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Research Article

Forensic Capacity Building at the Provincial Level: Implications for Police Investigative Practices in Cavite, Philippines

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ABSTRACT

This study examined the contribution of the Provincial Forensic Team (PFT) to the effectiveness and efficiency of investigative operations in local police stations in Cavite. The research aimed to evaluate how forensic support enhances criminal investigation processes and to identify areas for improvement that may strengthen forensic services and inter-agency collaboration. Specifically, the study assessed the impact of PFT assistance in crime scene investigation, forensic analysis, training and capacity building, research and development, and coordination with other law enforcement agencies.

The study employed a descriptive research design using simple random sampling. Respondents consisted of police officers assigned to the Tagaytay Component City Police Station (CCPS) and personnel from the Scene of the Crime Operatives (SOCO) unit located in Barangay Mendez Crossing East, Tagaytay City. Data were collected using a structured survey questionnaire and analyzed through statistical tools such as frequency distribution and weighted mean.

Findings revealed that respondents generally rated the Provincial Forensic Team's contribution as highly positive, particularly in improving crime scene investigation procedures, strengthening forensic analysis, supporting training initiatives, and enhancing collaboration among investigative agencies. However, several operational challenges were identified, including insufficient financial resources, outdated forensic equipment, heavy case workloads, and coordination inefficiencies, which may limit the effectiveness of forensic services.

Based on these findings, the study recommends increased funding for forensic operations, modernization of forensic equipment and technology, continuous professional training for forensic personnel, and stronger collaboration among law enforcement and judicial agencies. These improvements are essential in strengthening forensic capacity and enhancing the overall effectiveness of criminal investigations in Cavite.

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Keywords: Cavite, Crime scene investigation, Criminal justice system, Evidence management, Forensic analysis, Forensic capacity building, Philippines, Police investigation

Background

Forensic science is an applied, multidisciplinary field that uses validated scientific principles and standardized procedures to support criminal investigations and judicial proceedings through the systematic collection, preservation, examination, and interpretation of physical and digital evidence. Its scope spans biological evidence (e.g., DNA and body fluids), trace materials, toolmarks and firearms evidence, chemical residues, and digital artifacts, enabling investigators to reconstruct events, identify persons of interest, and strengthen the probative value of casework. Recent scholarship also emphasizes the evolution of forensic systems through legislative reforms and interdisciplinary integration, as seen in Romania's continuing modernization and conceptual differentiation of forensic science from adjacent fields such as criminal law and criminology (Iancu, 2019). Despite its expanding contribution, the discipline continues to face persistent structural and operational constraints, including the need for harmonized standards, quality assurance, and demonstrable reliability of expert conclusions, as well as laboratory backlogs that delay investigative decision-making and case resolution. Notably, the international backlog of submissions awaiting forensic analysis has been identified as a recurring systemic issue that can slow investigations and potentially undermine timely access to justice (Anderson et al., 2021).

In the Philippine context, the effectiveness of forensic science is likewise shaped by resource limitations, uneven technological capability across units, and the continuing need for sustained training and professional development to ensure competent evidence handling and interpretation. Empirical work underscores that police investigators experience varying levels of familiarity across forensic domains and may require targeted support to maximize the effective use of forensic techniques within routine investigative practice (Quiape, R. J., & Painaga, J. L. (2023)). At the provincial and local levels—particularly in

Cavite—additional challenges may include coordination between forensic units and local police stations, constraints in equipment and personnel, and the need to streamline workflows so that forensic outputs are available earlier in the investigative cycle. Scientific criminal investigation frameworks highlight that accurate and timely technical support from multiple forensic sub-disciplines can reduce errors and strengthen evidentiary foundations, but these gains depend on operational readiness and systematic integration into investigative processes (Sumali & Monique, 2022; Houck, 2020). Consistent with this, contemporary literature points to the value of forensic intelligence models that embed forensic functions more actively in case development to improve efficiency, reduce investigative errors, and optimize police resources (Houck, 2020), while advances in analytical methods and emerging technologies (e.g., rapid DNA, AI-enabled analytics, and spectroscopic techniques such as LIBS) offer promising pathways to address quality and timeliness challenges when paired with rigorous governance and competency assurance (Islek et al., 2023; Yrkm, 2022). Grounded in the mandate of Section 35 of Republic Act No. 6975, the PNP Forensic Group remains central to providing scientific and technical services—crime scene processing, laboratory examination, and expert testimony—that reinforce the credibility of evidence in court and the integrity of criminal justice operations. Accordingly, examining how a provincial forensic unit contributes to the operational effectiveness of local police stations in Cavite is both policy-relevant and practice-oriented, with potential to inform improvements in coordination protocols, capacity-building strategies, and resource allocation to enhance investigative outcomes and public safety.

Theoretical Framework

This study is primarily anchored on the System Theory by Ludwig von Bertalanffy. This theory explains that the Systems Theory posits that an organization is a complex system

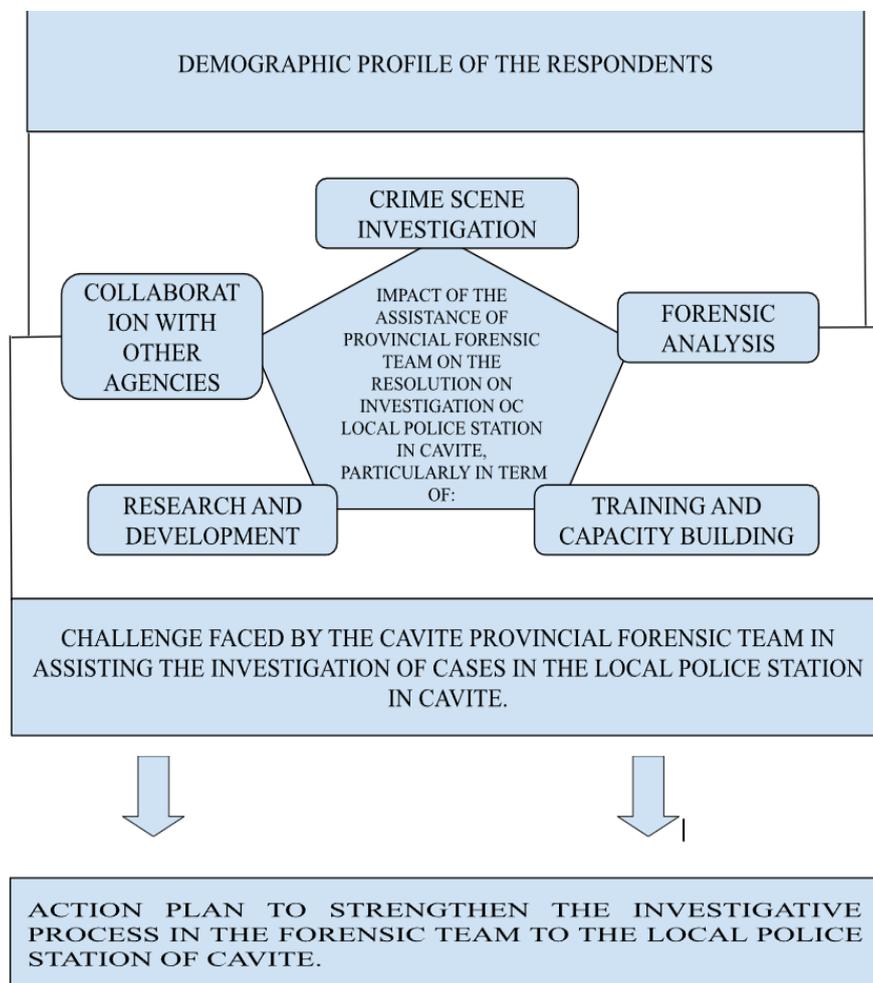
composed of interrelated and interdependent parts that function together to achieve a common goal. In the context of this study, the Provincial Forensic Team and the Local Police Stations in Cavite can be viewed as subsystems within the larger system of the Philippine National Police.

The Systems Theory suggests that the effectiveness of the investigative process depends on the efficient collaboration and coordination between the Provincial Forensic Team and the Local Police Stations. The Provincial Forensic Team provides specialized forensic services and expertise, while the Local Police Stations

gather evidence and conduct investigations. The synergy between these two subsystems is crucial for strengthening the overall investigative process.

