instruction, with a composite mean of 4.31. The results imply that respondents always engage in adapting different types of assessment strategies and ways that will support student learning in mathematics to ensure receiving equitable opportunities among learners for growth and receive feedback that will enhance their mathematical understanding, catering to their learning needs, interests, and abilities. Epitropoulos (2023) stressed that differentiated instruction is rooted in assessment. Instruction begins with assessments that inform teaching strategies. Continuous assessment helps adjust instruction based on student progress and learning outcomes. Moss and Brookhart (2019) also argued that formative assessment is a learning process that gathers evidence of learning to improve student outcomes.

Overall Differentiated Instruction. The study revealed an overall mean score of 4.14, suggesting that respondents often engage in creating and delivering math lessons, considering where their learners are through offering multiple paths to understanding and mathematical growth. Likewise, this result implies a positive commitment of teachers to catering to diverse students' needs and fostering an inclusive and adaptive educational environment. As emphasized by Marks et al. (2021), differentiated instruction offers a way to foster positive learning environments, embracing diversity in a way that provides for individual growth in learning based on a student's ability, interest, and readiness levels. Hence, a teacher's ability to effectively differentiate instruction in the classroom is crucial in catering to student individuality and diversity, especially in inclusive learning (Francis et al., 2019; Francome & Hewitt, 2020).

3.3 Teaching Proficiency of Secondary Mathematics Teachers

The study also determined the teaching proficiency of secondary math teachers in the Eastern Samar Division along the Philippine Professional Standards for Teachers (PPST).

Content Knowledge and Pedagogy. With a composite mean score of 4.59, secondary math teachers were found to have an outstanding level of proficiency in content knowledge and pedagogy which suggests that teachers are equipped at a very high level of essential mathematical knowledge and the educational strategies that are relevant, developmental, and suitable required for effective teaching and learning. The result of the study can be explained by the number of teachers teaching math subjects, since most of them are math majors and receive formal training for the subject. Jeschke et al. (2021) and Avila and Cabrera (2020) highlighted that the ability of teachers to use subject-specific knowledge (content and pedagogical knowledge) in teaching situations is deemed necessary to improve the teaching and learning process by using instructional technology, presenting the lessons more effectively, and offering supportive learning tools. With varied resources and providing cognitively demanding and entertaining activities, it may foster a constructive classroom interaction focused on reaching high levels of learning (Roberto & Madrigal, 2019).

Learning Environment. The secondary math teachers were rated by their immediate supervisors as outstanding in providing a learning environment for learners supported with a composite mean score of 4.59, implying that respondents have a very high level of performance in terms of creating a positive, conducive, safe, secure, fair, and supportive learning environment comprised of the psychological, cultural, and physical setting in which learning occurs and has an influence on student motivation and

success (Rusticus et al. 2023). In line with this, Usman and Madudili (2019) highlighted that a physical setting inspires positive engagement and interest among learners impacts students' learning success in a classroom. Thus, teachers must be highly proficient in this domain of PPST.

Table 3

Teaching Proficiency of Secondary Mathematics Teachers

No.	Statement	$\bar{x}$	CI	VD	LTP
Content Knowledge and Pedagogy					
1.	Demonstrate a deep understanding of the subject matter being taught.	4.75	4.69 – 4.82	VH	O
2.	Use a variety of instructional strategies that cater to different learning styles.	4.42	4.33 – 4.51	H	VS
3.	Provide clear and structured lessons that are easy for students to follow.	4.56	4.48 – 4.64	VH	O
4.	Encourage student participation and active learning in every lesson.	4.62	4.55 – 4.70	VH	O
	Composite	**4.59**	**4.52 – 4.65**	**VH**	**O**
Learning Environment					
1.	Maintain a positive and respectful classroom environment.	4.65	4.58 – 4.72	VH	O
2.	Manage classroom behavior effectively, ensuring all students are focused on learning.	4.55	4.47 – 4.62	VH	O
3.	Promote student collaboration and teamwork in the classroom.	4.54	4.47 – 4.62	VH	O
4.	Make sure that the classroom is safe for all learners, both physically and emotionally.	4.63	4.55 – 4.70	VH	O
	Composite	**4.59**	**4.53 – 4.66**	**VH**	**O**
Curriculum and Planning					
1.	Design lesson plans which are aligned with the curriculum standards and objectives.	4.64	4.57 – 4.71	VH	O
2.	Ensure that lessons are structured in a logical progression.	4.58	4.51 – 4.66	VH	O
3.	Regularly evaluate and update lesson plans to reflect current educational practices.	4.52	4.44 – 4.60	VH	O
4.	Incorporate real-world applications and activities into lessons.	4.47	4.39 – 4.57	H	VS
	Composite	**4.56**	**4.49 – 4.63**	**VH**	**O**
Community Linkages and Professional Engagement					
1.	Actively participate in school activities, events, and meetings.	4.62	4.55 – 4.70	VH	O
2.	Collaborate with colleagues to improve teaching practices and student learning.	4.58	4.51 – 4.65	VH	O
3.	Engage in prof. development activities to enhance teaching skills.	4.59	4.52 – 4.67	VH	O
4.	Actively communicate with parents or guardians to discuss student progress and concerns.	4.53	4.45 – 4.61	VH	O
	Composite	**4.58**	**4.52 – 4.64**	**VH**	**O**
Personal Growth and Professional Development					
1.	Regularly reflect on the teaching practices and seek ways to improve.	4.54	4.46 – 4.62	VH	O
2.	Actively seek feedback from students and colleagues to improve performance.	4.45	4.37 – 4.54	H	VS
3.	Take initiative to stay informed about new trends and innovations in education.	4.48	4.39 – 4.57	H	VS
4.	Attend workshops, seminars, or courses to continuously develop professional skills.	4.58	4.50 – 4.67	VH	O
	Composite	**4.51**	**4.44 – 4.58**	**VH**	**O**
	Overall	**4.57**	**4.51 – 4.62**	**VH**	**O**

