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## RESEARCH LITERACY, DEVELOPMENT NEEDS, AND BARRIERS AMONG TESDA-CAGAYAN TRAINERS IN RESEARCH WRITING: INPUT FOR A CAPACITY BUILDING PLAN

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### Abstract

*This study examined the research literacy, development needs, and barriers among TESDA trainers in Cagayan as a basis for a capacity-building plan. Using a descriptive-correlational design, data were collected from 65 trainers across TESDA training institutions through a validated questionnaire. Findings revealed that trainers possess a moderate level of research literacy, with strengths in research design and methodology but weaknesses in conceptualization, data analysis, and academic writing. Trainers demonstrated high development needs, particularly in training, collaboration, and dissemination. However, significant barriers such as heavy workload, limited time, lack of mentoring, and insufficient access to resources hinder research engagement. The study highlights the need for structured institutional support and targeted interventions to enhance research competence and productivity.*

**Key words:** Research literacy; TESDA trainers; development needs; research barriers; capacity-building plan

### INTRODUCTION

In today's rapidly changing world, the role of competent and well-equipped trainers is more critical than ever. Quality training not only ensures that learners acquire the necessary skills but also strengthens the overall capacity of educational institutions and training centers. Technical Education and Skills Development Authority (TESDA) play an important role in equipping Filipinos with technical and vocational skills, relying heavily on the effectiveness of its trainers to achieve its mandate. As such, the knowledge, skills, and readiness of TESDA trainers are vital components in ensuring successful training outcomes.

Research has long been identified as a cornerstone of advancement in education, innovation, and institutional development. In the field of Technical-Vocational Education and Training (TVET), research provides a stronghold necessary to strengthen curriculum, improve teaching methodologies, and address the sudden changes in technology needs of industries and communities. For institutions under TESDA, the conduct of research is not only an academic requirement and initiative but also a strategic activity that helps in ensuring the responsiveness and relevance of training programs. With this, the role of trainers as researchers becomes important

because they connect gaps between theoretical knowledge, practical applications, and industry-aligned requirements.

Research Literacy which is known as the ability to understand, interpret, and apply research and it is increasingly recognized as an important competency for trainers. Trainers who are research-literate can assess training needs more accurately, evaluate program effectiveness, and contribute to evidence-based improvements in curriculum and instructional methods. Despite its importance, many trainers face challenges in developing these competencies, often due to many reasons that include limited access to training resources, time constraints, or insufficient institutional support.

As a TESDA Training Institution (TTI), an institution is mandated to be guided by the 8-point agenda by Secretary Francisco “Kiko” Benitez. One of those eight is the Demand-Driven and Data-Driven TVET through research and innovation. TESDA Training Institutions in Cagayan, in particular, faces a lot of barriers that challenges trainers’ professional growth and the implementation of research-informed practices. These include limited opportunities for professional development, heavy administrative workload, insufficient research methodologies, and lack of structured support for continuous learning. Such barriers affect not only the trainers’ ability to perform their roles effectively but also the institutions’ capacity to innovate and respond to evolving industry demands.

This study aimed to find out the level of research literacy, identify the professional development needs, and explore the barriers experienced by TESDA trainers in Cagayan. By understanding these factors, the research seeks to provide a foundation for designing a targeted capacity-building plan that addresses existing gaps, strengthens research competencies, and ultimately enhances the quality of training delivery. In doing so, this study contributes to the broader goal of empowering TESDA trainers as agents of excellence in technical and vocational education.

### Statement of the Problem

This study aimed to determine the level of Research Literacy, Development Needs, and Barriers Among TESDA-Cagayan Input for a Capacity Building Plan that enhanced their research productivity and capacity building:

Specifically, it sought to answer the following questions:

1. What is the profile of the TESDA trainers in terms of?
  - 1.1 Personal Profile
    - a. Age
    - b. Sex
    - c. Civil Status
    - d. Highest Educational Attainment
  - 1.2 Professional Profile
    - a. Number of National Certificates (NC II and above)
    - b. Number of National TVET Trainers Certificates (NTTC)
    - c. Years in Service
    - d. Status of Employment
    - e. Position
    - f. Sector
2. What is the level of research literacy of TESDA trainers in terms of:
  - a. Research Conceptualization
  - b. Research Design and Methodology

- c. Data Analysis and Interpretation
  - d. Academic Writing and Technical Reporting
  - e. Publication and Presentation
3. What is the level of development needs of trainers in terms of:
  - a. Involvement in Research Projects
  - b. Participation in Research Trainings or Capacity Building Activities
  - c. Collaboration with other researchers/other institutions
  - d. Involvement in Dissemination
4. What are the barriers identified by TESDA trainers along:
  - a. Research Conception and Writing
  - b. Research Methodology
  - c. Data Analysis
  - d. Publishing and Presenting Research
  - e. Access to Resources, Mentors, and Institutional Reports
5. Is there a significant difference in the level of Research Literacy, Development Needs, and Barriers of respondents when grouped according to profile?
6. Is there a significant relationship in the level of research literacy with that of their level of developmental needs and barriers?
7. What capacity building plan can be proposed to improve research literacy of TESDA trainers?

## METHODOLOGY

This section describes the research design, participants, instruments, and procedures used in the study. It explains how the data were collected and analyzed to ensure the validity and reliability of the findings.