By applying Systems Theory, the study can analyze the interactions, communication, and resource sharing between the Provincial Forensic Team and Local Police Stations. This theoretical framework can help identify areas for improvement and propose strategies to enhance the collaboration between these subsystems, ultimately leading to a more effective and efficient investigative process

Conceptual Framework



Statement of the Problem

This study aims to investigate the specific ways in which the Provincial Forensic Team contribute to enhancing the investigative

processes of local police stations in Cavite. More specifically, the study seeks to address the following research questions:

1. What is the demographic profile of the respondents in terms of age, sex, length of service, unit assignment/station, and
 - 1.1. Age
 - 1.2. Sex
 - 1.3. Length of Service
 - 1.4. Unit Assignment/Station
 - 1.5. Rank within the local police stations
2. What is the impact of the assistance provided by the Provincial Forensic team on the resolution on investigations in local police stations in Cavite, particularly in terms of:
 - 2.1. Crime Scene Investigation (CSI)
 - 2.2. Forensic Analysis
 - 2.3. Training and Capacity Building
 - 2.4. Research and Development
 - 2.5. Collaboration with Other Agencies
3. What are the challenges faced by the Cavite Provincial Forensic Unit in assisting the investigation of cases in the local police stations of Cavite?
4. Based on the findings of the study. What action plan can be proposed to strengthen the investigative process in the forensic team to the local police stations of Cavite?

Scope and Limitation

The primary objective of this study is to evaluate the significant contributions of the Provincial Forensic Team (PFT) to the local police stations in Cavite, with the aim of identifying ways to strengthen the investigative process. This research specifically targets police officers stationed at the local police unit and forensic officers located on Mayor's Drive, Barangay Mendez Crossing East, Tagaytay City, where the study is conducted. The scope of the study includes the impact of the resolution of investigations in the local police stations in Cavite in terms of the investigation process, competent in the forensic unit, and the collaboration with the local police station.

However, the study acknowledges several limitations. The research is geographically confined to the local police station in Barangay Mendez Crossing East, Tagaytay City, which may affect the generalizability of the findings to other police stations within Cavite or other provinces. The respondent scope is limited to police officers stationed at this specific local

unit, potentially restricting the diversity of perspectives and experiences. Time constraints present another limitation, as the study is conducted over a limited timeframe, possibly affecting the depth of the analysis and the ability to observe long-term trends or changes in the investigative process. Additionally, access to certain data or internal reports from the PFT and the local police station may be restricted, which could limit the comprehensiveness of the study. By addressing these areas, this study aims to provide a detailed understanding of the PFT's role in supporting local police investigations and propose strategies for enhancing this crucial collaboration.

Significance of the Study

The results of the study will be of great benefit to the following:

Local Police Station. This research is of great significance in the Provincial Forensic Team, for it can aid the PNP of Cavite in making the most use of their resources, enhancing their investigative methods, and strengthening their capacity to solve crimes.

Provincial Forensic Team. This study is of great use to the forensic team of Cavite to further develop their collaboration in the investigation of the local police stations in Cavite, and they will know better what they should provide to the local police in terms of investigation.

Researchers. This study is a valuable resource for researchers interested in criminal justice, forensic science, and law enforcement efficiency. It provides a detailed analysis of how forensic units contribute to local policing, offering a framework for evaluating similar units in other regions. Researchers can build upon this work to explore new dimensions of forensic contributions.

Future Researchers. By continuing to research and innovate in this area, future researchers can contribute to ongoing improvements in investigative processes and the advancement of forensic science as a whole.

Definition of Terms

For clarity in the presentation of the study, some of the important terms were defined conceptually and operationally in this section.

Crime Laboratory. The process of examining the gathered evidence from the crime scene.

ForensicTeam. A team that gives different services in gathering evidence and determining the responsible for the committed crime

Investigation. The method of studying and gathering evidence to legally prove or disprove a criminal allegation.

Law enforcement. The service of the members' government who enforce and promote law, rules and regulations, and organization in the governing society.

Methods

Research Design

The goal of this study primarily focuses on the significant contribution of the provincial forensic team toward strengthening the investigative process. This study used descriptive research since it involves collecting and interpreting data to gather necessary information about the contribution of the Provincial Forensic team to the investigative process of the Local Police.

The researchers used this method since it was the most appropriate for interpreting data, and explaining or validating some hypothesis or objective regarding a specific group of people. According to Bhasin (2019), descriptive research provides an in-depth description of the phenomenon or population under study. This method is also an appropriate option since researchers have limited information about the research problem, and primary information gathering is required to establish a hypothesis.

Furthermore, this study uses a self-made questionnaire to collect quantitative data to evaluate the police officers and forensic team at a local station in Cavite.

Setting

The researchers will conduct their survey in the Tagaytay Component City Police Station and Tagaytay City Satellite Forensic Office located in the Mayor's Drive Barangay Mendez Crossing East, Tagaytay City.

Respondents

In this study, the Local Police Station and Forensic Team in Cavite serves as the research

environment. The studies involved are the police officers and forensic officers. A simple random sampling technique was used for selecting the respondents in this study. According to Lauren Thomas (2020) a simple random sample is a randomly selected subset of a population. In this sampling method, each population member has an equal chance of being selected. This method is the most straightforward of all the probability sampling methods since it only involves a single random selection and requires little advance knowledge about the population. Because it uses randomization, any research performed on this sample should have high internal and external validity, and be at a lower risk for research biases like sampling bias and selection bias.

Data Gathering Instruments

To obtain the necessary information, the researchers utilized a self-made questionnaire and conducted a survey as a data-gathering instrument.

Questionnaire. For the researcher to find answers to the specific problem raised in this study, the data was collected using a self-made questionnaire. The questionnaire was to be validated, administered, tallied, and scored according to the accepted practices in research.

Construction. To produce quality research and results for this study, the researchers constructed a self-made questionnaire guided by the reading taken from unpublished materials, journals, electronic materials, some references, and related studies to ensure that the item would measure the intended variables examined in the study. The first draft of the questionnaire was made and presented to the adviser, who gave suggestions and recommendations to improve it. The researchers incorporated all the suggestions given and prepared the second draft of the questionnaire. The panel chairman and other panel members thoroughly checked the second draft. Before checking, the researchers prepared a letter requesting the content validation of the questionnaire. After consulting with the research adviser and the panel members, the researchers gathered all the suggestions and comments for the improvement of the questionnaire. The validated questionnaire

was edited again and presented to the research adviser and to the panels for final approval.

Validation. For the validity and quality of the questionnaire, the researcher will present the self-made questionnaire to the research adviser and the panelists. The researchers will consult a grammarian for their remarks and recommendations that can further substantiate the questionnaire. For the preparation of the revised copy, all the comments, and suggestions for enhancement of instrument were properly considered. This copy was forwarded for approval and final checking to the research adviser. The final draft of the questionnaire was prepared for distribution after determining its validity.

Administration. To administer the validated questionnaire, the researchers prepared a letter of request for the PNP Chief to use the police officers in their local station as respondents to this study. The set of questionnaires was also distributed to the PNP officers at the local stations and forensic officers at the Soco Tagaytay, who were requested to answer the questions. The respondents were given ample time to answer the questions in the self-made questionnaire. After answering the questionnaire, the researchers collected and evaluated the respondents' answers.

Scoring of Responses. To interpret the results of the gathered data. The researchers tallied the results of the given questionnaire

Scoring and Interpretation

Data Gathering Procedures

The researchers conducted online and library research on the subject matter to develop a potential self-made questionnaire. They then shared the questionnaire with their advisor to receive feedback, approval, and suggestions for improvement. To gather the necessary data, the researchers wrote a letter addressed to the Chief of Police of the Local Police Station of Cavite, seeking permission to conduct the study and collect data using a questionnaire. The advisor endorsed and submitted the letter to the Chief of Police for approval. Once the Chief of Police granted permission, ensuring their reliability, the researchers proceeded to administer the survey questionnaires.

After the data collection, the responses were gathered, tabulated, and statistically analyzed. To address the specific objectives of the study, the researchers subjected the data to appropriate statistical analysis. Following the analysis, the researchers examined, interpreted, and discussed the findings per the study objectives.

Statistical Treatment of Data

To interpret the data collected, the following statistical tools were used to analyze and interpret data gathered from the respondents.

Frequency and Percentage. Will be used to summarize the demographic profile of the respondents.

Mean and Standard Deviation. Will be used to compute the the assistance provided by the Provincial Forensic Units that impact the resolution of investigations in local police stations in Cavite, particularly in terms of Crime Scene Investigation (CSI), Forensic Analysis, Training and Capacity Building, Research and Development and Collaboration with Other Agencies.