Note:	Mean Score	Verbal Description (VD)	Level of Teaching Proficiency (LTP)
	4.500 – 5.000	Very High (VH)	Outstanding (O)
	3.500 – 4.499	High (H)	Very Satisfactory (VS)
	2.500 – 3.499	Moderate (M)	Satisfactory (S)
	1.500 – 2.499	Low (L)	Unsatisfactory (US)
	Below 1.500	Not at All (NA)	Poor (P)

Curriculum and Planning. The study revealed that teachers were regarded as outstanding in implementing curriculum and planning with a 4.56 mean score signifying respondents' very high level in designing, organizing, and implementing instruction that aligns with the curriculum and answer diverse

needs of learners. Result also suggests that math teachers have acquired the skills to translate curriculum content into learning activities relevant and meaningful to learners. Rivera et al. (2021) underscored that teachers have the free will to take the initiative in acquiring the national and local curriculum requirements. Importantly, they can translate curriculum content into learning activities that are meaningful to learners and based on the principles of effective teaching and learning. As such, teachers are expected to apply their professional knowledge to plan and design, individually or in collaboration with colleagues, well-structured and sequenced lessons (DepEd, 2017 as cited in Bugtong, 2022).

Community Linkages and Professional Engagement. Generally, immediate supervisor of the respondents found their math teachers to have outstanding involvement in community linkages and professional engagement with a mean score of 4.58, which reflects a very high level of performance of the math teachers in proactively building a strong and meaningful partnership with the community and actively engages in professional development – not just for personal growth, but as well to improve the school community. Thus, teachers recognized at a very high level the partnerships between the schools and the community. Renbarger et al. (2024) emphasized that the community and the school are two important social institutions. Linkages between them are essential for schools to expand what they can offer to children and provide more meaningful learning experiences, making a real difference in the lives of children, families, and communities. The better the relationship and engagement, the more positive the impact on students' learning.

Personal Growth and Professional Development. It can be gleaned from the table that secondary mathematics teachers were regarded as outstanding with their involvement in personal growth and professional development with a mean score of 4.51 suggesting that respondents accentuate properly and personally regard for their profession at a high level by maintaining qualities that uphold the dignity of their career at an exceptional level. Thus, respondents are reflective, proactive, and committed to continuous improvement, not just for themselves, but for the benefit of their students, colleagues, and the school community. Stephens (2022) stated that effective personal and professional development helps teachers acquire skills and knowledge for their career advancement and understand their expertise. Hence, teachers are encouraged to pursue personal and professional growth to remain competitive in today's job market (Herrity, 2024) and effectively implement the K to 12 Program (Gepila, 2020).

Overall Teaching Proficiency. Lastly, respondents were found to have an outstanding teaching proficiency with a mean score of 4.57, implying a very high level of ability of secondary mathematics teachers in the Eastern Samar Division to effectively educate students demonstrating high levels of expertise, creativity, and dedication. Gepila (2020) highlighted that highly proficient teachers possess cognitive, emotional, and practical competencies. This includes their cognition of the teaching-learning process, their interests and values that improve the personal effectiveness of the teachers, and their competence in collaborative dealings with students, classrooms, schools, and society.