### Research Design

This study made use of a quantitative descriptive-correlational research design. The design was chosen because the primary aim of the research was to access the current levels of research literacy, identify development needs, and explore barriers among TESDA-Cagayan trainers. In addition, the study sought to examine the relationships between those variables and the trainers’ personal and employment profiles, providing a foundation for the design of a capacity-building plan.

The descriptive-correlational approach allowed the researcher to quantify and analyze patterns, trends, and relationships among variables while maintaining a focus on describing the characteristics and experiences of the respondents. This design was appropriate because it addressed not only the level of research literacy, development needs, and barriers but also how these aspects are related to each other, thus informing evidence-based recommendations for professional development.

### Locale of the Study

This study was conducted in the different TESDA Training Institutions (TTIs) within the province of Cagayan, which included the Aparri Polytechnic Institute (API), Lasam Institute of Technology (LIT), Provincial Training Center (PTC) Cagayan, and the Regional Training Center (RTC) Cagayan. These institutions were chosen because they represent the primary TESDA-accredited training centers in the region and employ a wide range of trainers with diverse personal and professional backgrounds.

### Respondents and Sampling Technique

The respondents were accredited trainers from the Technical Education and Skills Development Authority training institutions in Cagayan, including Aparri Polytechnic Institute, Lasam Institute of Technology, Provincial Training Center, and Regional Training Center. Of the 76 target trainers, 65 participated, selected through purposive sampling based on active employment and qualifications (NC II or higher/NTTC). This approach ensured relevant insights into research literacy, development needs, and barriers while maintaining representation across institutions and focusing solely on teaching personnel.

### Research Instruments

The study used a structured questionnaire to assess research literacy, development needs, and barriers of TESDA-Cagayan trainers. The instrument used was adapted and enhanced by the researcher with the assistance of AI tools to ensure clarity, relevance, and sustainability for the context of the study.

To check the validity and reliability of the instrument, pilot-testing was conducted among 30 trainers from TESDA Training Institutions near TESDA-Cagayan through Google Forms. For its validity, the questionnaire underwent content validation by research experts, and their feedback were incorporated to refine and improve the instrument. The results of the validation indicated a mean validity rating of 4.5 out of 5, demonstrating that the questionnaire items were highly relevant, clear, and appropriate for measuring the intended constructs.

For reliability, the instrument showed excellent internal consistency based on Cronbach's alpha results obtained through SPSS version 22. The variables research literacy ( $\alpha = 0.956$ ), research development needs ( $\alpha = 0.961$ ), and barriers in conducting research ( $\alpha = 0.902$ ) all exceeded the acceptable threshold of 0.70. These findings indicate that the items within each variable are highly consistent measuring their respective constructs, thus, no revisions were deemed necessary.

The questionnaire was divided into four sections: personal and employment profile; research literacy in terms of conceptualization, methodology, data analysis, writing, and dissemination; development needs in projects, trainings, collaborations, and dissemination; and barriers encountered in research processes and access to resource. Responses will be measured using a five-point Likert scale.

### Data Gathering Procedure

Data for this study were collected using a structured questionnaire administered to trainers from the Technical Education and Skills Development Authority in Cagayan. Prior to data gathering, formal permission was obtained from TTI administrators, and participants were informed of the study's purpose, confidentiality, and voluntary nature before giving consent. Questionnaires were distributed via printed copies and Google Forms, with one week allotted for completion. Ethical standards were strictly observed, allowing respondents to skip questions or withdraw anytime without penalty, ensuring confidentiality, proper data handling, and participant well-being throughout the process.

### Data Analysis

The collected data were analyzed using quantitative statistical methods. Descriptive statistics, including frequency, percentage, mean, and standard deviation were used to summarize the respondents' personal and professional profiles, levels of research literacy, development needs, and barriers.

To determine significant differences in research literacy, development needs, and barriers across groups based on personal and professional profiles, independent samples t-test and one-way ANOVA will be employed. Relationships among research literacy, development needs, and barriers were examined using Pearson's correlation coefficient.

The results of the analyses were interpreted to identify patterns, relationships, and gaps, which served as the basis for designing a capacity-building plan based on the needs of TESDA-Cagayan trainers. The statistical procedures ensured that the findings were objective, reliable, and relevant to the study's objectives.

### Ethical Consideration

This study adhered to ethical standards to protect participants' rights and privacy. Permission was secured from TESDA Training Institutions under the Technical Education and Skills Development Authority, and only trainers' responses were collected. Participation was voluntary, with informed consent ensuring confidentiality and the right to withdraw anytime. Data access was limited to the researcher and adviser, with identities coded for anonymity. Digital data were securely stored, while printed documents were kept confidential. All data will be retained for one year, then permanently deleted or shredded, following institutional ethical guidelines.

## RESULTS AND DISCUSSION

This section presents and analyzes the findings of the study based on the data gathered from the respondents. It highlights key patterns, trends, and insights that address the research objectives, providing a clear basis for interpretation and discussion.

