Technological, Pedagogical, and Content Knowledge of Intermediate Grade Teachers in Public Schools: Influence on Work and Academic Performance

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Abstract

The main goal of the study is to explore the possible influence of technological, pedagogical, and content knowledge of teachers on their work and learners' performance. It involved intermediate-grade English language teachers in the public elementary schools. This study looked into the level of the technological, pedagogical, and content knowledge of the teachers, their level of work performance, and the level of learners' academic performance in English. The study used a probability sampling; simple random in particular. There were 220 teachers from the public elementary schools who participated in the study. The study revealed that the teachers' level of technological, pedagogical, and content knowledge is very extensive. In terms of the level of teachers' performance based on their IPCRF ratings, majority of the them have very satisfactory performance. Meanwhile, the level of the learners' academic performance in English reveals that majority of them have satisfactory performance. The teachers' level of technological knowledge is significantly correlated with the pedagogical, and content knowledge which indicates that there is an association among the three types of knowledge. Also, the teachers' level of technological, pedagogical, and content knowledge does not significantly influence their work performance and their learners' performance. Based on the findings, a capability-building program was crafted with the primary goal that is to improve the level of knowledge of teachers on the advancements of technology in and for learning, innovations of instructional approaches, strategies, and techniques, and development of content through research-based information and knowledge.

Keywords: *academic performance, content knowledge, pedagogical knowledge, teacher's performance, technological knowledge*

Introduction

The world of professionals today faces the undeniable fact that high set skill of relevant knowledge is the primary reason in hiring and employing people. Society indeed has shifted from an economy based on commodities and manual labor to an economy based on knowledge and highly qualified human capital (Jara et al., 2015 in Laar et al., 2020). It is impossible to overstate the value of knowledge as a vehicle for achieving national development goals. It should be mentioned, however, that information plays a critical role in a country's economic progress. (Kefela et al., 2010).

Standing stagnant in the professional world, which is developing at a quicker rate than ever before, will leave an individual behind as peers expand their knowledge and abilities. The more information a person gets about a certain skill set, the more confident they will be when executing it (Crawford, 2016). This realization does not exclude the education sector particularly the teachers and the policy-makers. In consonance to this idea, Walshaw (2012) elucidated that a plethora of studies done about how knowledge influence education have pointed out the importance of teacher knowledge as a resource for teaching and as critical to the development of teachers' effectiveness.

In the fourth industrial revolution, education sectors should be on the leading edge in helping people acquire the knowledge and skills they need to succeed. This includes acquiring relevant knowledge on digitization, transferable skills development which includes critical thinking, creativity or even self-management. Moreover, a learning to learn mindset continuously requires training, ideally from a young age, perhaps even starting in elementary education (Myklebust & Smidt, 2021).

Along with digital technology, according to Qasem and Viswanathappa (2016) as cited in Antony et al. (2019), technical competencies have also emerged as essential teacher's qualifications. Apart from the knowledge and skills in using technology or Technological Knowledge (TK) to provide comprehensive learning, these technical competencies should also be developed amongst them. This confirms that the teacher's role as an educator will become more important. There is a teacher's ability to manage classes, namely mastery of Content Knowledge (CK), and the importance of mastering Pedagogical Knowledge (PK) and alongside Technological Knowledge (TK), all of which were integrated into Technological, Pedagogical, and Content Knowledge or TPACK (Antony et al., 2019).

Technological, pedagogical, and content knowledge are significant variables in all areas of learning and that includes second language teaching. According to Bugueño (2013), decision and policy-makers justified based on various researches that content as a variable rather than a context. Shulman reinforced this statement by pointing out that content and pedagogical procedures had to be taught and assessed equally among teachers because without the proper preparation in the content area and the understanding of teaching and learning, teaching would be ineffective. Also, Kurt (2019) added that educators have to have some high-level knowledge on technological competence alongside their pre-existing content and pedagogical knowledge to achieve.

