

## SCHOOLS' TECHNOLOGICAL RESEARCH SERVICES TOWARDS TEACHERS' CAREER PROFESSIONAL DEVELOPMENT

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### ABSTRACT

This study assesses the level of technological research services provided by schools and their impact on teachers' careers and professional development. It aims to identify significant differences in these aspects based on school types and teachers' demographic profiles. The study utilized a concurrent mixed-research design and involved 212 junior and senior high school teachers from the Technical-Vocational and Livelihood (TVL) track in selected secondary schools across the Zamboanga Peninsula. The findings indicated that schools in the Zamboanga Peninsula generally provided technological research services that moderately satisfied teachers. These services contributed to enhancing teachers' knowledge, upgrading their skills, and emphasizing attitudes and ethical standards. The study concluded that schools' technological research services significantly influenced teachers' career and professional development, with no significant differences based on school types or teachers' demographic profiles. Based on these findings, an intervention plan was proposed, including a school-based management plan, a training development plan, and a contingency plan. These interventions are intended to improve services and support teachers' career and professional growth. The study also recommended integrating technology into educational research services to foster a culture of research, aligning with DO No. 16, S.2017.

*Keywords: Schools' technological research services, admission process, training, consultation, evaluation, utilization, teachers' career and professional development, knowledge, skills, attitude, ethical standards*

### INTRODUCTION

One benefit of technology in research is that it helps to improve the quality and effectiveness of research development and other important areas. This serves as a fundamental step for the entire school and the department to identify the current trends, issues, and concerns about technological advancement and phenomena, which reflect on the standing of the school and lead to proper decision-making through an intervention, program, or policy that needs to be implemented (Sumit, 2021).

Additionally, Newman (2022) emphasized that a successful implementation of research services through the use of technology results in an efficient admission process, accessibility in the conduct of training, efficient consultation, effectiveness in evaluation, and quality research utilization. It may also play a significant role in motivating teachers to engage in their research journeys, find solutions to their concerns, and be able to complete a high level of research utilization.

Through this, Llego (2017) draws attention to the goals of the Department of Education



(DepEd), which enhance and support the research culture concerning the technical operations of schools. Accordingly, the Department of Education's Order 16, Series of 2017, which is supported by Republic Act No. 9155, also known as "The Governance of Basic Education Act of 2001," under Chapter 1, section 7 paragraph 5, titled "Educational Research and Studies," emphasizes the importance of research engagement as a basis for decision-making. In light of this, the department decided to instill a research culture in its affiliated institutions as well as its divisional administration.

According to this legal statement, Austin (2022) stated that teachers, including those in technical fields, are encouraged and given the chance to continue their research endeavors as a way to advance their professional and career development. This includes acquiring the knowledge, skills, attitudes, and ethical standards necessary to enhance their capacity and competence, in addition to their duties as educators.

However, some restrictions on interventions, weaker management, and plans to improve the service's capacity to affect teachers' skills in addition to their knowledge, attitude, and ethical standards as part of their career and professional development were noted in schools' technological research services. Additionally, there were few interventions developed to address identified challenges such as the lack of teachers' skills, insufficient use of technological media and research development manifested in their professional growth, and limitation of material, financial, and learning resources as a pre-requisite for teachers to venture into a research industry, limited time and opportunity, and other schools' support

In light of the aforementioned difficulties, this study sought to determine the extent of schools' technological research services and their significant influence on teachers' career and professional development.

The findings of this study were utilized as a foundation to develop an intervention that aims to assist schools in fostering a research culture and development through the introduction and

advancement of technology that fosters teachers' career growth.

## OBJECTIVES OF THE STUDY

This study aimed to venture into the schools' technological research services and its significant influence towards career professional development among Technical-Vocational and Livelihood (TVL) teachers for the school year 2023-2024.

## METHODOLOGY

This study employed the concurrent mixed method, as described by Bell et al. (2022), as a research design comprised of quantitative and qualitative designs employed at the same time to test the assumptions of the investigated research problems. In line with this study, it employs a concurrent mixed-methods research design to test the assumption of the significant influence of schools' technological research services on teachers' career and professional development through correlational analysis. Furthermore, it utilizes qualitative analysis to explore the challenges observed by the teachers in their schools in terms of the technological research services rendered.