Ethical Consideration. In conducting this research, several ethical considerations are taken into account. First and foremost, informed consent is obtained from the Local Police participating in the study. The researchers should clearly explain the purpose of the research. Respondents should have the autonomy to make an informed decision about their participation and have the right to withdraw at any time without penalty. Appropriate measures should be implemented to protect the privacy and confidentiality of the respondents. Personal identifying information should be handled securely and only accessible to authorized personnel involved in the study. Data collection and analysis to minimize the risk of re-identification.

Additionally, the researchers should ensure the validity and reliability of the study by using appropriate research methodologies and maintaining transparency in reporting the results. Any conflicts of interest should be disclosed, and steps should be taken to minimize bias in data collection and analysis. It is crucial to uphold the principles of beneficence, respect for autonomy, privacy protection, and scientific integrity throughout the research process. By addressing these ethical considerations, the study

can be conducted ethically, respecting the rights and well-being of the respondents involved.

Result and Discussion

1. What is the demographic profile of the respondents in terms of age, sex, length of service, unit assignment/station=?

Table 1. The profile of the respondents

Profile		Frequency (n = 16)	Percentage
Unit of assignment	SOCO	8	50%
	Tagaytay CCPS	8	50%
Length of Service	1 – 5 Years	7	43.75%
	6 – 10 Years	4	25%
	11 and above	5	31.25%
Rank	PCMS	2	12.5%
	PSMS	2	12.5%
	PMSG	1	6.3%
	PMS	1	6.3%
	PCPL	1	6.3%
	CPL	1	6.3%
	PAT	6	37.5%
	NUP	2	12.5%
AGE	25 - 29	9	56.25%
	30 – 34	2	12.5%
	35 – 39	3	18.8%
	40 – 44	1	6.3%
	45 and above	1	6.3%

Table 1 shows the profile of the respondents. Frequency and percentages were utilized to determine the profile distribution. The data revealed that there is equal representation from the unit of assignment SOCO and Tagaytay CCPS (both 8 or 50%), and relatively new to the profession (1 – 5 years = 7 or 43.75%). A large proportion held the rank of Patrolman (PAT =6 or 37.5%), and the majority were young (25-29 years old = 9 or 56.25%). This may imply that the results indicate a well-balanced representation of SOCO and the Tagaytay CCPS. Respondents were mostly young with their age in service ranging from 1-5 years. Even though

these younger officers might bring new ideas and make great progress to the investigators, experience emphasizes the need for additional forensic training. The high proportion of Patrolmen (37.5%) in the sample emphasizes the role of front-line officers in evidence collection, which is directly related to forensic analysis effectiveness. Since a majority of responders fall between 25 and 29 years of age, the study points out the necessity of education and mentorship for developing skills in the current techniques of forensic. Finally, the study concludes that improving the investigation process in Cavite requires increasing coordination

between the Provincial Forensic Unit and local police stations, improving evidence processing, and encouraging better outcomes through targeted training and collaborations.

The results also showed the demographic data of respondents in the study showing that the officers were relatively young and many of them had their working experience of not more than 5 years. This is particularly inclusive of the broader trends of younger officers in law enforcement agencies participating in the forensic field. According to Morris (2024), Millennial and Gen Z younger officers possess traits that separate them from the older generation of officers. They most commonly tend to have better command of technology which

further helps them in investigation processes and or community relations. This has made them apply new strategies in policing choking the traditional techniques which may not be effective in the present society. Additionally, Freitag (2024) The knowledge of adolescent brain development helps the officers, who are relatively young, to learn why juveniles act the way they do and what they may require. It allows them to interact in the right manner during such incidents making the results to be a lot better.

2. What are the assistance provided by the Provincial Forensic Units that impact the resolution of investigations in local police stations in Cavite, particularly in terms of:

Table 2. The assistance provided by the Provincial Forensic Team that impact the resolution of investigations in local police stations in Cavite,

Crime scene investigation	Mean	SD	VI
1. The assistance of the Provincial Forensic Team enhances the efficiency of crime scene investigation. <i>(Ang tulong ng Provincial Forensic Units ay pagpapahusay sa kahusayan ng pagsisiyasat sa pinangyarihan ng krimen)</i>	4.88	.342	VHI
2. The involvement of the Provincial Forensic Team ensures that all necessary forensic techniques (e.g., ballistics, photography, dactyloscopy) are adequately utilized during crime scene investigations. <i>(Ang paglahok ng Provincial Forensic Units ay tumitiyak na ang lahat ng kinakailangang forensic technique (hal., ballistics, photography, dactyloscopy) ay sapat na ginagamit sa panahon ng pagsisiyasat sa pinangyarihan ng krimen.)</i>	4.81	.403	VHI
3. The forensic technology and resources provided by Provincial Forensic Team are sufficient to meet the needs of crime scene investigations. <i>(Ang forensic na teknolohiya at mga mapagkukunan na ibinigay ng Provincial Forensic Units ay sapat upang matugunan ang mga pangangailangan ng mga pagsisiyasat sa pinangyarihan ng krimen.)</i>	4.81	.403	VHI
4. Provincial Forensic Team play a crucial role in maintaining the integrity and impartiality of forensic evidence during crime scene investigations. <i>(Ang Provincial Forensic Units ay may mahalagang papel sa pagpapanatili ng integridad at walang-kinikilingan ng forensic na ebidensya sa panahon ng pagsisiyasat sa pinangyarihan ng krimen.)</i>	4.69	.602	VHI
5. Local police investigators are sufficiently trained to collaborate effectively with the Provincial Forensic Team during crime scene investigations. <i>(Ang mga lokal na imbestigador ng pulisya ay sapat na sinanay upang epektibong makipagtulungan sa mga Provincial Forensic Unit sa panahon ng pagsisiyasat sa pinangyarihan ng krimen.)</i>	4.81	.403	VHI
Mean assistance provided by the Provincial Forensic Team in crime scene investigation	4.80	.327	VHI

Legend:

- 4.21 – 5.00 = Very High Impact
- 3.41 – 4.20 = High Impact
- 2.61 – 3.40 = Moderate Impact
- 1.81 – 2.60 = Low Impact
- 1.00 – 1.80 = Very Low Impact

Table 2 presents the respondent’s evaluation on the assistance provided by the Provincial Forensic Team in crime scene investigation. Based on the scores obtained, an overall

mean of 4.80 and standard deviation of .327 verbally interpreted as Very High Impact. This demonstrates that the help offered by the Provincial Forensic Team has a significant impact

on improving the efficiency of crime scene investigation. It also guarantees that all relevant forensic procedures (such as ballistics, photography, and dactyloscopy) are used properly, and that forensic technology and resources are enough to satisfy the needs of crime scene investigations.

The indicator that got the highest mean of 4.88 or standard deviation of .342 verbally interpreted as Very High Impact is the *The assistance of Provincial Forensic Team enhance the efficiency of crime scene investigation*. The Cavite Provincial Forensic Team is very vital in solving crimes since it does investigations of crime scenes in all the police stations in Cavite. The efficiency of these investigations is influenced by factors that include the search strategy that is used, crime scene processing and the amount of training and resources that are available. Several search strategies for example spiral, grid, parallel and wheel are used depending on the layout of the scene and the type of crime that has been committed. This ensures that evidence is collected and maintained properly while for hard cases there are other elements that are used including interviews, surveillance and informants. The attention that the unit has paid to minutiae, the training that is constantly carried out and the application of modern tools are applied in order to solve serious crimes including homicide and sexual assault so that a slight mistake in the handling of evidence can result to either an incorrect conviction or acquittal thus ensuring that justice is served and the public's confidence is gained.

According to Mejia, R. (2024), Crime scene operation is efficient as observed by the respondents. This also means that despite some challenges, it is attributed that these challenges are manageable and the personnel able to fill the gaps that ensure effective crime scene operations. According to Gehl (2017), the importance of crime scene management and the factors that can affect its efficiency. As cited by Sharma et al. (2022), procrastination is one of the barriers that can affect the efficiency of crime scene investigation. Lastly, to address some shortcomings, Sheppard (2020) suggests that experiences of evidence presentation in

court require the use of technology in criminal proceedings.

Provincial Forensic Team assistance importantly increases crime scene investigations by providing specialized expertise, advanced technology, plus resources supporting local law enforcement. Proper evidence collection and preservation are analytically guaranteed by these important units, thus importantly reducing contamination risks as well as increasing the likelihood of case resolutions. Forensic tools, such as DNA analysis, fingerprinting and ballistic tests, quickly and accurately link many suspects to many crimes. These units' training and professional development programs equip many officers with the most up-to-date forensic techniques, along with important legal knowledge, thus importantly improving investigations. Provincial Forensic Units centralize forensic resources, thus supporting multiple police jurisdictions and enabling more thorough investigations. Sheppard (2020) draws attention to technology's key courtroom role in effectively presenting forensic evidence. More efficient crime scene operations are achieved through collaborations between many local police and Provincial Forensic Team. Justice is thus served more effectively.