Teachers must recognize that content-driven, pedagogically sound, and technologically forward-thinking knowledge is the greatest way to design teaching methods (Kurt, 2019). The present literature is flooded in with various studies about the teachers' need for technological, pedagogical, and content knowledge but there were only a very limited number of which pertain to second language teaching. Hence, Bugueño (2013) recommended that since there is a dearth of literature regarding TPACK and language teaching and learning, it is imperative that the researchers and teachers need to look at TPACK and what it means in the language classroom. Jones and Debbagh (2015) also highlighted the need for further researches to inform the fellow researchers' and teachers' understanding of how knowledge can be measured within the framework of TPACK. This calls for identifying possible other knowledge factors which may significantly influence the teaching of the second language.

Objectives of the Study

The main goal of the study is to explore the possible influence of technological, pedagogical, and content knowledge of teachers on their work and learners' performance which involved intermediate-grade English language teachers. Specifically, the study aims to determine the teachers' level of knowledge in terms of the technology; the pedagogy; and the content, assess the teachers' level of performance as determined by their Individual Performance Commitment and Review Form (IPCRFs), identify the level of learners' academic performance in English, correlate the teachers' technological knowledge with pedagogical knowledge; andcontent knowledge, ascertain whether the teachers' technological, pedagogical, and content knowledge can significantly influence their own performance and their learners, and propose a capability-building program based on the findings of the study.

Framework of the Study

As seen in the paradigm, technological knowledge which comprised the creativity and critical thinking, cultural and social understanding, collaboration selection of information, effective communication, e-safety, and functional skills are associated with the pedagogical knowledge consisting of the application of content knowledge, research-based knowledge, ICT knowledge, literacy and numeracy knowledge, critical knowledge, creative knowledge, and classroom communication and content knowledge which includes the grammar, socio-linguistic, discourse, strategic, and multi-literacy-competences and vice versa.

The framework suggests that the three (3) types of knowledge namely technological, pedagogical, and content are interrelated; one without the other can affect the quality of teaching and learning. Mishra (2020) describes the complex interplay of three primary forms of knowledge in which according to him, effective technology integration (TK) for pedagogy (PK) around specific subject matter (CK) requires developing sensitivity to the dynamic, transactional relationship among all three components.

In the context of second language learning, it is important to note that each component of the TPACK framework will be taken individually to establish the hypotheses of this present study; that in the context of teaching English among the second language learners, there is a possible relationship among the technological, pedagogical, and content knowledge and that they have possible influence to teachers' work and learners' performance.

Based on the results of the study, a capability-building program is crafted to address the possible technological, pedagogical, and content-related needs of the language teachers.

Methodology

This study is purely quantitative in nature. It employed the descriptive-correlational method design. It is descriptive because it illustrated the intermediate grade teachers' level of technological, pedagogical, and content knowledge and it also described the teachers' work and the learners' academic performance. It is at the same time correlational since it involved an investigation as to whether or not a relationship exists among the three types of knowledge; technological, pedagogical, and content and whether or not they can be considered as predictors of the teachers' work performance and their learners' academic performance. The study employed the probability sampling; simple random sampling in particular. Ninety percent (90%) of the total population of the intermediate grade teachers who are teaching English from all central schools of Butuan City Division were considered as participants in this study. There was a total of 220 participants who answered the survey tool. The instrument was made up of two parts. The first section was about the profile of the participants which include the name (optional) and grade level handled, and the IPCRF rating. The second section was the actual survey questionnaire which pertains to the three types of knowledge: technological, pedagogical, and content knowledge of the intermediate grade English teachers. The statistical tools used to facilitate the interpretation of the data collected were the *Mean*, and *Pearson Product Moment Correlation Coefficient, and Simple Linear Regression Analysis.*

Results and Discussion

Technological Knowledge of the Teachers

Among the competences under the technological knowledge, the highest weighted sub-mean 4.38 or very satisfactory falls under the e-safety and security with specific indicators which include the careful posting of messages in social media so to not invite misinterpretations and conflict, the making use of e-safety links– whether this be about age-appropriate content, concern over the predatory behavior of adults, acceptable use and cyber-bullying or issues of plagiarism, copyright and virus protection and being attentive in sharing information in the social media to prevent identity theft, abuse, and to maintain privacy.