This study was conducted in thirteen (13) selected secondary schools in the Zamboanga Peninsula that offered both junior high school (JHS) and senior high school (SHS) with a Technical, Vocational, and Livelihood (TVL) program implemented under the supervision of the Department of Education (DepED), and higher education institutions (HEI's) consisted of teachers who had any engagement in a field of research. In addition, there were six (6) public schools and seven (7) private schools coded as Schools A, B, C, D, E, F, G, H, I, J, K, L, and M.

Table 1 shows the population of the study, in which there were 274 total teachers, comprising 141 employed in selected public secondary schools and 133 employed in selected private secondary schools under the supervision of the Department of Education (DepED) and higher



education institutions (HEI's) across Zamboanga Peninsula for the academic year 2022-2023.

**Table 1**  
Population and Samples of the Study

| Schools            | Type of Schools | N          | n          |
|--------------------|-----------------|------------|------------|
| School A           | Public          | 27         | 21         |
| School B           | Public          | 23         | 18         |
| School C           | Public          | 28         | 22         |
| School D           | Public          | 26         | 19         |
| School E           | Public          | 22         | 17         |
| School F           | Public          | 15         | 12         |
| <b>Total</b>       |                 | <b>141</b> | <b>109</b> |
| School G           | Private         | 18         | 14         |
| School H           | Private         | 18         | 14         |
| School I           | Private         | 16         | 12         |
| School J           | Private         | 15         | 12         |
| School K           | Private         | 19         | 15         |
| School L           | Private         | 25         | 19         |
| School M           | Private         | 22         | 17         |
| <b>Total</b>       |                 | <b>133</b> | <b>103</b> |
| <b>Grand Total</b> |                 | <b>274</b> | <b>212</b> |

This figure was extracted through the utilization of G-Power as an application software to generate the sample size out of the entire population based on the r-value of .244 on the technological knowledge content as revealed by Baturay, Gökçearslan, et al. (2016).

Given the figure provided, 212 sample sizes were extracted out of the entire population, consisting of 109 public school teachers and 103 private school teachers, and that sample size represented the total number of teachers represented as the respondents to share their observations regarding their schools' technological research services and their career and professional development. The target respondents for this study were the Junior High School (JHS) teachers handling Technology and Livelihood Education (TLE) program, and Senior High School (SHS) teachers who taught any strands under Technical-Vocational and Livelihood (TVL) track with any engagement in research such as been a researcher, research consultant, evaluator, panel member, participants, statistician, instructors, facilitator, and organizer from the selected public and private schools under the supervision of Department of Education (DepED), and Higher Education Institutions

(HEI's) across Zamboanga Peninsula (ZamPen), and have been in-service for the academic year 2022-2023 to share their observation pertaining on the schools' technological research services, and their career and professional development.

The researcher formulated and developed a "self-made survey questionnaire" as an instrument to gather respondents' data regarding their responses about the schools' technological research services and their career and professional development. The instrument assured the vertical alignment of its statements towards the stated descriptive problems. Upon the instrument's construction, it was subjected to a validity test in which the crafted instrument was reviewed by a panel of four experts within the department, particularly the research experts from the graduate school. Those experts came from the selected higher education institution to evaluate the instrument based on its relevance to its theme, vertical alignment with the agreed descriptive problems, and ethical consideration embedded in each statement for improvement. During the critique evaluation served by the experts, some key observations were noticed, which they recommended to the researcher to improve the construction of the instrument statement before finalization. After the intervention, the experts' recommendations were followed to improve the construction of an instrument and attain approval remarks manifested on the satisfactory validity test result.

Furthermore, a reliability test was done through a pilot test of the instrument that was conducted with 25 non-respondents with the same characteristics from non-selected schools. Afterward, the instrument was collected for statistical treatment of the data through the use of Cronbach Alpha as generated through the Statistical Package for Social Science (SPSS) to measure the level of consistency that manifests in the reliability of the instrument. During the statistical test, the set of data garnered a score of 0.965, classified under the internal consistency of 0.91–1.00, interpreted as "excellent" which implies that the instrument was confirmed for its reliability test. Since both validity and reliability tests affirmed its satisfiable remarks along with its



critique evaluation and statistical analysis, it was further justifiable that the instrument was recommendable to be employed for actual data gathering.