3.4 Difference in the Respondents' Practice of Differentiated Instruction (DI)

The study also investigated the difference between teachers' differentiated instruction (DI) when grouped according to their demographic profile.

The data in Table 4 reflects revealed that no significant difference exists in the level of DI among the respondents when they are grouped according to sex ($p = 0.663$), age ($p = 0.106$), educational attainment ($p = 0.412$), teaching position ($p = 0.667$), specialization ($p = 0.565$), length of teaching experience ($p = 0.538$), and number of training/seminars attended related to DI ($p = 0.900$). Thus, the

data is not sufficient to conclude that a difference exists, failing to reject the null hypotheses. Hence, these teachers possess nearly equal levels of DI implementation.

In support, Pozas et al. (2023) and Linder et al. (2021) emphasized that female teachers tend to differentiate their instruction more while male teachers spend less time preparing for DI but found no significant results in these two categories. Meanwhile, Ramos (2023) and Onyishi and Sefotho (2020) found that teachers' educational attainment and length of service does not determine their competence in using or implementing differentiated instruction in the classroom. Teachers have the same level of DI implementation.

Table 4

Difference in the Respondents' Level of Differentiated Instruction (DI) when grouped according to Demographic Profile

Variable	Categories	n	Median	Computed U/H	p-value	Decision	Remark
Sex	Male Female	82 125	4.11 4.22	4942	0.663	Fail to reject Ho	Not Significant
Age	(1) 18 – 25 (2) 26 – 44 (3) 45 – 59 (4) 60 and above	6 170 28 3	4.22 4.00 3.89 3.89	6.11	0.106	Fail to reject Ho	Not Significant
Educational Attainment	BS Graduates With Units in Masters Master's Degree Holder With Units in Doctorate	36 133 31 7	4.11 4.22 4.00 4.22	2.87	0.412	Fail to reject Ho	Not Significant
Teaching Position	Teacher I Teacher II Teacher III	73 64 70	4.22 4.17 4.11	0.810	0.667	Fail to reject Ho	Not Significant
Specialization	Math Major Non-Math Major	173 34	4.22 4.17	2758	0.565	Fail to reject Ho	Not Significant
Length of Teaching Experience	(1) 5 years and below (2) 6 – 10 years (3) 11 – 15 years (4) 16 – 20 years (5) 21 years and above	77 72 28 16 14	4.33 4.11 4.11 4.00 4.05	3.17	0.538	Fail to reject Ho	Not Significant
Number of Training/Seminars related to DI	(1) 2 and below (2) 3 – 4 (3) 5 – 6 (4) 7 and above	146 46 11 4	4.11 4.17 4.22 4.44	0.586	0.900	Fail to reject Ho	Not Significant

On contrary, the result of the study contradicts to the findings of Papanthymou and Darra (2023) where older teachers implement specific differentiated instructional strategies less often than younger teachers because most older teachers find it difficult to move beyond the age-old teaching strategies, such as traditional teaching (Fangwi, 2023). Alhameedyeen (2024) found that teaching position influences how educators perceive and implement DI in their teaching practices. Teachers with higher ranks are assumed to have greater expertise than typical teachers in differentiated instruction, to strengthen mentoring activities to assist new teachers (Gestupa, 2023). Moroever, the result contradicts

Ling and Mahmud (2023) where they emphasized that math major teachers are more oriented and acquainted with math pedagogy since they received formal training for the subject. As such, DI is affected. Lastly, the result of the study opposes the idea of Bogen et al. (2019), who stressed that teacher training in differentiated instruction provides an increase in the comfort level of teachers in planning systematic strategies for DI, and they feel more at ease in employing these strategies within their classrooms.

3.5 Difference in the Respondents' Teaching Proficiency

The study likewise tested the difference between the secondary mathematics teachers' teaching proficiency when grouped according to their demographic profile.

It can be noted from Table 5 that no significant difference exists in the level of teaching proficiency among the respondents when they are grouped according to sex ($p = 0.960$), age ($p = 0.485$), educational attainment ($p = 0.146$), teaching position ($p = 0.898$), specialization ($p = 0.665$), and length of teaching experience ($p = 0.736$). Thus, the data is not sufficient to conclude that a difference exists, failing to reject the null hypotheses. This result implies no variation in the levels of skills, knowledge, and abilities in teaching mathematics among the respondents.