### Respondents' Profile

#### Personal Profile

**Table 1a.** Distribution of the respondents in terms of their personal profile

Variables		Frequency (n=65)	Percentage (100%)
Age (in years)	30 or below	9	13.8
	31 to 40	32	49.2
	41 to 50	14	21.5
	51 or above	10	15.4
		<i>Mean= 40.08 y/o</i>	<i>SD= 9.67</i>
Sex	Male	39	60.0
	Female	26	40.0
Civil Status	Single	19	29.2
	Married	43	66.2
	Separated	3	4.6
Educational Attainment	Bachelor's degree	19	29.2
	With units in a Masteral program	13	20.0
	Masteral degree	16	24.6
	With units in a	7	10.8

	Doctorate program		
	Doctorate degree	10	15.4

Table 1a presents the respondents' profile in terms of age, sex, civil status, and educational attainment. Most respondents are aged 31–40 (49.2%), with a mean age of 40.08, indicating middle adulthood and professional maturity. Males dominate (60%), reflecting trends in technical fields, consistent with the Technical Education and Skills Development Authority Gender Profile (2019). Majority are married (66.2%), suggesting stable family responsibilities. In terms of education, respondents possess varied qualifications, with many pursuing graduate studies, indicating strong engagement in continuous professional development essential for enhancing competencies and instructional quality among trainers.

### Employment Profile

**Table 1b.** Distribution of the respondents in terms of their employment profile

Variables		Frequency (n=65)	Percentage (100%)
Number of National Certificates (NC)	1 to 2	12	18.5
	3 to 4	29	44.6
	5 to 6	19	29.2
	7 or more	5	7.7
		<i>Mean= 4 NCs</i>	<i>SD= 1.69</i>
Number of National TVET Trainer Certificate (NTTC)	Only 1	22	33.8
	2 to 3	34	52.3
	4 or more	9	13.8
		<i>Mean= 2 NTTC</i>	<i>SD= 1.16</i>
Length of Service (in years)	5 or below	24	36.9
	6 to 10	24	36.9
	11 to 19	9	13.8
	20 or above	8	12.3
		<i>Mean= 9.69 years</i>	<i>SD= 9.04</i>
Status of Employment	Permanent	60	92.3
	Job order	5	7.7
Position	Instructor	29	44.6
	Assistant Professor	15	23.1
	Associate Professor	3	4.6
	Trainer	6	9.2
	TESD Specialist	10	15.4
	Personnel	2	3.1

	(Nurse, Registrar)		
Sector (multiple response set)	Diploma programs	25	38.5
	Hard trades	40	61.5
	Soft trades	27	41.5

### \* Level of Research Literacy of TESDA Trainers

#### Research Conceptualization

**Table 2a.** Weighted means and level of research literacy of TESDA trainers along research conceptualization

Statements	Weighted Mean	Descriptive Value
1. I can identify researchable problems relevant to my training context.	3.43	High
2. I can formulate clear and measurable research objectives.	3.31	Moderate
3. I can align research topics with TESDA's research agenda.	3.31	Moderate
4. I can develop a sound conceptual or theoretical framework.	3.17	Moderate
5. I can write a coherent statement of the problem.	3.18	Moderate
<b>Dimension Mean</b>	<b>3.28</b>	<b>Moderate</b>

Table 2a shows that TESDA trainers' research conceptualization is at a moderate level (mean = 3.28), indicating basic but not advanced skills. They are strongest in identifying researchable problems (3.43), reflecting practical awareness in their training context under the Technical Education and Skills Development Authority. However, lower ratings in formulating objectives, aligning topics, and especially developing conceptual frameworks (3.17) suggest difficulty in structuring research. This gap limits theoretical depth and coherence. Consistent with Adom (2021), frameworks are vital for guiding research, while Dessler (2017) emphasizes continuous training. Targeted capacity-building is therefore recommended.

#### Research Design and Methodology

**Table 2b.** Weighted means and level of research literacy of TESDA trainers along research design and methodology

Statements	Weighted Mean	Descriptive Value
1. I can select an appropriate research design for my study.	3.46	High
2. I can identify suitable research participants and sampling techniques.	3.45	High
3. I can develop or select valid research instruments.	3.23	Moderate
4. I can apply ethical standards in conducting research.	3.40	High

5. I can implement data collection procedures correctly.	3.48	High
<b>Dimension Mean</b>	<b>3.40</b>	<b>High</b>

The data in table 2b indicate that the overall level of research literacy of TESDA trainers in terms of research design and methodology is high, with a dimension mean of 3.40. This suggests that trainers are generally part in the planning and executing the methodological aspects of research. The ability to implement data collection procedures correctly is the indicator that got the highest rate (3.46) followed closely by selecting an appropriate research design (3.46) and identifying suitable research participants and sampling techniques (3.45). These results imply that trainers are confident in applying practical research processes and ensuring that studies are conducted systematically.

Furthermore, trainers also demonstrated a high level of competence in applying ethical standards in conducting research (3.40), reflecting their awareness of the importance of integrity, consent, and confidentiality in research practices. However, the ability to develop or select valid research instruments (3.23) is rated as moderate, indicating that this area may require further strengthening. Designing or choosing appropriate instruments is a critical component of research as it directly affects the accuracy and reliability of data collected.

These findings support the view of John Creswell (2014), who emphasized that a strong foundation in research design and methodology is important in producing valid and reliable results. While TESDA trainers exhibit strong capabilities in most methodological areas, targeted training on instrument development and validation is recommended to enhance the quality of their research outputs.