After the approval, the researcher requested an endorsement letter from the Department of Education (DepEd) division offices in Zamboanga City, Zamboanga Sibugay, and Pagadian City for the conduct of the study on a secondary school under its division. Then, the researcher directed the study to the school head for permission in public and private schools. The researcher requested an endorsement letter from the Department of Education (DepED) division offices in Zamboanga City, Zamboanga Sibugay, and Pagadian City for the conduct of the study on a secondary school under its division. Then, the researcher directed the study to the school head for permission in public and private schools. Upon the approval of the school head, there was an agreement to share the Google Form link with the school head, who would be responsible for dissemination to the respondents on behalf of the researcher. Furthermore, the school head was informed pertaining to the criteria of teachers that qualify them to be respondents. As the teachers were able to receive and complete the Google Form link, their responses were automatically sent back to the researcher for consolidation. Also, some schools, like School A and J, preferred a “printed survey questionnaire” due to limited internet access in their geographical area, and it was accepted by the school head to distribute it to their teachers and instruct them to complete the survey questionnaire. After responding to the survey questionnaire, it was collected by the school head and retrieved by the researcher. In addition, some teachers of the selected schools volunteered to provide an open-ended response pertaining to the challenges that they observed in their schools’ technological research services. During the discussion, their responses were noted, and we informed them of the confidentiality of their responses. As the researcher was able to retrieve the survey questionnaire both via software link and printed copy, those survey questionnaires were consolidated and treated statistically to generate the result.

To facilitate the analysis of data, Arithmetic Mean was used as a descriptive statistic to describe the schools’ technological research management and to identify the career and professional development of teachers. In addition, Linear Regression Analysis served as an inferential statistic to describe the significant influence of schools’ technological research services on teachers’ careers and professional development. Furthermore

**RESULT AND DISCUSSION**

**1. Significant Influence of Schools’ Technological Research Services on the Teachers’ Career and Professional Development**

Table 2 shows the multiple regression analysis of the schools’ technological research services, such as the admission process, training, consultation, evaluation, and utilization, with four sub-variables under the category of teachers’ career and professional development, such as knowledge, skills, attitude, and ethical standards, as a predictor.

**Table 2**  
*Linear Regression of Significant Influence of Schools’ Technological Research Services on the Teachers’ Career and Professional Development*

| Predictors   | R    | R <sup>2</sup> | Unst.Coff (B) | P-Value | Decision        |
|--------------|------|----------------|---------------|---------|-----------------|
| Constant (K) |      |                | 1.140         | 0.000   | Significant     |
| K_AD         |      |                | .155          | 0.068   | Not Significant |
| K_TR         | .673 | .452           | -.023         | 0.748   | Significant     |
| K_CO         |      |                | .052          | 0.566   | Not Significant |
| K_EV         |      |                | .264          | 0.005   | Significant     |
| K_UT         |      |                | .231          | 0.006   | Significant     |
| Constant (S) |      |                | .591          | 0.009   | Significant     |
| S_AD         |      |                | .448          | 0.000   | Significant     |
| S_TR         |      |                | .245          | 0.007   | Significant     |
| S_CO         | .675 | .456           | -.048         | 0.675   | Not Significant |
| S_EV         |      |                | .204          | 0.081   | Significant     |
| S_UT         |      |                | -.044         | 0.677   | Not Significant |
| Constant (A) |      |                | 1.511         | 0.000   | Significant     |
| A_AD         |      |                | .043          | 0.647   | Not Significant |
| A_TR         | .575 | .331           | -.122         | 0.126   | Significant     |
| A_CO         |      |                | .302          | 0.003   | Significant     |
| A_EV         |      |                | .059          | 0.562   | Not Significant |
| A_UT         |      |                | .292          | 0.002   | Significant     |
| Constant (E) |      |                | 1.496         | 0.000   | Significant     |
| E_AD         |      |                | .056          | 0.548   | Not Significant |
| E_TR         | .583 | .340           | -.107         | 0.175   | Significant     |
| E_CO         |      |                | .324          | 0.001   | Significant     |
| E_EV         |      |                | .060          | 0.557   | Not Significant |
| E_UT         |      |                | .254          | 0.006   | Significant     |