Table 1
Mean distribution on the technological knowledge of the participants

	Technological Knowledge	Mean	Description
1.	***Creativity and Critical Thinking***		
1.1	Use of the Microsoft Office Tools in making reports, presentations, and other personal and work-related activities	4.25	Very Satisfactory
1.2	Utilization of the different soft wares and applications in making arts for personal and academic use	3.81	Very Satisfactory
1.3	Creation of e-products/actual products and e-materials/actual materials using technology	3.68	Very Satisfactory
	Sub-mean	***3.91***	***Very Satisfactory***
2.	***Cultural and Social Understanding***		
2.1	Observance of netiquette at work	4.30	Very Satisfactory
2.2	Repurposing/use (for another purpose) of a piece of media for a different culture or audience	3.66	Very Satisfactory
2.3	Practice of digital citizenship in ethics, social, ethical and legal responsibilities in the utilization of technological tools and resources et cetera	3.99	Very Satisfactory
	Sub-mean	***3.98***	***Very Satisfactory***
3.	***Collaboration and Selection of Information***		
3.1	Reassuring collaborative creation of outputs in the digital environment (e.g., outputs during webinars, virtual workshops, etc.)	4.11	Very Satisfactory
3.2	Creation of a virtual platform where my friends or colleagues can share their thoughts (e.g. FB groups, FB page, virtual meetings, et cetera)	4.26	Very Satisfactory
3.3	Utilization of the websites that can be used as references for valid and authentic information	4.11	Very Satisfactory
	Sub-mean	***4.16***	***Very Satisfactory***

4. Effective Communication			
4.1	Selection of appropriate words in explaining ideas in social media	4.26	Very Satisfactory
4.2	Being aware of the positive effects of using appropriate terms and writing technicalities in digital communication.	4.26	Very Satisfactory
4.3	Use of Google Translate and other services from the internet in clarifying and understanding information	4.20	Very Satisfactory
	Sub-mean	***4.24***	***Very Satisfactory***
5. E-safety and Security			
5.1	Careful posting of messages in social media so to not invite misinterpretations and conflict	4.51	Very Satisfactory
5.2	Making use of e-safety links– whether this be about age-appropriate content, concern over the predatory behavior of adults, acceptable use and cyber-bullying or issues of plagiarism, copyright and virus protection	4.23	Very Satisfactory
5.3	Being attentive in sharing information in the social media to prevent identity theft, abuse, and to maintain privacy	4.39	Very Satisfactory
	Sub-mean	***4.38***	***Very Satisfactory***
6. *Functional Skills*			
6.1	Management of daily routines (e.g. making notes, marking calendars, setting alarms, et cetera)	4.11	Very Satisfactory
6.2	Multi-task using technology (e.g. attending virtual conference while texting or chatting, answering calls while checking e-mails and fb notifications, et cetera)	4.15	Very Satisfactory
6.3	Referring to technology when running house errands via how-to videos (e.g. cooking while viewing videos, growing plants with consultations from the videos, et cetera)	3.95	Very Satisfactory
	Sub-mean	***4.07***	***Very Satisfactory***
	Weighted Mean	**4.12**	**Very Satisfactory**

Legend: 4.50 – 5.00 (Outstanding), 3.50 – 4.49 (Very Satisfactory), 2.50 – 3.49 (Satisfactory), 1.50 – 2.49 (Unsatisfactory), 1.00 – 1.49 (Poor)

All of which were described very satisfactory by the participants. This means that the teachers assessed their level of technological knowledge in terms of e-safety and security as very extensive.

On the other hand, the creativity and critical thinking got the lowest weighted sub-mean 3.91 described as very satisfactory with particular indicators that is the use of the Microsoft Office Tools in making reports, presentations, and other personal and work-related activities, utilization of the different soft wares and applications in making arts for personal and academic use, and the creation of e-products/actual products and e-materials/actual materials using technology. The result suggests that the teachers still assessed their level of technological knowledge in terms of creativity and critical competence as very extensive.

The overall weighted mean is 4.12 or very satisfactory. This result entails that the teachers assessed their level of technological knowledge as very extensive. The result also shows that intermediate-level English instructors in public primary schools are well-versed in technological innovation and critical thinking, cultural and social understanding, collaborative information selection, effective communication, e-safety, and functional skills.