The three indicator that got the equal mean of 4.81 or standard deviation of .403 verbally interpreted as Very High Impact are the *The involvement of Provincial Forensic Team ensures that all necessary forensic techniques (e.g., ballistics, photography, dactyloscopy) are adequately utilized during crime scene investigations, The forensic technology and resources provided by Provincial Forensic Team are sufficient to meet the needs of crime scene investigations and Local police investigators are sufficiently trained to collaborate effectively with Provincial Forensic Team during crime scene investigations*.

The indicator that got the lowest mean of 4.69 or standard deviation of .602 verbally interpreted as Very High Impact is the *Provincial Forensic Team play a crucial role in maintaining the integrity and impartiality of forensic evidence during crime scene investigations*. Thus, Provincial Forensic Team are responsible for preserving the forensic materiality of crime scenes, performing activities to ensure that the

collected evidence is neutral and does not contain third-party influence. These units have regular documentation measures as a way of ensuring that any form of contamination or mishandling of evidence does not occur since this would reduce the reliability and credibility of the same. They ensure that forensic professionals are hired and high technology is used in handling the evidence to make sure that it does not have a human side which would otherwise lead to prejudiced evidence. It also guarantees that evidence collected is well documented and preserved to observe the legal procedures required in Court hence admissible. Besides, there is assurance for the independence of the Provincial Forensic Team especially that they are distinct organizations that render unbiased and strictly scientific reports irrespective of the police or any other force. This way credibility of forensic results is achieved since they are not influenced by any other aspect apart from the real facts from the scene thus enhancing fairness out of the investigation process.

According to Golop, V. (2023) emphasizes that one of the primary goals of crime scene investigation is to identify and apprehend offenders. By collecting various types of evidence, such as physical traces, biological samples, and intelligence, forensic scientists assist in determining the identity of suspects, which is crucial for the prosecution. The quality of evidence

gathered and documented at the crime scene directly affects the judicial process. Weak or insufficient evidence can result in court failures, while robust and properly handled evidence can strengthen the case for either the prosecution or defense. This highlights the critical role of crime scene forensics in ensuring a fair and just trial.

Provincial forensic Team ensure that the process of crime scene investigation is upheld to the highest standards of integrity in an independent analysis and documentation processes of the evidence. These units make sure that evidence does not get contaminated or biased to conform to a certain set of rules that ensures the confession is admissible in a court of law. They keep proper handling of the evidence where a particular piece of evidence has to be traced to originality and not tampered with which he or she is important in evidential value. Further, the Provincial Forensic Units offer a form of professional training to the investigators thereby reducing human interference and increasing the efficiency of forensic outcome. These are specialised units fitted with modern technology to produce sane scientific analysis which are utilized in the court for fair trials. Being outsider they guarantee that the forensic evidence is impartial and that it greatly contributes to the efficiency of the legal framework.

Table 3. The assistance provided by the Provincial Forensic Team that impact the resolution of investigations in local police stations in Cavite,

<i>Forensic Analysis</i>	<i>mean</i>	<i>sd</i>	<i>vi</i>
<i>1. The technologies employed by Provincial Forensic Units have led to a significant increase in the speed of evidence analysis in local police stations. (Ang mga teknolohiyang ginamit ng Provincial Forensic Units ay humantong sa isang makabuluhang pagtaas sa bilis ng pagsusuri ng ebidensya sa mga lokal na istasyon ng pulisya.)</i>	4.75	.447	VHI
<i>2. The ongoing support from Provincial Forensic Units fosters innovation in forensic methods used by local law enforcement. (Ang patuloy na suporta mula sa Provincial Forensic Units ay nagpapalakas ng pagbabago sa mga pamamaraang forensic na ginagamit ng lokal na tagapagpatupad ng batas.)</i>	4.56	.727	VHI
<i>3. The assistance from Provincial Forensic Units has improved the reliability of eyewitness testimony through forensic corroboration methods. (Ang tulong mula sa Provincial Forensic Units ay nagpakita sa pagiging maaasahan ng testimonya ng nakasaksi sa pamamagitan ng mga pamamaraan ng forensic corroboration.)</i>	4.75	.447	VHI

4. <i>The collaboration between Provincial Forensic Units and local police stations helps in addressing issues of evidence contamination effectively. (Ang pakikipagtulungan sa pagitan ng Provincial Forensic Units at mga lokal na istasyon ng pulisya ay nakakatulong sa epektibong pagtugon sa mga isyu ng kontaminasyon ng ebidensya.)</i>	4.88	.342	VHI
5. <i>The forensic methodologies adopted by Provincial Forensic Units (e.g., STR profiling) have improved the identification of suspects in criminal cases. (Ang mga pamamaraan ng forensic na pinagtibay ng Provincial Forensic Units (hal., STR profiling) ay nagpakita ng pagkakakilanlan ng mga suspek sa mga kasong kriminal.)</i>	4.75	.577	VHI
<i>Mean assistance provided by the Provincial Forensic Units in forensic analysis</i>	4.74	.398	VHI

Legend:

4.21 – 5.00 = Very High Impact

3.41 – 4.20 = High Impact

2.61 – 3.40 = Moderate Impact

1.81 – 2.60 = Low Impact

1.00 – 1.80 = Very Low Impact

Table 3 displays the respondents' evaluation of the assistance provided by the Provincial Forensic Team in forensic analysis. With an overall mean score of 4.74 and a standard deviation of 0.398, the results are verbally interpreted as indicating a Very High Impact. This suggests that the support provided by Provincial Forensic Team significantly enhances forensic methods, ensuring that essential techniques, such as STR profiling, are applied effectively. As a result, the assistance has notably improved the identification of suspects in criminal cases.

The indicator that got the highest mean of 4.88 or standard deviation of .342 verbally interpreted as Very High Impact is the *The collaboration between Provincial Forensic Team and local police stations helps in addressing issues of evidence contamination effectively*. The management of issues of evidence contamination is very important and the Provincial Forensic Team in cooperation with local police stations can be a crucial solution to this problem. These units provide a blanket that guarantees that any collection, handing, and transportation of the evidence is done correctly and with minimal cross-contamination. Provincial Forensic Team can be described as having advisory and technical support when it comes to the sustenance of the evidence and, on the other hand, local police stations can be described as having greater and better equipment and guidance from the forensic Team of the province.

The or of this parasitic collaboration is that evidence arrives in its purest form and guarantees the reliability of criminal cases as well as legal processes.

As stated by Sisodia, U. (2022) The authenticity of evidence can be verified by comparing it to the items collected from the crime scene. Both physical and non-physical evidence are essential in criminal investigations, helping to uncover the details of the crime and identify the probable perpetrator, while ensuring the evidence's integrity is maintained. The chain of custody refers to the procedures that begin when an investigator first collects evidence at the crime scene and continues through every officer involved in the investigation. The chain of custody report tracks the individuals who collected, processed, transported, and examined the evidence, along with the dates and times of each action. It is the ethical and professional duty of officials to uphold this chain. Mislabeling, tampering, unauthorized access, or improper storage of evidence can disrupt the chain of custody. If this chain is broken, the evidence may become compromised, potentially complicating the conviction process.

The credibility of the gathered proofs is highly important within criminal cases and the focus on the process of preserving the collected evidence is vital which means that the mentioned concept is rather important. The chain of custody means to guarantee that evidence collects and processes, documents all evidential

possession and indications of those who conveyed the evidence during investigation. Small mistakes, for example labelling errors, contamination, or poor storage conditions can result in loss, contamination or destruction of the evidence and ultimately affect the case. There should be a close working relationship between the Provincial Forensic Units as well as the local police stations so as to eliminate cases of tampering of the compounds and their appropriate handling. The local law enforcement gathers and preserves the crime scene samples and evidence, distinct forensics units give support, service and direction, and which helps to avoid compromises and possible image transfer and thus; secure the chain of custody. Evidence is properly collected, handled, documented, and stored throughout the investigation process, with detailed records of each individual who interacts with the evidence. Any lapses, such as mislabeling, tampering, or improper storage, can compromise the evidence and jeopardize the case. Collaboration between Provincial Forensic Units and local police stations is essential in preventing evidence contamination and ensuring proper handling. Local police collect and secure evidence at the crime scene, while forensic units provide specialized analysis and guidance, reducing the risk of contamination and maintaining the chain of custody. The coordination among these different agencies is useful to guarantee that evidence is not contaminated, its credibility defended, and the investigation to be clean, in favor of proceeding to a better trial.