**Legend:** K\_AD = Knowledge Admission Process A\_AD = Attitude Admission Process  
 K\_TR = Knowledge Training A\_TR = Attitude Training  
 K\_CO = Knowledge Consultation A\_CO = Attitude Consultation  
 K\_EV = Knowledge Evaluation A\_EV = Attitude Evaluation  
 K\_UT = Knowledge Utilization A\_UT = Attitude Utilization  
 S\_AD = Skills Admission Process E\_AD = Ethical Standards Admission Process  
 S\_TR = Skills Training E\_TR = Ethical Standards Training  
 S\_CO = Skills Consultation E\_CO = Ethical Standards Consultation  
 S\_EV = Skills Evaluation E\_EV = Ethical Standards Evaluation  
 S\_UT = Skills Utilization E\_UT = Ethical Standards Utilization

### 1.1. In terms of Knowledge

The teachers' career and professional development in terms of knowledge based on the technological research services in terms of evaluation (K\_EV) as a predictor got the highest unstandardized coefficient (B) score of 0.264 with a probability value of 0.005, which is less than the alpha level of 0.05, leading to the decision that the hypothesis of "There is no significant influence of the schools' technological research services in terms of evaluation on the teachers' career and professional development in terms of their knowledge" is rejected. Further, this reveals that there is a possibility for the teachers' knowledge to be improved through the schools' evaluation service, supported by an R-value of 0.673, indicating that there is a strong association between the schools' evaluation and the teachers' knowledge.

Also, there was a 45.2% chance for the teachers to upgrade their knowledge in research brought by the evaluation rendered by the schools through their technological research service, considering the  $R^2$  of .452.

It implies that there is a probability or chance for the schools' evaluation through their effectiveness in providing feedback, systematized instructions, conciseness of suggestions, accuracy, and relevance of their remarks to increase the knowledge of teachers in research, which made them realize the importance of research, trends, issues, parts of research, and their implication on their schools' decision-making. It becomes possible due to the conciseness of feedback and accuracy of information, along with the evaluation process that helps teachers determine the areas for improvement and key strategies to address their weak points and maintain their strengths, which leads teachers to increase their knowledge. This supports the idea of Knowly (2020), who believed that the schools' evaluation may benefit someone as an asset for their involvement and accomplishment. Hence, the schools' technological research services in terms of evaluation significantly influence the teachers' career and professional development in terms of knowledge.

Moreover, the teachers' knowledge based on the technological research services in terms of utilization (K\_UT) as a predictor garnered an unstandardized coefficient (B) score of 0.231 considering the probability value of 0.006, which is less than the alpha level of 0.05, leading to the decision that the hypothesis of "There is no significant influence of the schools' technological research services in terms of utilization on the teachers' career and professional development in terms of their knowledge" is rejected. In addition, it shows that there is a chance for the teachers' knowledge to be enhanced through the schools' utilization, considering the R-value of 0.673, indicating that there is a strong association between the schools' utilization and the teachers' knowledge. Also, there was a 45.2% chance for the teachers to enhance their knowledge in research because of the utilization as an asset for the teachers to surpass the different phases that allow them to gain more knowledge brought by their actual involvement and experiences along with the utilization process considering the  $R^2$  of .452.

This means that the more teachers given an opportunity, along with the research utilization and integration of technology in the research development for the benefit of the school, addressing the schools' issues, implying the schools' decision-making, interventions, and providing needs, the more teachers increase their knowledge in research to realize its importance, relevance to the trends and issues in education, ethical standards for the conduct of research, significant parts of research, and its implication on the schools' decision-making. Thus, it becomes possible due to the utilization of social media as a platform to inform the teachers on how to utilize their research on a different area of need, which influences them to acquire knowledge from it and be able to translate their awareness into understanding the importance of research along with their involvement manifesting in their career and professional development. This supports the idea of Reddy (2016) that the impact of completing research and development benefits school officials and other administrators, along with the formulation of interventions and other decision-making. This leads to the teachers' awareness that

manifests in gaining knowledge along with their research involvement, as Ali (2023) believed that knowledge serves as a foundation for their involvement. Based on these findings and their implication, it is further justifiable that the schools' technological research services, through the utilization that they render, can significantly influence the teachers' knowledge.

$$\text{TCPDK} = 1.140 + 0.264 (\text{EV}) + 0.231 (\text{UT})$$

Since the linear model for teachers' knowledge based on their career and professional development is the sum of the products of schools' technological research services, particularly their evaluation and utilization. It proves that these two services have a direct proportional relationship with the teachers' knowledge. It agrees that the more evaluation and utilization are implemented, the more knowledge increases. In line with this, the teachers' knowledge was significantly influenced by the evaluation and utilization provided by the schools through their technological research services.