#### Data Analysis and Interpretation

**Table 2c.** Weighted means and level of research literacy of TESDA trainers along data analysis and interpretation

Statements	Weighted Mean	Descriptive Value
1. I can organize quantitative research data accurately.	3.15	Moderate
2. I can interpret descriptive statistical results.	3.12	Moderate
3. I can analyze research findings meaningfully.	3.22	Moderate
4. I can relate results to existing literature.	3.20	Moderate
5. I can draw evidence-based conclusions from data.	3.35	Moderate
<b>Dimension Mean</b>	<b>3.21</b>	<b>Moderate</b>

Presented in table 2c is the overall level of research literacy of TESDA trainers in terms of data analysis and interpretation with a dimension mean of 3.21 and a descriptive value of moderate. This suggests that trainers possess foundational skills in handling and interpreting research data but may still require further development to achieve a higher level of proficiency. Among the indicators, the highest mean is observed in the ability to draw evidence-based

conclusions from data (3.35), which means that trainers can make reasonable judgments based on available information.

However, all other indicators are rated as moderated, including organizing quantitative research data accurately (3.15), interpreting descriptive statistical results (3.12), analyzing research findings meaningfully (3.22), and relating results to existing literature (3.20). These findings imply that while trainers can perform basic data-related tasks, they may experience challenges in deeper statistical analysis, critical interpretation, and synthesis of findings with previous studies. The relatively lower rating in interpreting statistical results highlights the need for strengthening analytical and quantitative skills.

The data findings receive support through W. Lawrence Neuman's (2000) research which established that data analysis needs to move beyond showing unprocessed information. The researcher mentioned that effective research needs researchers to improve and develop their data analysis skills and connect their research results to existing knowledge.

#### Academic Writing and Technical Reporting

**Table 2d.** Weighted means and level of research literacy of TESDA trainers along academic writing and technical reporting

Statements	Weighted Mean	Descriptive Value
1. I can write a clear review of related literature.	3.18	Moderate
2. I can present findings logically using tables and figures.	3.29	Moderate
3. I can write research conclusions and recommendations effectively.	3.22	Moderate
4. I can apply proper citation and referencing styles.	3.08	Moderate
5. I can prepare complete research manuscripts.	3.11	Moderate
<b>Dimension Mean</b>	<b>3.18</b>	<b>Moderate</b>

The data in Table 2d present that the overall level of literacy of TESDA trainers in terms of academic writing and technical reporting is moderate, with a dimension mean of 3.18. This means that trainers have a basic skill to communicate research outputs but may still need improvement in producing well-structured and scholarly written work. Among the indicators, the highest mean is in the ability to present findings logically using tables and figures (3.29), showing that trainers can organize and display data in a clear and understandable manner.

However, all other indicators are rated as moderate, including writing a clear review of related literature (3.18), writing research conclusions and recommendations effectively (3.22), applying proper citation and referencing styles (3.08), and preparing complete research manuscripts (3.11). These findings imply that trainers may face challenges in synthesizing literature, articulating insights, and adhering to academic writing standards. The relatively lower mean in citation and referencing further indicates a need to strengthen familiarity with formal writing conventions and ethical scholarly practices.

These findings are supported by John Swales and Christine B. Feak (2012), who emphasized that academic writing requires not only

clarity of ideas but also mastery of structure, coherence, and proper citation practices. They highlighted in their study that developing strong academic writing skills is essential for effectively communicating research, suggesting the need for targeted training and mentoring programs to enhance the technical writing competencies of TESDA trainers.

### Summary of Research Literacy

**Table 2e.** Overall mean and level of research literacy of TESDA trainers

Dimension	Mean	Descriptive Value
1. Research conceptualization	3.28	Moderate
2. Research design and methodology	3.40	High
3. Data analysis and interpretation	3.21	Moderate
4. Academic writing and technical reporting	3.18	Moderate
<b>Overall Mean</b>	<b>3.27</b>	<b>Moderate</b>

The data in Table 2e provide summary of the overall research literacy of TESDA trainers across the four dimensions assessed. The overall mean of 3.27, described as moderate, indicates that while trainers possess foundational research competencies, there is still room for improvement to achieve higher proficiency in conducting and reporting research. Among the four dimensions, research design and methodology received the highest mean (3.40, high), suggesting that trainers are most confident in planning, implementing, and managing the practical aspects of research.

Meanwhile, research conceptualization (3.28), data analysis and interpretation (3.21), and academic writing and technical reporting (3.18) are all rated as moderate. This pattern highlights that while TESDA trainers can identify research problems and handle basic data tasks, they may encounter challenges in developing theoretical frameworks, conducting detailed analyses, and producing fully-structured academic reports. In particular, the moderate rating in academic writing and technical reporting underscores the need for further capacity building in scholarly communication and adherence to research standards.

These results align with the findings of Galvan (2017), who explained that developing research literacy is a multidimensional process requiring both practical and analytical skills. The study suggests that targeted interventions – such as workshops on conceptualization, statistical analysis, and academic writing are strong pieces in strengthening the overall research capabilities of TESDA trainers and ensuring the production of high-quality, evidence-based research outputs.