The three indicators that got the equal mean of 4.75 or standard deviation of .577 verbally interpreted as Very High Impact are the *The technologies employed by Provincial Forensic Units have led to a significant increase in the speed of evidence analysis in local police stations*, *The assistance from Provincial Forensic Units has improved the reliability of eyewitness testimony through forensic corroboration methods* and *The forensic methodologies adopted by Provincial Forensic Units (e.g., STR profiling) have improved the identification of suspects in criminal cases*. Based on these findings respondents' response implies that all of them positively agree that changes brought about by

technology, forensic help as well as methodologies offered by the Provincial Forensic Units Meeting have been drastically positive. The high means that there is general agreement that each of these aspects greatly improves a range of aspects of criminal investigation including the speed of analysis on evidence, the credibility of eyewitness testimony, and the likelihood of an accurate suspect identification. The coefficient of variance of 0.577 suggests that the responses are not very spread out and the participants responded in a relatively similar manner when responding to factors influencing the use of these interventions.

The indicator that got the lowest mean of 4.56 or standard deviation of .727 verbally interpreted as Very High Impact is the *The ongoing support from Provincial Forensic Units fosters innovation in forensic methods used by local law enforcement*. The contributions made by the Provincial Forensic Units are indispensable for the current work, being instrumental in changing the behaviour of local police forces as well as advancing the value of forensic practices. In this paper, it has been argued that through extending sophisticated equipment, superior information, and professional development to local law enforcement agencies, the provincial forensic units contribute to improving the criminal investigation process. What this implies is that through collaborations, local officers will be in a position to learn new forensic practices that are in practice today like the DNA, digital calibration, ballistic among other methods that can enhance and enhance a proper collection and analysis of the evidence. Moreover, the provincial units provide support and recommendations from which local authorities in the country can achieve progressive efficiency and introduce advanced techniques in criminal investigation processes, thereby improving the idea of justice and increasing the likelihood of identifying the guilty.

Chango et al. (2024) highlight that technological advancements in forensic science bring numerous benefits to investigations. These include the ability to digitally recreate crime scenes, facilitate remote analysis using extended reality technologies, and improve the accuracy of biometric identification. Additionally, portable tools for on-site analysis and IoT

devices powered by artificial intelligence and machine learning are now available. These innovations enhance forensic investigations without reducing the investigator's crucial role and responsibility in case resolution.

These innovations enhance the compiled investigation and enhance its preciseness without devaluing the role of the investigator. This technological advance is further complemented by the growing cooperation and successful partnership between Provincial Forensic Units and the police. Provincial units facilitate the Local police force to acquire and apply

developed forensic technology and techniques and thus, they are crucial in innovation. Due to the implementation of top and proven techniques that include portable instruments for forensic use and artificial intelligence in the identification of clues, the provincial units meet the needs of local police departments in terms of progressive technologies, increasing the speed and quality of analyzes and outcomes. Such constant support enshrines the fact that local law enforcement can solve cases more efficiently while at the same time performing their duty of investigation.

Table 4. The assistance provided by the Provincial Forensic Team that impact the resolution of investigations in local police stations in Cavite,

Training and Capacity Building	mean	sd	vi
1. The training provided by the Provincial Forensic Team has improved my skills in crime scene investigation. (Ang pagsasanay na ibinigay ng Provincial Forensic Units ay nagpabuti ng aking mga kasanayan sa pagsisiyasat sa pinangyarihan ng krimen.)	4.754 4.75	.447	VHI
2. The workshops conducted by the Provincial Forensic Team have enhanced my understanding of forensic techniques. (Ang mga workshop na isinagawa ng Provincial Forensic Units ay nagpahusay sa aking pang-unawa sa mga pamamaraan ng forensic.)	4.88	.342	VHI
3. The capacity-building programs offered by the Provincial Forensic Team have effectively addressed my knowledge gaps in forensic science. (Ang mga programa sa pagpapalaki ng kapasidad na iniaalok ng Provincial Forensic Units ay epektibong natugunan ang aking mga kakulangan sa kaalaman sa forensic science.)	4.81	.403	VHI
4. The training sessions have facilitated better collaboration among police personnel in investigations. (Ang mga sesyon ng pagsasanay ay nagpadali ng mas mahusay na pakikipagtulungan ng mga tauhan ng pulisya sa mga pagsisiyasat).	4.69	.479	VHI
5. The training has helped foster a culture of continuous learning and improvement within my local police station. (Ang pagsasanay ay nakatulong sa pagpapaunlad ng isang kultura ng patuloy na pag-aaral at pagpapabuti sa loob ng aking lokal na istasyon ng pulisya.)	4.88	.342	VHI
Mean assistance provided by the Provincial Forensic Team in training and capacity building	4.80	.342	VHI

Legend:

4.21 – 5.00	= Very High Impact
3.41 – 4.20	= High Impact
2.61 – 3.40	= Moderate Impact
1.81 – 2.60	= Low Impact
1.00 – 1.80	= Very Low Impact

Table 4 shows the respondent's evaluation on the assistance provided by the Provincial Forensic Team in training and capacity building. Based on the scores obtained, an overall mean of 4.80 and standard deviation of .3342 verbally interpreted as Very High Impact. This strongly points to the fact that the training

and the capacity building programs that are in line have yielded great results in enhancing the efficiency and readiness of local police officers. This positive evaluation suggests that the training activities were effective in satisfying the need of law enforcement officers, and hence enhanced their performance in crime scene

probing, collection of evidence, and capabilities in investigation.

The two indicators that got the highest mean of 4.88 or standard deviation of .342 verbally interpreted as Very High Impact are the *workshops conducted by Provincial Forensic Team have enhanced my understanding of forensic techniques* and *The training has helped foster a culture of continuous learning and improvement within my local police station*. Based on these results, it is possible to state that the training activities have been very successful in delivering crucial information and practical experience required for effective investigation work to the personnel of the law enforcement system. Training and capacity development programs of the Provincial forensic units has a positive effect towards the competency of the police force in those provinces. The high mean scores and favourable verbal interpretations for all the categories and specifically the crime scene investigation and the building a culture of quality improvement in the local police station is evident of the usefulness of the training programs.

Both training and capacity building should be provided to enhance effectiveness in criminal investigation and peace implementation. Current practices in Pakistan's local police related to the collection of exhibit samples and evidence found at crime scenes are inefficient primarily due to a lack of training and equipment (Mateen & Tariq, 2019). In the same way, the Kenyan police experience the problem of the lack of evidence, pointing to the insufficient capacity of forces, which requires urgent changes (Nyasing' et al., 2020). These issues are best solved through cooperation hence as indicated by Australia to enhance Indonesia's capability on dealing with narcotics crimes skills, knowledge, and attitude training (Sholihah & Hidayatullah 2023). Despite developments in the peacebuilding and development learning methodologies, core competencies for many practitioners remain inadequate, pointing to the sustained requirement for sound capacity enhancement (Hallward & Tarkhani, 2019). Each of these studies stresses the need for adequate training and capacity enhancement programmes for improving criminal

investigation and peacebuilding in a range of settings.

The indicator that got the second highest mean of 4.81 or standard deviation of .403 verbally interpreted as Very High Impact is the *The capacity-building programs offered by Provincial Forensic Team have effectively addressed my knowledge gaps in forensic science*. This tends to mean that the capacity building programmes are regarded as being very effective in addressing deficiency in the knowledge of forensic science. The mean score is high, which indicates that there was a high level of agreement among the respondents that these programs had a positive effect on their comprehending of forensic practices. Finally, the standard deviation test, which came out low, cove the fact that the level of impact of those programs was recognized equally by all the participants.

The indicator that got the third highest mean of 4.75 or standard deviation of .447 verbally interpreted as Very High Impact is the *The training provided by Provincial Forensic Team has improved my skills in crime scene investigation*. This can therefore imply that the training provided by the Provincial Forensic Units is regarded as very efficient in the enhancing of officers' skills in crime scene investigation. This shows that respondents hold a strong agreement that the training had a positive impact of enhancing their capabilities in handling crime scenes as the mean score is high and the standard deviation is low.

The indicator that got the lowest mean of 4.69 or standard deviation of .479 verbally interpreted as Very High Impact is the *Training sessions have facilitated better collaboration among police personnel in investigations*. Police training sessions really enhance the essence of teamwork in investigations. These sessions involved bringing the officers from various units to compare on the knowledge they have, with the aim of coming up with standard procedures as to how investigations will be carried out. Finally, in turn, officers and detectives come to complexity and other's worth and perspectives throughout the collaborative exercises such as simulations and case studies enhancing unity within a department.