Table 5
Difference in the Respondents' Level of Teaching Proficiency when grouped according to Demographic Profile

Variable	Categories	n	Median	Computed U/H	p-value	Decision	Remark
Sex	Male	82	4.65	5104	0.960	Fail to reject Ho	Not Significant
	Female	125	4.70				
Age	(1) 18 – 25	6	4.95	2.45	0.485	Fail to reject Ho	Not Significant
	(2) 26 – 44	170	4.70				
	(3) 45 – 59	28	4.68				
	(4) 60 and above	3	3.75				
Educational Attainment	BS Graduates	36	4.70	25.38	0.146	Fail to reject Ho	Not Significant
	With Units in Masters	133	4.50				
	Master's Degree Holder	31	4.70				
	With Units in Doctorate	7	4.90				
Teaching Position	Teacher I	73	4.75	0.215	0.898	Fail to reject Ho	Not Significant
	Teacher II	64	4.65				
	Teacher III	70	4.68				
Specialization	Math Major	173	4.74	2804	0.665	Fail to reject Ho	Not Significant
	Non-Math Major	34	4.70				
Length of Teaching Experience	(1) 5 years and below	77	4.65	2.00	0.736	Fail to reject Ho	Not Significant
	(2) 6 – 10 years	72	4.68				
	(3) 11 – 15 years	28	4.68				
	(4) 16 – 20 years	16	4.70				
	(5) 21 years and above	14	4.75				

The result of the study conforms to the findings of Roberto and Madrigal (2019) where they found that teachers, as assessed by the principals, were proficient; however, they showed no significant difference in the teaching standards competence and performance when the teachers were grouped

according to sex. Canuto et al. (2024) also found no significant differences in teaching proficiency regardless of the teachers' age, suggesting a degree of consistency and uniformity in their skills and capabilities. Moreover, the study of Tran and Do (2020) uncover that teacher age did not have a statistically significant effect on teaching effectiveness. Likewise, the study of Malunes and Dioso (2020) exposed a non-statistically significant difference in the level of teaching competence when teachers were grouped according to educational attainment and teaching experience.

On the other hand, the result of the contradicts the idea that teaching positions influence teachers' competence (Aquino et al., 2022). Teachers with higher ranks are assumed to have greater expertise than typical teachers in curriculum development, professional development, and mentoring (Gestupa, 2023). Meanwhile, Ling and Mahmud (2023) highlighted that math major teachers are expected to perform better in delivering instructions since they received formal training for the subject.

3.6 Relationship Between Level of DI and Teaching Proficiency of Secondary Mathematics Teachers

The relationship between level of Differentiated Instruction (DI) and Teaching Proficiency were also tested in this study.

Table 6
Correlation Between Level of Differentiated Instruction (DI) and Teaching Proficiency of Secondary Mathematic Teachers

Variables Correlated	r_s	p-value	Decision	Remark	Coefficient of Determination
Level of DI and Teaching Proficiency	0.192	0.006	Reject Ho	Significant	0.0368

Note: Coefficient of correlation r_s: ± (0.80 – 1.00) Very Strong Positive/Negative, ± (0.60 – 0.79) Strong Positive/Negative, ± (0.4 – 0.59) Moderate Positive/Negative, ± (0.20 – 0.39) Weak Positive/Negative, ± (0.00 – 0.19) Very Weak Positive/Negative.

As displayed in Table 6, there exists a significant relationship between respondents' level of DI and the level of teaching proficiency (p-value = 0.006). This finding results in the rejection of the null hypothesis. This result implies that as the level of DI increases, teaching proficiency also increases. However, only 3.68% of the variations in the level of teaching proficiency of the respondents can be explained by their level of DI. According to Pozas et al. (2023), teachers practicing DI feel successful, and therefore more satisfied and fulfilled in their daily teaching. The use of DI provided them with relief from their heavy workloads, specifically during the teaching phase. In addition, Villamor and Lapinid (2022) described DI as a more democratic approach to teaching, which gave them a break to perform at their best level. Moreover, Impak and Shaid (2023) highlighted that teachers who are highly skilled in differentiated instruction improve their overall instructional practices and tend to provide better learning experiences and adapt content for different levels and preferences.

4. Conclusion and Recommendation

The researcher concludes that secondary mathematics teachers of Eastern Samar Division highly practiced differentiated instruction (DI) and have outstanding teaching proficiency in mathematics. Thus, these respondents demonstrated a full understanding of the competencies, characteristics, and behavior required of them as secondary mathematics teachers. Although math teachers were found to be competent in the regarded professional attributes, it is still recommended that these teachers to continuously look for real-time professional development on DI to equip themselves

with relevant and updated concepts. Moreover, it is recommended that DepEd Eastern Samar Division develop a teaching demonstration festival for mathematics teachers to showcase their teaching prowess in DI. This activity will also serve as a benchmark for other math teachers to reinforce their teaching skills.

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