In accordance to the results above, Levy (2018) mentioned that teachers who are digitally savvy, see technology as an opportunity to express themselves rather than a chore to be completed step by step. Teachers do not need to be specialists in order to be digitally literate, but they do need to be aware of the digital tools that may help them unleash their full teaching potential. Similar to Levy's point of view, Anderson (2013) likewise proposed that teachers should be able to recognize when information technology can assist or impede the achievement of a goal. This idea, coupled with other thinking talk about the levels of confidence and ability of educators to utilize technology in the classroom, really brings home where the most effort and special attention must be paid to assisting instructors in the classroom. He further added that to be able to be discriminatory about whether or not the use of technology will "assist or impede" learning, educators have to have some high-level knowledge in this area alongside their pre-existing and identified types of knowledge.

The Level of the Pedagogical Knowledge of the Teachers

Among the competences under the pedagogical knowledge, the highest weighted sub-mean 4.38 or very satisfactory falls under the classroom communication knowledge with specific indicators which include the use of activities that can encourage pupils to communicate with and among others group works such as Think, Pair and Share, games, et cetera, encouraging the pupils to be sensitive about the needs of the classmates, teacher, guests, et cetera, and encouraging pupils to take opportunities for peer teaching and peer assessment. All of three indicators under classroom communication knowledge were described as very satisfactory by the teachers. This means that the teachers' assessment of their level of technological knowledge in terms of said competence is very extensive.

Meanwhile, the ICT knowledge got the lowest weighted sub-mean 3.67 described as very satisfactory with particular indicators that include exposing pupils to several practice activities using the technology e.g., interactive games such as Kahoot, Wheel of Names, et cetera, innovating e-materials for classroom use and involvement of ICT in assignments to encourage pupils to display their skills in oral presentation, making videos, et cetera. This suggests that the teachers still assessed their level of technological knowledge in terms of creativity and critical competence as very extensive. Also, literacy and numeracy knowledge got the same sub-mean with the particular indicators that include the use of appropriate approaches, strategies, and techniques in teaching language and communication, integration of basic mathematics in teaching language or other disciplines, and practicing appropriate approaches, strategies, and techniques in improving the reading skills of the pupils. This result entails that the teachers' assessment of their level of technological knowledge in terms of two above-mentioned competences is still very extensive. The overall weighted mean is 4.17 or very satisfactory which means that the teachers assessed their level of pedagogical knowledge as very extensive. The data further affirms that the intermediate grade level English teachers in the public elementary schools are very knowledgeable when it comes to teaching and learning with the application of content knowledge, research-based knowledge, ICT knowledge, literacy and numeracy knowledge, critical knowledge, creative knowledge, and classroom communication knowledge.

Table 2 Mean distribution on the pedagogical knowledge of the participants

Pedagogical Knowledge		Mean	Description
1. Applied Content Knowledge			
1.1	Display of extensive knowledge of the important concepts in the subject taught and its relation to other disciplines	4.08	Very Satisfactory
1.2	Understanding of the prerequisite relationships among topics and concepts and the link to necessary cognitive structures that ensure student understanding in the subject	4.16	Very Satisfactory