Pajón & Walsh (2022) have established that for effective investigations, it begins with police training and police cooperation, especially in compound crime such as human trafficking. All agencies have to collaborate in order to provide a victim-centered service, as well as for police to work intelligence to ask for help from other agencies for dealing with victims, operation planning, and intelligence gathering. According to Ariel et al (2024), integrative working with the police and private security augments crime reporting, police activity, and crisis response in train stations. However, difficulties in implementation of police training including, lack of equipment, infrastructure and qualified instructors hamper the success of these programmes/ (Mensah, 2019). Altogether these research works stress on the need for joint efforts and adequate training to enhance investigative functions and Policing services in the organization. In other words, these training

sessions make professional relationships enhance, communicate, and develop team work culture which is very vital in any successful investigation.

Altogether, these studies point out that training sessions contribute not only to raise competency of separate officers but also allow to improve interaction, cooperation and collaboration between officers and different departments and agencies. Consequently, training programs enhance direct positive correlation on working relations of police personnel as these are key ingredients in investigation proceedings. Therefore, the connection between these studies and the statement "Training sessions have facilitated better collaboration among police personnel in investigations" is clear: Properly structured training enhances collaboration, fosters professional rapport and subsequently enhances the investigative function among the police organizations.

Table 5. The assistance provided by the Provincial Forensic Team that impact the resolution of investigations in local police stations in Cavite,

<i>Research and Development</i>	<i>mean</i>	<i>sd</i>	<i>vi</i>
<i>1. The forensic research and development support has contributed to the successful resolution of complex cases. (Ang forensic na pananaliksik at suporta sa pagpapaunlad ay nag-ambag sa matagumpay na paglutas ng mga kumplikadong kaso)</i>	4.81	.403	VHI
<i>2. The integration of forensic research findings into our investigative processes has improved our case resolution rates. (Ang pagsasama ng mga natuklasan sa forensic na pananaliksik sa aming mga proseso sa pagsisiyasat ay nagpabuti sa aming mga rate ng paglutas ng kaso.)</i>	4.81	.403	VHI
<i>3. The forensic team actively seeks input from local police officers when developing research initiatives. (Ang forensic unit ay aktibong naghahanap ng input mula sa mga lokal na opisyal ng pulisya kapag bumubuo ng mga pagkukusa sa pananaliksik.)</i>	4.88	.342	VHI
<i>4. The forensic team is responsive to the needs of our police department in its research and development efforts. (Ang forensic unit ay tumutugon sa mga pangangailangan ng aming departamento ng pulisya sa mga pagsisikap nito sa pagsasaliksik at pagpapaunlad.)</i>	4.81	.403	VHI
<i>5. The research from the forensic team has led to improved procedures in our police stations. (Ang pananaliksik mula sa forensic unit ay humantong sa mga pinakamahusay na pamamaraan sa aming mga istasyon ng pulisya.)</i>	4.81	.403	VHI
<i>Mean assistance provided by the Provincial Forensic Team in research and development</i>	4.83	.357	VHI

Legend:

- 4.21 – 5.00 = Very High Impact
- 3.41 – 4.20 = High Impact
- 2.61 – 3.40 = Moderate Impact
- 1.81 – 2.60 = Low Impact
- 1.00 – 1.80 = Very Low Impact

Table 5 presents the respondent's evaluation on the assistance provided by the Provincial Forensic Team in Research and Development. Based on the scores obtained, an overall mean of 4.83 and standard deviation of .357 verbally interpreted as Very High Impact. This demonstrates that the help offered by the Provincial Forensic Team has a significant impact on improving the research and development. The outcome, therefore, shows the great influence that research and development in forensic affairs can have on investigation processes and case resolution. The study findings are crucial in bringing out the need for research in addressing police challenges and the improvement of investigative techniques.

The indicator that got the highest mean of 4.88 or standard deviation of .342 verbally interpreted as Very High Impact is the *The forensic team actively seeks input from local police officers when developing research initiatives*. The forensic unit engages frequently with the local police to guarantee that research projects are carried out based on the requirements of police investigations. Through their experiences on the front-line, officers provide insight into areas that prove problematic in practice, be it collecting evidence or a new criminal activity for which research will help create a method to analyze it. This union creates a possibility to work out the new methods, devices and scientific instruments for practical usage in concrete cases. Another important aspect of integrating these innovations into daily practice is involvement of police officers in implementation of such approaches with the further reporting on their ways of work, methods being used and their fine-tuning for making the approaches in criminal investigation more effective.

As stated by Roux, C., et al. (2021). The present paper suggests changing the focus from means to purpose and considering forensic science current challenges regarding the discipline first, and then turning to the problems of specific organisations. The fact that forensic science is beginning to emerge as a discipline on its own could provide focus for the multiple scientific approaches that R&D could take, including reconstructing, monitoring, and preventing crime and security events. This focus change will help to deal with the mentioned

problems and understand a trace as the subject studied by forensic science, which will cause a more profound and lasting positive effect. This approach will also enhance development of a forensic science culture (not technological culture) with purpose instead of means through more relevant education and research.

The four indicator got lowest mean of 4.81 or standard deviation of .403 verbally interpreted as Very High Impact are the *The forensic research and development support has contributed to the successful resolution of complex cases, The integration of forensic research findings into our investigative processes has improved our case resolution rates, The forensic unit is responsive to the needs of our police department in its research and development efforts and The research from the forensic unit has led to improved procedures in our police stations*. The forensic research and development unit has played an important role in solving complex cases using the new methods, technologies and the practical knowledge which is institutionalized in the cases resolving process, increasing the rates of resolution. The unit interacts closely with the police department to understand its current and future needs so that its research benefits the police. Consequently, the practices identified in the forensic unit have contributed toward better practices at police stations regarding the receipt and processing of evidence. In general, the integration of forensic research in this department has enhanced investigation, effectiveness and overall performance of the department and its ability to achieve positive results.

According to Shevchuk (2021) Possibilities and prospects for a significant expansion of boundaries of forensic support, outlining the innovative foundations of forensic support in various areas of law enforcement (in particular, in pre-trial investigation and hearings; in criminal and civil proceedings; administrative proceedings; in prosecutors, lawyers and notaries). It is noted that innovations in forensic support of law enforcement agencies should be identified both as a whole and by individual entities. With regard to the subjects whose activities need forensic support, certain levels and directions of such activities are identified. New scientific approaches to the solution of the

researched discussion questions are substantiated and perspective directions of their research are defined.

The development of forensic activity in the activities of the police should not only be directed in connection with the usual investigation of criminal cases but also in the framework of pre-trial investigations as well as criminal and civil proceedings, hearings in state and other officials, and the activities of prosecutors, advocates and notaries. New developments in forensic science need to address the unique characteristics of these different legal divisions to enhance the efficiency of the justice delivery. This is in line with the current study that shows that forensic R & D play a great role in solving cases since they incorporate modern forensic

methods in solving cases hence improving the rate of solving cases. In addition, the fact that the forensic unit responds to the exact requirements of the police department makes the research activities to be of paramount value in improving the effectiveness of police operations. In enhancing police station procedures and adaptation of other forensic innovations with a view of accounting for real-life discrepancies, forensic R & D produces better standardization and dependability of procedures which will go a long way in making Shevchuk's dream of increasing forensic services so as to improve every link in the legal functions chain a reality and in helping achieve justice and police efficiency.