### Level of Research Development Needs of the TESDA Trainers Involvement in Research Projects

**Table 3a.** Weighted means and level of research development needs of TESDA trainers along involvement in research projects

Statements	Weighted Mean	Descriptive Value
1. Participation in institution-led research projects	3.83	High
2. Conduct of action or applied research	3.72	High

3. Development of industry-based research studies	3.74	High
4. Engagement in collaborative research initiatives	3.74	High
<b>Dimension Mean</b>	<b>3.76</b>	<b>High</b>

The data in table 3a show that the research development needs of the TESDA trainers in terms of involvement in research projects are high (mean=3.76). Trainers reported the highest interest in participating in institution-led research projects (3.83), showing a strong desire to contribute to formal research initiatives. Other areas, such as action or applied research (3.72), industry-based studies (3.74), and collaborative research (3.74) are also rated high, reflecting the value trainers place on practical, applied, and cooperative research efforts.

These findings are supported by the study of Leavy (2017) who carefully explained that active participation in research projects enhances practical skills, analytical thinking, and professional development. For TESDA trainers, such as involvement strengthens competencies and supports evidence-based training programs.

### Participation in Research Trainings or Capacity Building Activities

**Table 3b.** Weighted means and level of research development needs of TESDA trainers along participation in research trainings or capacity building activities

Statements	Weighted Mean	Descriptive Value
1. Training on research design and methodology	4.00	High
2. Training on data analysis and interpretation	3.98	High
3. Training on academic writing and publication	3.80	High
4. Training on proposal development and funding	3.83	High
<b>Dimension Mean</b>	<b>3.90</b>	<b>High</b>

The data in table 3b present the research development needs of TESDA trainers in terms of participation in research trainings or capacity-building activities with a dimension mean of 3.90 and a descriptive value of high. Trainers responded that the highest need for training on research design and methodology (4.00) and data analysis and interpretation (3.98), reflecting a strong interest in strengthening core research skills. Other areas, including academic writing and publication (3.80) and proposal development and funding (3.83), are also rated high, showing that trainers recognize the importance of comprehensive training to improve research competence.

These findings are consistent with Creswell and Creswell (2018), who mentioned in his study that professional development and capacity-building initiatives are crucial for enhancing researchers' skill in methodology, data handling, and scholarly communication. Participation in such training equips trainers with knowledge and tools needed to conduct high-quality, evidence-based research.

### Collaboration with Other Researchers/Other Institutions

**Table 3c.** Weighted means and level of research development needs of TESDA trainers along collaboration with other researchers/other institutions

Statements	Weighted Mean	Descriptive Value
1. Mentorship from experienced researchers	4.00	High
2. Collaboration with other TESDA trainers	4.12	High
3. Collaboration with higher education institutions	3.91	High
4. Networking with industry or research agencies	3.91	High
<b>Dimension Mean</b>	<b>4.00</b>	<b>High</b>

The data presented in Table 3c show that the research development needs of TESDA trainers in terms of collaboration with other researchers or institutions are high, with a dimension mean of 4.00. Trainers rated collaboration with other TESDA trainers (4.12) and mentorship from experienced researchers (4.00) as the highest priorities, indicating a strong interest in learning from peers and experts. Collaboration with higher education institutions (3.91) and networking with industry or research agencies (3.91) are also rated high, reflecting the trainers' recognition of the value of external partnerships in enhancing research skills and opportunities.

These findings align with the study of Leavy (2017), which emphasizes that collaborative research, mentorship, and networking provide critical support for professional growth and skill development. For TESDA trainers, engaging with peers, experts, and institutions strengthens research competencies and fosters evidence-based practices.

### Involvement in Dissemination

**Table 3d.** Weighted means and level of research development needs of TESDA trainers along involvement in dissemination

Statements	Weighted Mean	Descriptive Value
1. Support for conference presentation	3.80	High
2. Support for journal publication	3.85	High
3. Incentives for completed research outputs	3.86	High
4. Institutional support for research utilization	4.02	High
<b>Dimension Mean</b>	<b>3.88</b>	<b>High</b>

The findings in table 3d indicate that TESDA trainers perceive a high level of research development needs regarding involvement in dissemination activities, with an overall dimension mean of 3.88. Among the specific indicators, institutional support for research utilization scored the highest (m=4.02), followed closely by incentives for completed research outputs (m=3.86) and support for journal publication (m=3.85). Support to conference presentations was slightly lower but still high (m=3.80). These results suggest that trainers recognize the importance of actively disseminating

research findings and require both institutional backing and tangible incentives to enhance their engagement in such activities.

This is supported by previous studies highlighting that institutional support, such as access to conferences, publication assistance, and recognition for research outputs, significantly influences faculty or trainer participation in dissemination (Brew, 2010; Dessler, 2017). According to Brew (2010), active dissemination of research findings not only improves the researcher's professional growth but also ensures that the outcomes of research are utilized effectively within the institution. Similarly, Dessler (2017) gives emphasis that recognition and support structures motivate trainers and educators to contribute to knowledge sharing through publications and presentations.