1.3	Familiarity of the wide range of effective pedagogical approaches, strategies, and techniques in the subject being taught	4.10	Very Satisfactory
	Sub-mean	***4.11***	***Very Satisfactory***
2.	***Research-based Knowledge***		Very Satisfactory
2.1	Refinement of search strategy and subsequently extracting, recording, and managing the information collected	4.01	Very Satisfactory
2.2	Being aware of the significance of the originality of work and the implications of committing plagiarism	4.25	Very Satisfactory
2.3	Checking on facts and seeking additional information about the lesson before presenting it to class	4.44	Very Satisfactory
	Sub-mean	***4.23***	***Very Satisfactory***
3.	***ICT Knowledge***		Very Satisfactory
3.1	Exposing pupils to several practice activities using the technology (e.g. interactive games such as Kahoot, Wheel of Names, et cetera)	3.62	Very Satisfactory
3.2	Innovating e-materials for classroom use	3.81	Very Satisfactory
3.4	Involvement of ICT in assignments to encourage pupils to display their skills in oral presentation, making videos, et cetera	3.58	Very Satisfactory
	Sub-mean	***3.67***	***Very Satisfactory***
4.	***Literacy and Numeracy Knowledge***		Very Satisfactory
4.1	Use of appropriate approaches, strategies, and techniques in teaching language and communication	4.13	Very Satisfactory
4.2	Integration of basic mathematics in teaching language or other disciplines	4.02	Very Satisfactory
4.3	Practicing appropriate approaches, strategies, and techniques in improving the reading skills of the pupils	4.22	Very Satisfactory
	Sub-mean	***3.67***	***Very Satisfactory***
5.	***Critical Knowledge***		Very Satisfactory
5.1	Rephrasing the questions in order to be better understood by the pupils	4.40	Very Satisfactory
5.2	Seeking solutions to challenging situations in class and seeing failure as an opportunity for growth in the teaching profession	4.30	Very Satisfactory
5.3	Use of some techniques that can help make difficult topics become easier for the pupils	4.39	Very Satisfactory
	Sub-mean	***4.36***	***Very Satisfactory***
6.	***Creative Knowledge***		Very Satisfactory
6.1	Breaking or chunking the lessons into bite-sized units in order to make the topic comprehensible	4.36	Very Satisfactory
6.2	Turning negative incidences in class into positive moments	4.26	Very Satisfactory
6.3	Making use of breaks and free times to plan for great ideas that can be used in teaching	4.21	Very Satisfactory
	Sub-mean	***4.28***	***Very Satisfactory***
7.	***Classroom Communication Knowledge***		Very Satisfactory
7.1	Use of activities that can encourage pupils to communicate with and among others (group works, Think, Pair and Share, games, et cetera)	4.34	Very Satisfactory
7.2	Encouraging the pupils to be sensitive about the needs of the classmates, teacher, guests, et cetera	4.41	Very Satisfactory
7.3	Encouraging pupils to take opportunities for peer teaching and peer assessment	4.39	Very Satisfactory
	Sub-mean	***4.38***	***Very Satisfactory***
	Weighted Mean	**4.17**	**Very Satisfactory**

Legend: 4.50 – 5.00 (Outstanding), 3.50 – 4.49 (Very Satisfactory), 2.50 – 3.49 (Satisfactory), 1.50 – 2.49 (Unsatisfactory), 1.00 – 1.49 (Poor)

In view of the results above, Watson (2018) mentioned that teachers are required to analyze and assess new knowledge relevant to their core professional activity (and be assisted in doing so), as well as to keep their profession's knowledge-base up to date on a regular basis. As a result, the phrase "research informed practice" has become a catchphrase. To enhance teaching practice and student learning, this involves combining high-quality research regarding successful classroom interventions with teachers' professional judgment. In the similar vein, Solis (2018) emphasized that teachers should commit to high quality professional development targeted to develop their expertise. When they do this, they support their growth as a person and a professional who can expertly lead a student to academic success. Concurrently, they will contribute to the realization of the goals and priorities of the classroom and the school system as a whole.

The Level of the Content Knowledge of the Teachers

As reflected on the table, among the competences under the content knowledge, the highest weighted sub-mean 4.17 or very satisfactory falls under the socio-linguistic competence with specific indicators that is the use of appropriate linguistic functions (use of language in expressing, informing, directing, et cetera and their varieties in language use context), sensitivity to differences in dialect or variety of languages, and giving of interpretations of cultural references, figures of speech, idioms, et cetera. All of which were described very satisfactory by the teachers. This means that the teachers' assessment of their level of content knowledge is very extensive.