Table 6. The assistance provided by the Provincial Forensic Team that impact the resolution of investigations in local police stations in Cavite,

<i>Collaboration with other agencies</i>	<i>Mean</i>	<i>Sd</i>	<i>VI</i>
<i>1. The collaboration between Provincial Forensic Team and local police stations significantly enhances the effectiveness of criminal investigations. (Ang pakikipagtulungan sa pagitan ng Provincial Forensic Units at mga lokal na istasyon ng pulisya ay makabuluhang nagpapahusay sa bisa ng mga pagsisiyasat sa krimen.)</i>	4.81	.403	VHI
<i>2. Collaborative efforts with the Provincial Forensic Team have led to a higher rate of successful offender identification in criminal cases. (Ang pakikipagtulungan sa mga Provincial Forensic Unit ay humantong sa mas mataas na rate ng matagumpay na pagkakakilanlan ng nagkasala sa mga kasong kriminal.)</i>	4.81	.403	VHI
<i>3. The integration of forensic services into investigations fosters better communication and cooperation among different law enforcement agencies. (Ang pagsasama ng mga serbisyong forensic sa mga pagsisiyasat ay nagpapaunlad ng mas mahusay na komunikasyon at pakikipagtulungan sa iba't ibang ahensya na nagpapatupad ng batas.)</i>	4.75	.477	VHI
<i>4. The partnership with Provincial Forensic Team and Local Police Station has significantly reduced the time required to resolve criminal investigations. (Ang pakikipagtulungan sa Provincial Forensic Units at Local Police Station ay makabuluhang nabawasan ang oras na kinakailangan upang malutas ang mga kriminal na imbestigasyon.)</i>	4.75	.477	VHI
<i>5. The existing framework for collaboration between local police stations and Provincial Forensic Team adequately meets the operational needs and challenges of law enforcement. (Ang umiiral na balangkas para sa pakikipagtulungan sa pagitan ng mga lokal na istasyon ng pulisya at Provincial Forensic Units ay sapat na nakakatugon sa mga pangangailangan sa pagpapatakbo at mga hamon ng pagpapatupad ng batas.)</i>	4.81	.403	VHI
<i>Mean assistance provided by the Provincial Forensic Team in crime collaboration with other agencies</i>	4.79	.429	VHI
<i>Mean assistance provided by the Provincial Forensic Units impact the resolution of investigations in local police stations in Cavite</i>	4.79	.349	VHI

Legend:

- 4.21 – 5.00 = Very High Impact
- 3.41 – 4.20 = High Impact
- 2.61 – 3.40 = Moderate Impact
- 1.81 – 2.60 = Low Impact
- 1.00 – 1.80 = Very Low Impact

Table 6 presents the respondents' evaluation of the assistance provided by the Provincial Forensic Team in collaboration with other agencies of investigations in local police stations in Cavite. Based on the scores obtained, an overall mean score of 4.79, Standard Deviation value of .429, which is verbally interpreted as "Very High Impact." This suggests that the role of the forensic units' support can contribute a lot to the improvement of the relationship between agencies with a clear agreement as to how it has helped in the improvement of efforts towards coordination. Similar to this, in the aspect of impact on the resolution of investigations in local police stations in Cavite, assistance given by the Provincial Forensic Units also earned the comparable overall mean of 4.79 with slightly lesser standard deviation of 0.349. This also hits a 'Very High Impact' and an implication of the forensic units is decisive since it raises the efficiency of investigation, hence successful case resolutions. Both areas affirm that the Provincial Forensic Units have a significant and steady interference in the law enforcement procedures and were according to the respondents backing for collaboration and investigative efficiency.

The three indicators that got the highest mean of 4.81 or standard deviation of .403 verbally interpreted as Very High Impact are the *The collaboration between Provincial Forensic Units and local police stations significantly enhances the effectiveness of criminal investigations, Collaborative efforts with Provincial Forensic Team have led to a higher rate of successful offender identification in criminal cases and The existing framework for collaboration between local police stations and Provincial Forensic Team adequately meets the operational needs and challenges of law enforcement.* The integration between the Provincial Forensic Team and local police stations has been found to greatly improve investigation outcomes. Through integration with these units, there is improved specialized forensic competence as these units increase the rate of offender identification in criminal cases. The technical backup offered including DNA test, photograph and video processing and other digital forensics has greatly enhanced the efficiency of investigation and consequently higher chances of solving the

cases. Moreover, the current structure of cooperation between the local police stations and Provincial Forensic Team is considered efficient because it matches the operational requirements and realities of the police. This structured cooperation means that the forensic investigation materials are within the pool to aid in investigations thereby solving the issues of modality in the tackling of these crimes. Thus, the read acquisition of forensic evidence helps to increase the effectiveness of police work and simplify organizational and methodological cooperation between law enforcement agencies, and it confirms the necessity of constant coordination between local police and forensic team.

As stated by Verma et al. (2022) Forensic science is one of the most significant advances in human history. Both society and the justice system would suffer greatly from a lack of understanding of forensic science. Forensic science is becoming more important in the modern era of crime investigation. Better prospects for crime-solving and criminal detection are given to the legal system by it. The Indian legal system currently in use uses a number of methods, including DNA profiling, brain fingerprinting, narcoanalysis, polygraphs, DNA fingerprinting, forensic DNA, etc., that are very beneficial in resolving criminal cases. At the moment, courts are considering these strategies while issuing rulings.

The findings of this research are also in concurrence with that of their study, showing how a combined working relationship of Provincial Forensic Units with the local police stations effectively boosts the quality of criminal investigation. Through their incorporation into these modern techniques of forensic analysis, criminals become traceable better and cases resolved higher. The existing framework of collaboration as presented in the study satisfies the operational needs of law enforcement through providing forensic support, thereby filling the gaps of investigation challenges. This ensures that the law enforcement agencies get the required scientific expertise that is instrumental in making the investigations not only faster but also successful and helps reinforce the broader goals of forensic science in criminal justice.

The two indicators got lowest mean of 4.75 or standard deviation of .447 verbally interpreted as Very High Impact are the *The integration of forensic services into investigations fosters better communication and cooperation among different law enforcement agencies* and *The partnership with Provincial Forensic Units and Local Police Station has significantly reduced the time required to resolve criminal investigations*. Integration of forensic services into criminal investigations serves to bring about better communication and cooperation among different agencies. Early incorporation of specialized forensic expertise into the process can ensure that different agencies, whether local police, provincial forensic units, or other legal entities can share critical information and resources for better coordination and the efficiency of the investigation. This approach then ensures that the forensic information is well meshed and incorporated into the larger scale of the investigations, further ensuring that proper decision-making toward solving the case is involved. The provincial forensic unit and local police stations collaborations have also proved to increase the reduction in the time required towards solving criminal investigations. The forensic units streamline evidence collection, analysis, and reporting. Thus, forensic units hasten the vital steps in an investigation; the delay usually occurs when they wait for expert analysis or support. The efficiency therefore leads to faster resolution as well as enhances the efficiency of law enforcement, meaning that more cases will be closed much faster and more offenders will be identified and caught on time.

As stated by Houck (2020) By actively participating in investigations, forensic science can

shorten the time it takes for information to become available. Organizational norms, operational resources, human resource concerns, and expectations shaped by the media are some of the obstacles. Criminal investigations and forensic science are reconstructive; they improve investigations and change procedures. Active use of forensic intelligence in investigations improves cases for adjudication, decreases erroneous arrests and convictions, and makes better use of police resources. In order to develop a long-lasting professional culture of forensic intelligence, an integrated forensic intelligence model (IFIM) is presented.

This is where forensic services would be integrated into criminal investigations, specifically through partnerships between Provincial Forensic Units and Local Police Stations. Such integration can make the whole process more efficient and effective. According to Houck (2020), "this kind of cooperation can improve communication between various agencies and thus speed up the process to get to faster and more accurate resolution of cases.". It will allow for faster forensic analysis and enable the resolution of investigations much faster, thereby putting police resources to better use. Forensic units will also prevent wrongful arrests and convictions as evidence is processed and interpreted with greater accuracy. An integrated approach supports a culture of forensic intelligence where evidence-driven investigations lead to timelier and more reliable case outcomes.

3. What are the challenges faced by the Cavite Provincial Forensic Team in assisting the investigation of cases in the local police stations of Cavite?

Table 7. Challenges faced by the Cavite Provincial Forensic Team in assisting the investigation of cases in the local police stations of Cavite

CHALLENGES	FREQUENCY
Insufficient Resources and Equipment	7
Case Congestion and Heavy Workload	4
Inefficiencies in Cooperation with Police	3
Lack of Specialized Forensic Personnel	2

The table represents the challenges faced by the Cavite Provincial Forensic Team in assisting the investigation of cases in the local police stations of Cavite. The biggest challenge among them seems to be "Insufficient Resources and Equipment" which is the most frequent, repeated 7 times, indicating that it's a considerable problem. The second item with a frequency of 4 is "Case Congestion and Heavy Workload." Cooperation is mentioned 3 times, so having moderate concern for 'inefficiencies in cooperation with police'; Lack of specialised forensic personnel is the least often mentioned (2) suggesting it is a relatively less common problem. These challenges serve to identify areas of improvement that should be made to improve the effectiveness and efficiency of the group.

According to Etin-Osa (2023) Forensic units are normally subjected to financial constraints and this hinders their operations, in the sense that they cannot be very effective when conducting their investigations and test. This can be manifested in such form as low availability of such state of art forensic equipment and technologies which are vital in investigation and analysis of evidence. This issue is directly connected with the problems of the Cavite Provincial Forensic Team, as these employees have a lack of resources and outdated instruments. That is why it is difficult for the experts to investigate certain cases and provide people with relevant and objective results.