### Summary of Research Development Needs

**Table 3e.** Overall mean and level of research development needs of TESDA trainers

Dimensions	Mean	Descriptive Value
1. Involvement in research projects	3.76	High
2. Participation in research trainings or capacity building activities	3.90	High
3. Collaboration with other researchers/other institutions	4.00	High
4. Involvement in dissemination	3.88	High
<b>Overall Mean</b>	<b>3.89</b>	<b>High</b>

The results in table 3e shows that TESDA trainers exhibit a high level research development needs across all measured dimensions, with an overall mean of 3.89. Among the dimensions, collaboration with other researchers or institutions scored the highest (m=4.00), followed by involvement in dissemination (m=3.88) and participation in research trainings or capacity-building activities (m=3.90). Involvement in research projects received a slightly lower mean (m=3.76), but it still falls within the "high" range.

These finding reflect that TESDA trainers recognize the importance of active engagement in research-related activities, including collaboration, dissemination, and capacity-building, to improve their professional understanding that partnerships with peers and institutions can improve research quality, promote knowledge sharing, and foster professional growth (Brew, 2010; Dessler, 2017). Likewise, involvement in disseminations highlight the trainers' awareness of the need to make research outputs accessible and usable within and beyond their institutions, reinforcing the role of research in organizational development. To sum it up, the data presents a clear demand for structured support mechanisms, such as trainings, mentorship, and institutional incentives to strengthen TESDA trainers' research competencies.

### Extent of Research Barriers Identified by TESDA Trainers

#### Research Conception and Writing

**Table 4a.** Weighted means and extent of research barriers identified by TESDA trainers along research conception and writing

Statements	Weighted Mean	Descriptive Value
1. Difficulty in identifying research	3.37	Moderate

topics		
2. Limited confidence in research writing	3.34	Moderate
3. Limited experience in proposal development	3.42	High
<b>Dimension Mean</b>	<b>3.38</b>	<b>Moderate</b>

The findings in table 4a visibly shows that TESDA trainers experience a moderate level of research barriers in the area of conception and writing, with an overall dimension mean of 3.38. Among the specific items, limited experience in proposal development was identified as the most significant barrier (m=3.43, high), while difficulty in identifying research topics (m=3.37) and limited confidence in research writing (m=3.34) were rated as moderate.

These results mean that trainers may need further support in developing research proposals, selecting research topics, and improving writing confidence, which can hinder their ability to engage effectively in research activities. A recent systematic review of research capability and readiness in Philippine public schools identified limited research skills, foundational knowledge, and institutional preparedness as recurrent barriers that educators face when engaging in research endeavors (Polinar et al., 2025). This finding supports the present study's result, suggesting that capacity building in research-related tasks remain a significant challenge.

The presence of these barriers means there is a need for targeted interventions such as structured workshops on academic writing, mentoring on proposal development, and continuous guidance throughout the research process, to boost trainers' confidence and competence in research.

#### Research Methodology

**Table 4b.** Weighted means and extent of research barriers identified by TESDA trainers along research methodology

Statements	Weighted Mean	Descriptive Value
1. Difficulty selecting appropriate research methods	3.25	Moderate
2. Limited knowledge of research instruments	3.32	Moderate
3. Difficulty implementing research procedures	3.34	Moderate
<b>Dimension Mean</b>	<b>3.30</b>	<b>Moderate</b>

The results in table 4b reflects that TESDA trainers experience a moderate level of research barriers in research methodology, with an overall dimension mean of 3.30. Among specific items, trainers reported difficulty implementing research procedures (m=3.34), limited knowledge of research instruments (m=3.32), and difficulty selecting appropriate research methods (m=3.25). These findings suggest that trainers may require additional support in applying research methods effectively and using research instruments correctly to ensure reliability of their studies.

This is similar to the study of Vong & Yang (2021) that educators often encounter methodological challenges due to limited research

productivity and confidence. Addressing these barriers through targeted workshops, mentoring and hands-on training can enhance TESDA trainers' methodological competence and support the successful completion of research projects.

#### Data Analysis

**Table 4c.** Weighted means and extent of research barriers identified by TESDA trainers along data analysis

Statements	Weighted Mean	Descriptive Value
1. Limited skills in data analysis	3.55	High
2. Lack of access to statistical tools or software	3.60	High
3. Difficulty interpreting results	3.32	Moderate
<b>Dimension Mean</b>	<b>3.49</b>	<b>High</b>

Table 4c shows that TESDA trainers experience high level of research barriers in the area of data analysis, with an overall dimension mean of 3.49. Among the specific items, trainers reported lack of access to statistical tools or software (m=3.60) and limited skills in data analysis (m=3.55) as the most significant barriers, while difficulty interpreting results was rated as moderate (m=3.32).

These findings mean that trainers may require additional support in analyzing and interpreting research data, as both limited skills and restricted access to appropriate interpreting tools hinder the research process. This is consistent with recent studies indicating that educators and trainers often face challenges in data analysis due to insufficient technical expertise and limited access to statistical software, which can negatively affect the quality and confidence in research outputs (Vong & Yang, 2021).

#### Publishing and Presenting Research

**Table 4d.** Weighted means and extent of research barriers identified by TESDA trainers along publishing and presenting research

Statements	Weighted Mean	Descriptive Value
1. Difficulty writing manuscripts for publication	3.57	High
2. Fear of journal rejection	3.66	High
3. Limited opportunities for research presentation	3.54	High
<b>Dimension Mean</b>	<b>3.59</b>	<b>High</b>

**Table 4d.** shows that TESDA trainers face high level of research barriers in publishing and presenting research, with an overall mean of 3.59. fear of journal rejection (m=3.66) and difficulty writing manuscripts (m=3.57) were the most significant barriers, while limited opportunities for research presentation (m=3.54) was also high.