On the other hand, the linguistic competence got the lowest weighted sub-mean 4.06 described as very satisfactory. Under which include the indicators that state that the application of grammatical rules in writing (script and orthography) and speaking (sounds and their pronunciation) English language, use of phonological rules and morphological words, syntactic rules and semantic rules and the lexicons in speaking and writing, and teaching both grammar and vocabulary interconnectedly. All indicators are described as very satisfactory. This result suggests that the teachers still considered their level of content knowledge in terms of linguistic competence as very extensive. ***Table 3 Mean distribution on the content knowledge of the teachers***

Content Knowledge		Mean	Description
1.	***Linguistic***		
1.1	Application of grammatical rules in writing (script and orthography) and speaking (sounds and their pronunciation) English language	4.07	Very Satisfactory
1.2	Use of phonological rules and morphological words, syntactic rules and semantic rules and the lexicons in speaking and writing	4.00	Very Satisfactory
1.3	Teaching both grammar and vocabulary interconnectedly; not in isolation in class	4.11	Very Satisfactory
	Sub--mean	***4.06***	***Very Satisfactory***
2.	***Socio – linguistic***		
2.1	Use of appropriate linguistic functions (use of language in expressing, informing, directing, etc.) and their varieties in language use context	4.11	Very Satisfactory

2.2	Sensitivity to differences in dialect or variety of languages.	4.25	Very Satisfactory
2.3	Giving of interpretations of cultural references, figures of speech, idioms, et cetera	4.14	Very Satisfactory
	Sub-mean	***4.17***	***Very Satisfactory***
3.	***Discourse***		
3.1	Organizing ideas in order to express oneself clearly using the target language	4.28	Very Satisfactory
3.2	Contributing to a critical conversation in the English language.	4.07	Very Satisfactory
3.5	Reading and understanding different literature written in English (e.g. stories, novels, essays, et cetera.)	4.09	Very Satisfactory
	Sub-mean	***4.15***	***Very Satisfactory***
4.	***Strategic***		
4.1	Use of proper strategy when committing errors in speaking or writing	4.13	Very Satisfactory
4.2	Keeping the communication channel open even with background noise or other intervening factors in communication	4.09	Very Satisfactory
4.3	Use of non-verbal communication to make ideas clearer and more understandable (e.g. facial expressions, gestures, et cetera.)	4.19	Very Satisfactory
	Sub-mean	***4.14***	***Very Satisfactory***
5.	***Multi – literacies***		
5.1	Identifying, interpreting, creating, and communicating meaning across a variety of visual, oral, musical and alphabetical forms of communication in English	4.14	Very Satisfactory
5.2	Being aware of the social, economic and wider cultural factors that frame communication in English	4.11	Very Satisfactory
5.3	Interacting using English in a variety of electronic media.	3.95	Very Satisfactory
	Sub-mean	***4.07***	***Very Satisfactory***
	Overall Weighted Mean	**4.12**	**Very Satisfactory**

Legend: 4.50 – 5.00 (Outstanding), 3.50 – 4.49 (Very Satisfactory), 2.50 – 3.49 (Satisfactory), 1.50 – 2.49 (Unsatisfactory), 1.00 – 1.49 (Poor)

The overall weighted mean is 4.12 or very satisfactory. This data manifests that the teachers assessed their level of content knowledge as very extensive. The results further affirm that the intermediate grade level English teachers in the public elementary schools are very knowledgeable when it comes to linguistic, socio-linguistic, discourse, strategic, and multi-literacy competences of the English language.

The abovementioned results validate the claim that the teachers' authority is based on English language competence, as stated in Banega's (2020) who commented that proficiency should be viewed as a process, and teachers may need to acquire a personal disposition as a life-long student of English to navigate that process.

Additionally, Filgona (2020) explained that teacher with better content knowledge who knows how to teach the subject to a specific audience is expected to create student gains over a less prepared or a less experienced teacher. Agreeing to this idea, Praxis Client Conference (2011) stated there are numerous researches proposing that there is content knowledge unique to teaching; a kind of subject matter specific professional knowledge.

Performance Commitment and Review Form (IPCRFs)

Table 4 Frequency and percentage distribution of the teaching performance of the elementary school teachers based on their IPCRF

Range	Frequency	Percentage	Adjectival Rating
4.50 – 5.00	82	37.27	*Outstanding*
3.50 – 4.49	131	59.55	*Very Satisfactory*
2.50 – 3.49	7	3.18	*Satisfactory*
1.50 – 2.49	0	0.00	*Unsatisfactory*
1.00 – 1.49	0	0.00	*Poor*
	n = 220		

Legend: 4.50 – 5.00 (Outstanding), 3.50 – 4.49 (Very Satisfactory), 2.50 – 3.49 (Satisfactory), 1.50 – 2.49 (Unsatisfactory), 1.00 – 1.49 (Poor)