Therefore, forensic proceedings are postponed, and the results are not always accurate. In addition, the team has a very large demand and since the budget is low, the demand puts a lot of pressure on the unit. The many cases also put a lot of pressure on the forensic team and lead to long durations of processing the items, hence worsening the performance of the team. Though the interaction between the forensic team and the police in a specific case is established, the cases of mismanaged, missed, delayed or uncoordinated capture and handling of exhibits is an indication of potentially inefficient communication processes, which are negative inputs to the investigative process. As well, the shortage as for qualified forensic personnel by some local police stations makes the poor handling and collection of the evidence even more problematic. These challenges are however compounded by procedural and legal constraints which slow down the unit's actions. For that reason, to resolve these problems, the following steps should be taken: Increase financial provision, staff training, cooperation between agencies and the forensic team, and proper handling of evidence as necessary for the unit's assistance to local investigations to enhance the Cavite justice system.

4. Based on the findings of the study. What action plan can be proposed to strengthen the investigative process in the forensic unit to the local police stations of Cavite?

Table 8. Action Plan for to strengthen the investigative process in the forensic team to the local police stations of Cavite

Objective	Topic	Place	Person Charge	In	Timeframe	Resource Material
To improve skills and retention.	Specialized Training Programs	Mayor's Drive Mendez Crossing East Tagaytay City	SOCO, Tagaytay CCPS		Annually	Training Materials and Training Centers
To further enhance their positive role by offering more assistance in crime scene investigation.	Capacity Building and Improvement of Equipments	Mayor's Drive Mendez Crossing East Tagaytay City	Provincial Forensic Unit		Annually	Learning Materials

To further enhance their positive role by offering more assistance in crime scene investigation.	Capacity Building and Improvement of Equipments	Mayor's Drive Mendez Crossing East Tagaytay City	Provincial Forensic Unit	Annually	Learning Materials
To enhance the improvement of the investigations at all levels.	Skills and Knowledge Mastering	Mayor's Drive Mendez Crossing East Tagaytay City	Provincial Forensic Unit and Experienced Officers	Ongoing	Learning materials, Certificates and Refreshments
To increase the effectiveness of the unit in the provision of criminal support, as well as improve the justice system in Cavite.	Investigative Skills and Equipment Improvement	Mayor's Drive Mendez Crossing East Tagaytay City	Provincial Forensic Unit	Quarterly	Learning materials and Modern equipments.

The action plan that is presented below is designed to strengthen the potential of the Cavite Provincial Forensic Unit in providing assistance to the local police stations as well as to improve the investigation process. In the case of this plan, Crime Scene Investigation is emphasized as a potential area of growth in crime recognition due to the proper handling of evidence from the onset by more frequent retraining of the officers in the right carriage of the evidence. Improving the equipment and techniques used in forensic analysis will accelerate and enhance the production of such results. Training of specific methods involved in forensic investigations, as well as the enlightenment of organizations that handle these experts, will build their specialized capacities. The second one is the creation of a research and development team that will be helpful in the identification of the trends in crimes and the development of new forensic technologies that will increase the effectiveness of investigations in general. Visions and missions consist of providing legal support, enhancing enforcement collaboration with judicial agencies and forensic sciences, improving outsourcing options to include sharing of useful resources for enhanced detection, and communicating with the public at large for their assistance in detection. Finally, the adoption of continuous monitoring and feedback procedures will not only yield continuous assessments in the improvement

aspect of the forensic services but also enable the unit to be ready and efficient in addressing certain needs of Cavite local police stations and help speed up the resolution of such cases.

Conclusion

This research aims to examine and evaluate how the Provincial Forensic Team (PFT) contributes to the effectiveness and efficiency of local police stations in Cavite, with the goal of identifying areas for improvement and offering recommendations to enhance investigative processes. By assessing the impact of PFTs on local police stations, the study could help improve forensic science and law enforcement, streamline investigative procedures, and create policies that foster better cooperation between law enforcement and forensic units. The primary objective is to evaluate the PFTs contributions and identify ways to strengthen the investigative process. The research focuses on police officers at the local police unit and forensic officers in Barangay Mendez Crossing East, Tagaytay City. However, the study has limitations such as being geographically confined to a specific area, limited respondent scope, time constraints, and restricted access to certain data. The study used a descriptive research design and simple random sampling to gather data, employing statistical tools like frequency and mean to analyze responses. The results showed a positive evaluation of the PFTs

assistance, with respondents noting significant impacts on crime scene investigation, forensic analysis, training, research and development, and collaboration with the other agencies. Despite these positive evaluations, the PFU faces challenges, such as insufficient resources, outdated equipment, and coordination inefficiencies, which hinder the effectiveness of investigations. Based on these challenges, the research recommends increasing financial support, specialized training, improved collaboration, and better evidence handling practices to enhance the PFT support to local police stations. The action plan includes strengthening crime scene investigations through frequent retraining, modernizing forensic techniques and equipment, building forensic capacity, fostering research and development, enhancing collaboration with law enforcement and judicial agencies, and implementing continuous monitoring and feedback to improve forensic services and expedite case resolutions.

Based on the indicated findings, the following conclusions were drawn:

1. The study reveals that participants are young, mostly with less than five years of police service, half from the SOCO and the other half from the Tagaytay CCPS. Many officers are in the 25-29 age group and have experience ranging from 1 to 5 years of service. Most of the officers are ranked as Patrolmen.
2. The findings indicate training gaps among personnel, particularly in basic crime scene preservation for first responders and specialized forensic analysis for technicians, highlighting the need for additional training to ensure proper evidence handling and effective investigative procedures.
3. The study's findings reveal that the Provincial Forensic Team has a significant and positive impact on enhancing investigation resolution in local police stations in Cavite. The results show that there is a lot of impact in all areas, including crime scene investigation, forensic analysis, training and capacity building, research and development, and collaboration with the other agencies.
4. The difficulties encountered by the Cavite Provincial Forensic Team highlight the crucial need for reforms in numerous key areas. These issues are not unique to the unit, they are shared by all forensic team dealing with resource limits, heavy case-loads, and the intricacies of modern criminal investigations. Addressing these issues properly is critical for improving the overall effectiveness of criminal investigations in Cavite and creating a more equitable and efficient justice system.
5. Based on the findings the action plan presents a thorough strategy for improving the capabilities of the Cavite Provincial Forensic Unit. By focusing on key areas such as crime scene investigation, research and development, collaboration with the other agencies, and continuous improvement, the unit can significantly increase its effectiveness in assisting local police stations and contributing to Cavite's more just and efficient criminal justice system.

Based on the findings and conclusion the following recommendation are drawn:

1. To strengthen inter-agency coordination, the study recommends the development of a Standard Operating Procedure (SOP) for the Chain of Custody Transfer between patrol officers and the Satellite Forensic Office. This protocol should standardize the procedures for evidence collection, documentation, labeling, and transfer to ensure proper handling and preservation of evidence integrity. Establishing a clear SOP will minimize the risk of contamination, loss, or mishandling of evidence while improving accountability, coordination, and the admissibility of forensic evidence in criminal investigations.
2. The police force should implement a "Training-of-Trainers" (ToT) approach in providing specialized training programs, mentoring initiatives, and clear professional development opportunities for young officers. Selected personnel from units such as SOCO and Tagaytay CCPS may be trained as internal trainers who can cascade technical knowledge and in-

vestigative skills to other officers, particularly Patrolmen. This strategy will strengthen skill development, promote knowledge sharing within the organization, and improve officer competence, retention, and overall investigative capability.

3. Provincial Forensic Units are further enhancing their positive role by offering more assistance in crime scene investigation, forensic examination and courses. Increasing the number of activities related to capacity building and using the latest technologies in the field of forensic will improve the work of investigations. Improving cooperation with local police stations and other police would also improve cooperation as well as case solving.
4. The Cavite Provincial Forensic Unit gave a comprehensive review to assess the organizations' strengths and weaknesses and focus on resource enhancement, case-work reduction, and optimizing the forensic process. The application of specific improvements concerning equipment, training and cooperation between agencies will increase the effectiveness of the unit in the provision of criminal support, as well as improve the justice system in Cavite.
5. The Cavite Provincial Forensic Unit also invests in taking their personnel to proficiently execute the modern forensic technology and the relatively new investigative tools. These investments in professional development, together with the concentration in CSI, research and development and collaboration with the other agencies, will enhance the capability of the unit to help the Cavite local police stations as well as improve the current criminal justice system in Cavite.

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