The results means that trainers require support in manuscript preparation and accessing dissemination platforms, as challenges in writing and peer review can reduce research output (Vong & Yang, 2021). Limited opportunities for presenting research also hinder knowledge sharing, especially in contexts with minimal

institutional support for conferences according to Lao & Ching (2023).

#### Access to Resources, Mentors, and Institutional Reports

**Table 4e.** Weighted means and extent of research barriers identified by TESDA trainers along access to resources, mentors, and institutional reports

Statements	Weighted Mean	Descriptive Value
1. Heavy teaching and administrative workload	4.05	High
2. Limited time allocated for research	4.03	High
3. Lack of mentoring support	3.66	High
4. Limited access to journals and databases	3.80	High
5. Insufficient funding or incentives for research	4.03	High
<b>Dimension Mean</b>	<b>3.91</b>	<b>High</b>

**Table 4e.** shows that TESDA trainers experience a high level of research barriers in terms of access to resources, mentors, and institutional reports, with a dimension mean of 3.91. The most significant barriers include heavy teaching and administrative workload ( $m=4.05$ ) and limited time allocated for research ( $m=4.03$ ), followed by insufficient funding or incentives ( $m=4.03$ ), limited access to journals and databases ( $m=3.80$ ), and lack of mentoring support ( $m=3.66$ ). These results tell that institutional constraints and professional demands significantly hinder trainers' ability to engage in research.

This finding corresponds with recent evidence showing that teachers often struggle to participate in research because of overwhelming workload, limited structural support, and inadequate resources, which collectively inhibit research engagement and capacity building (Polinar et al., 2025). Reduced workload, enhanced mentoring, greater access to academic resources, and financial support could therefore help strengthen trainers' research involvement and productivity.

#### Summary of Research Barriers

**Table 4f.** Overall mean and extent of research barriers identified by the TESDA trainers

Dimension	Mean	Descriptive Value
Research conception and writing	3.38	Moderate
Research methodology	3.30	Moderate
Data analysis	3.49	High
Publishing and presenting research	3.59	High
Access to resources, mentors, and institutional reports	3.91	High
<b>Overall Mean</b>	<b>3.53</b>	<b>High</b>

Table 4f shows that TESDA trainers experience a high level of overall research barriers ( $m=3.53$ ). The most significant challenges were access to resources, mentors, and institutional reports (3.91), followed by publishing and presenting research ( $m=3.59$ ) and data

analysis ( $m=3.49$ ). Barriers in research conception and writing ( $m=3.38$ ) and research methodology ( $m=3.30$ ) were moderate but still noteworthy.

The results found mean that trainers face practical and institutional obstacles that limit their research productivity, including workload demands, limited mentoring, insufficient resources, and challenges in dissemination (Polinar et al., 2025). Providing training, mentoring, and institutional support can help reduce these barriers and strengthen their overall research competence.

#### Differences in the Level of Research Literacy of TESDA Trainer by Profile

**Table 5a.** Comparison statistics of the level of research literacy of TESDA trainers when grouped by profile

Grouping Variables	F- or t-value	Probability	Inference
<i>Level of research literacy</i>			
Age	1.920	0.136	Not significant
Sex	0.015	0.903	Not significant
Civil status	0.832	0.440	Not significant
Educational attainment	0.220	0.926	Not significant
Number of NC	0.926	0.434	Not significant
Number of NTTC	0.148	0.863	Not significant
Length of service	0.336	0.799	Not significant
Status of employment	0.014	0.905	Not significant
Position	0.963	0.448	Not significant
Sector	1.640	0.202	Not significant

*\*tested at 0.05 level of significance: see appendix for post-hoc analysis*

Table 5a shows that there are no significant differences in the level of research literacy of TESDA trainers when grouped by profile including the respondents' age, sex, civil status, educational attainment, number of National Certificate (NC), number of National TVET Trainers Certificate (NTTC), length of service, employment status, and sector ( $p>0.05$ )

This suggests that research literacy is relatively consistent across personal and professional background of TESDA trainers. These results align with studies indicating that variations in background or experience do not always translate to differences in research literacy, highlighting the need for universal capacity-building programs that target all trainers regardless of profile (Brew, 2010).

#### Differences in the Level of Research Development Needs of TESDA Trainers by Profile

**Table 5b.** Comparison statistics of the level of research development needs of TESDA trainers when grouped by profile

Grouping Variables	F- or t-value	Probability	Inference
<i>Level of research development needs</i>			
Age	1.166	0.330	Not significant
Sex	0.300	0.586	Not significant
Civil status	0.201	0.818	Not significant
Educational attainment	1.073	0.378	Not significant
Number of NC	1.330	0.273	Not significant
Number of NTTC	2.692	0.046	Significant
Length of service	0.094	0.963	Not significant
Status of employment	0.002	0.962	Not significant
Position	0.872	0.506	Not significant
Sector	0.746	0.479	Not significant

*\*tested at 0.05 level of significance: see appendix for post-hoc analysis*

Table 5b shows that there are no significant differences in the level of research development needs of TESDA trainers across most profile variables, including age, sex, civil status, educational attainment, number of NC, length of service, employment status, position, and sector ( $p > 0.05$ ).