The results, as gleaned in the table reveals that 131 or 59.55% of the teachers are in the range of 3.50 – 4.49. This means that majority of the teachers have very satisfactory performance. Also, 82 or 37.27% of the teachers are in the highest range of 4.50 – 5.00; meaning they have an outstanding performance. Seven or 3.18% of them are in the range of 2.50 – 3.49 which means that they have satisfactory performance. As expected, none of the teachers got the unsatisfactory performance since public elementary teachers are always encouraged and reminded to maintain or enhance their performance from time to time. Also, getting such rating may have a consequence in their work as government employees.

Studies have substantiated that a whole range of personal and professional teacher qualities are associated with teacher's performance. More successful instructors have linguistic ability, topic understanding, pedagogical expertise, certification status, the ability to apply a variety of teaching tactics skillfully, and excitement for the subject.. Some of the identified key qualities of effective teachers include having formal teacher preparation training, holding certification of some kind (standard, alternative, or provisional) and are certified within their fields, having taught for at least three years, possessing the following qualities that is caring, fair, and respectful, holding high expectations for themselves and their students and many more (Tucker & Stronge, 2005).

The Level of Learners' Academic Performance in English

Table 5 Frequency and percentage distribution of the student's performance in English

Range	Frequency	Percentage	Adjectival Rating
Above 90	32	14.55	*Outstanding*
85 – 89	121	55.00	*Very Satisfactory*
80 – 84	63	28.64	*Satisfactory*
75 – 79	4	1.82	*Fair*
Below 74	0	0.00	*Poor*
	n = 220		

Legend: 90 above (Outstanding), 285 -89 (Very Satisfactory), 80 -84 (Satisfactory), 75 - 79 (Fair), 74 below (Poor)

It can be gleaned from the data above that 121 or 55% of the learners are in the range of 85 - 89. This means that majority of the them have very satisfactory academic performance in English. Moreover, 32 or 14.55% of them are in the highest range of 90 above; suggesting that they have an outstanding academic performance. Sixty-three (63) or 28.64 of them are in the range of 80 – 84 described as satisfactory. Last and the least is 4 or 1.82% of the learners are in the range of 75 – 79 described as fair performance.

In agreement with the results above, many states have implemented practices to ensure that all students, including English language learners, are performing academically at levels that will ensure readiness and success as they prepare for continued learning experiences grounded in college and career readiness as the population of students identified as English Language Learners (ELL) students has grown across the country (Bornfreund, Cook, Lieberman, & Lowenberg, 2015). The requirement of students' skills to read at or above grade level, which is most often communicated through the medium of the English language, is a key focus of this accomplishment lens (Baker, Al Otaiba, Ortiz, Correa, & Cole, 2014).

Relationship between the Teachers' Technological Knowledge and Pedagogical and Content Knowledge

As viewed on the table below, the p-values are below the 0.05 level of significance set for analysis. Hence, the null hypothesis is not rejected. This means that there is a significant relationship between the teachers' technological knowledge and pedagogical and content knowledge. The results indicate that there is an association among the teachers' technological, pedagogical, and content knowledge.

Table 6 Correlation analysis of the participants' technological knowledge, pedagogical knowledge, and content knowledge

Level of

Variables	n	Mean	SD	r	Sig. (2-tailed)
Technological knowledge	220	4.124	.592		
Pedagogical knowledge	220	4.166	.556	0.771	0.00
Content knowledge	220	4.115	.654	0.601	0.00

significance: α = .05*

In consonance with the results above, one of the teacher's responsibilities is to ensure that learning is properly conveyed to students. Every teacher faces a difficulty in incorporating technology into the delivery of a lesson as technology evolves (Santos & Castro, 2021). Similarly, a successful integration of technology and pedagogical processes during lesson preparation is required for effective use of ICT in the classroom (Janssen, Knoef, & Lazonder, 2019).

Influence of the Teachers' Technological, Pedagogical, and Content Knowledge on their Own Performance

Table 7 Regression analysis summary predicting teachers' performance

Variables	B	SE	95% CI		β	t	p
			Upper	Lower			
(Constant)	3.855	.284	3.296	4.414		13.595	.000
Technological knowledge	.101	.096	-.089	.292	.112	1.052	.294
Pedagogical knowledge	.028	.139	-.246	.302	.029	.202	.840
Content knowledge	-.012	.094	-.198	.174	-.015	-.127	.899

a. Dependent Variable: Teachers' performance; 0.05 level of significance

As depicted in the displayed data on the table above, on the extent of influence of the three types of teachers' knowledge on their teaching performance, it revealed that the teachers' technological knowledge with the p-value: 0.294, pedagogical knowledge gaining the p-value 0.840, and content knowledge obtaining the p-value 0.899 are way beyond the threshold set for analysis. In other words, there is no significant influence of the technological, pedagogical, and content knowledge of the teachers on their performance.

This results further manifest that the level of technological, pedagogical, and content knowledge of the intermediate grade level English teachers in this case have no effect on their teaching performance. Thus, it can be inferred that there may be other factors which may perhaps affect the teachers' performance other than their level of technological, pedagogical, and content knowledge.

Abaro (2018) reinforced the aforementioned claim, as he revealed in his study that the variables such as civil status, highest educational attainment, and local seminars attended and scholastic performance are factors affecting the performance of teachers, while, sex, age, types of family, religion, type of high school attended, LET performance, length of service, annual salary, number of preparations in teaching, international/national/regional seminars attended do not affect the performance of teachers. The aforementioned factors affirm the claim that there are many factors that can influence the teachers' performance and that their level of technological, pedagogical, and content knowledge is not considered predictors of their performance.

Influence of the Teachers' Technological, Pedagogical, and Content Knowledge on their Learners' Performance

As shown in the viewed on the table, on the extent of influence of the three types of teachers' knowledge on their learners' performance, it revealed that the teachers' technological knowledge with the p-value: 0.102, pedagogical knowledge gaining the p-value 0.162, and content knowledge obtaining the p-value 0.969 are way beyond the threshold set for analysis. In other words, there is no significant influence of the technological, pedagogical, and content knowledge of the teachers on their learners' performance.

Table 8
Regression analysis summary predicting learners' performance

Variables	B	SE	95% CI		β	t	p
			Upper	Lower			
(Constant)	3.628	.328	2.981	4.275		11.051	.000
Technological knowledge	-.183	.112	-.403	.037	-.174	-1.640	.102
Pedagogical knowledge	.0226	.161	0.092	.544	.201	1.402	.162
Content knowledge	-.004	.109	-.220	.211	-.004	-.039	.969

b. Dependent Variable: learner's performance; 0.05 level of significance

This results further manifest that the level of technological, pedagogical, and content knowledge of the English teachers in this case have no effect to their learners' performance. Thus, it can be inferred that there may be other factors which may perhaps affect the learners' performance other than their teachers' level of technological, pedagogical, and content knowledge.

However, it was not mentioned in both Kurt and Koehler et al. that TK, PK, and CK have direct bearing on the learners' academic performance. There has been a long history of discussion and debate around the connection between teacher knowledge and quality instruction, there is a lack of empirical research testing this hypothesis or even connecting knowledge to student learning. The studies reviewed show that while much research is still needed to fully support this relationship, as well to test a cross-cultural conceptualization of general pedagogical knowledge, research thus teachers' broad pedagogical knowledge is beginning to be shown to be useful to understanding excellent teaching as measured by its influence on student learning outcomes (OECD, n.d.).

Conclusions

In terms of technological knowledge, the intermediate grade level English teachers in the public elementary schools are very knowledgeable. The same is true in their level of pedagogical knowledge and content knowledge. Based on their IPCRFs' ratings, majority of the teachers have a very satisfactory performance. Furthermore, evidence supports that there is a significant relationship between the teachers' technological knowledge and pedagogical and content knowledge which indicates that there is an association among the teachers' technological, pedagogical, and content knowledge. It is worth to note that the level of technological, pedagogical, and content knowledge of the intermediate grade level English teachers in this case has no effect on their teaching performance. Moreover, evidence reveal that the teachers' level of the three types of knowledge has no effect on their learners' performance.

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