However, a significant difference was observed for the number of NTTC ( $f = 2.692$ ;  $p = 0.046$ ), indicating that trainers with more NTTC certificates tend to have higher research development needs. Post-hoc analysis revealed that trainers with four or more NTTC had significantly higher development needs compared to those with one or two to three NTTCs.

The findings suggest that while research development needs are generally consistent across most profiles, experience and certifications in NTTC may influence the perception of development requirements highlighting the importance of targeted capacity-building for trainers with higher certifications (Brew, 2010).

**Differences in the Extent of Research Barriers Identified by TESDA Trainers by Profile**

**Table 5c.** Comparison statistics of the extent of research barriers identified by the TESDA trainers when grouped by profile

Grouping Variables	F- or t-value	Probability	Inference
<i>Extent of research barriers</i>			
Age	0.163	0.921	Not

			significant
Sex	0.465	0.498	Not significant
Civil status	0.966	0.386	Not significant
Educational attainment	0.451	0.772	Not significant
Number of NC	0.273	0.844	Not significant
Number of NTTC	0.028	0.972	Not significant
Length of service	0.639	0.593	Not significant
Status of employment	0.068	0.796	Not significant
Position	1.701	0.048	Significant
Sector	1.043	0.359	Not significant

*\*tested at 0.05 level of significance: see appendix for post-hoc analysis*

**Table 5c.** shows that there are no significant differences in the extent of research barriers among TESDA trainers for most profile variables including age, sex, civil status, educational attainment, number of NC, number of NTTC, length of service, employment status, and sector ( $p > 0.05$ ).

However, a significant difference was observed for position ( $F = 1.701$ ;  $p = 0.048$ ), proving that the extent of research barriers varies depending on the trainer's role. Post-hoc analysis revealed that personnel in certain positions, such as TESD Specialists and personnel (nurses, registrars), experiences higher barriers compared to instructors, assistant professors, and trainers.

These findings suggest that professional roles influence the perception of research barriers, likely due to differences in responsibilities, workloads, access to research resources. Tailored support based on position, including mentoring, workload management, and access to resources, can help reduce barriers and improve research engagement among TESDA trainers (Brew, 2010).

**Relationship among the Level of Research Literacy of the TESDA Trainers and their Level of Research Development Needs and Extent of Research Barriers**

**Table 6.** Correlation statistics of the level of research literacy of the TESDA Trainers and their level of research development needs and extent of research barriers

Variables	r-value	Probability	Inference
Research literacy vs. Research development needs	0.265	0.033	Significant
Research literacy vs. Research barriers	0.143	0.255	Not significant
Research	0.671	0.000	Significant

development needs			
vs.			
Research barriers			

\*tested at 0.05 level of significance

Table 6 presents the correlation statistics among level of research literacy, research development needs, and extent of research barriers of TESDA trainers. A significant positive correlation was found between research literacy and research development needs ( $r=0.265$ ,  $p=0.033$ ), suggesting that trainers with higher research literacy tend to recognize higher development needs. A study by Comon & Corpuz (2024) supports this as it was found in their study that greater research literacy tends to be more engaged in research-related professional growth.

No significant correlation was observed between research literacy and research barriers ( $r=0.143$ ,  $p=0.255$ ), explaining that literacy does not necessarily affect perception of barriers. In contrast, a strong significant positive correlation exists between research development needs and research barriers ( $r=0.671$ ,  $p<0.001$ ), implying that trainers who perceive greater development needs also experience barriers.

These findings suggest that while literacy alone may not predict the challenges trainers face, their development needs are closely linked to the barriers they encounter, emphasizing the importance of targeted capacity-building programs to address both skills and challenges in research engagement (Brew, 2010).

## Conclusion

The study revealed that TESDA-Cagayan trainers possess a moderate level of research literacy, with strengths in research design and methodology but notable gaps in research conceptualization, data analysis, and academic writing. Despite these limitations, trainers demonstrate a high level of research development needs, particularly in training, collaboration, and research dissemination, indicating strong motivation to improve their research competencies. However, several significant barriers hinder their research engagement, including limited data analysis skills, lack of access to statistical tools, heavy workload, insufficient time, limited mentoring support, and challenges in publishing research. The findings imply that while trainers have foundational research capabilities and strong willingness to engage in research, systematic institutional support and targeted capacity-building interventions are essential to enhance their research productivity and fully integrate research into TESDA's training and development framework.

## Recommendations

Based on the findings, it is recommended that the Technical Education and Skills Development Authority Regional Office allocate resources and integrate the Capacity Building Plan into its workplan. TTIs should institutionalize the plan in their development programs, strengthen mentorship, and adjust workloads to support research engagement. Human Resource Officers should establish incentives, while trainers are encouraged to actively participate in all activities. Continuous evaluation by TESDA research units and future researchers is also essential to ensure effectiveness, sustainability, and responsiveness to trainers' needs.

## Declaration of no Conflict of Interest

The author hereby declares no conflict of interest and this article is her original work.

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