## 1.2. In terms of Skills

The teachers' skills as part of their career and professional development based on the admission process served by the schools through their technological research services (S\_AD) obtained the highest unstandardized coefficient (B) score of 0.448 with a probability value of 0.000, which is less than the alpha level of 0.05, leading to the decision that the hypothesis of "There is no significant influence of the schools' technological research services in terms of admission process on the teachers' career and professional development in terms of their skills" is rejected. Further, this reveals that there is a probability for the teachers' skills to be enhanced due to the admission process assisted by the schools. It is also supported by an R-value of 0.675, indicating that there is a strong association between the schools' admission process and the teachers' skills. Moreover, there was a 45.6% chance for the teachers to upgrade their skills in research brought by the admission process rendered by the schools

through their technological research service, considering the  $R^2$  of .452.

This confirms that the more assistance rendered by the schools along with the admission process to the teachers by observing the systematic workflow, effectiveness of providing feedback, clear instructions, and accessibility, the more skills increase among the teachers. Through schools' assistance in the admissions process, it is able to inform and orient teachers to the necessary competencies or skills that they need to prepare as a pre-requisite for their research involvement. Through the orientation associated with the admission process, it allows the teachers to enhance their skills such as conceptualizing topics, research writing, statistically treating the data, utilizing plagiarism, and grammar checking that teachers need to prepare upon the approval of their admission process. It becomes possible because the teachers were oriented along the admission process on the necessary skills that they needed to acquire in the first place prior to their confirmation of their admission based on their research involvement. Furthermore, the technology serves as a medium to update the teachers on the prescribed skills that they need to possess before their admission. In relation to this, Smith (2018) claimed that technology serves as a medium to upgrade the capacity of the schools in their admission process, which allows teachers to identify the necessary skills that they need to prepare in the first place before the approval of their admission. As a result, teachers were able to initiate looking for opportunities online to identify the skills that they needed to prepare as a pre-requisite for their research involvement. (Sumit, 2021). Based on this implication, it is further justified that the schools' admission process significantly influenced the teachers' skills.

Furthermore, the training conducted by the schools to nurture the teachers' skills in research (S\_TR) attained an unstandardized coefficient (B) score of 0.245 with a probability value of 0.007, which is less than the alpha level of 0.05, leading to the decision that the hypothesis "There is no significant influence of the schools' technological research services in terms of training on the teachers' career and professional development in terms of their skills" is rejected. Moreover, it proves

that there is a chance for the teachers' skills to increase with the training that is implemented and conducted by the schools. It is based on the R-value of 0.675, indicating that there is a strong association between the schools' training and the teachers' skills. In addition, there was a 45.6% chance for the teachers to improve their skills in research when they participated in training offered by the schools, considering the  $R^2$  of .452.

Based on these statistical findings, it implies that the more teachers involved in the training conducted by the schools through offering online courses, treating data using statistics software, using a collaborative online platform, and monitoring the learning progress, the more skills improved and increased, such as conceptualizing topics, research writing, statistical treatment of data, utilization of plagiarism, and grammar checking software. Despite the challenges observed by the teachers, such as the limitation of their prior skills in technology and research and the limitation of schools' technological, material, and financial resources, there will be a greater chance for the teachers to uplift their skills when there is an intervention to be formulated by the school administrators to overcome the challenges identified as a way to sustain their technological research services in terms of training. This becomes possible since the schools' training that was offered provides an opportunity for teachers to translate their prior skills into actual hands-on performance. In this way, this could be the venue for teachers to upgrade their skills beyond their prior level. This supports the idea of Woodward (2022) that interventions are a strategy for the schools in conducting training, given the emphasis on technological integration to upgrade the teachers' skills along with their research involvement. This leads to the point that schools' training serves as a factor that can significantly influence the teachers' skills.

$$TCPDS = 591 + 0.448 (AD) + 0.245 (TR)$$

Since the linear model for teachers' skills based on career and professional development is the sum of the products of schools' technological research services, specifically the admission

process and training, It confirms that these two services have a direct proportional relationship with the teachers' skills. This means that the more the admissions process and training take place, the more skills will be upgraded among the teachers, along with their research involvement. Through this result, the teachers' skills were significantly influenced by the admission process and training offered by the schools through their technological research services.

### 1.3. In terms of Attitude

The teachers' attitude, which is embedded with the career and professional development brought by the consultation offered by the schools through their technological research services (A\_CO), got the highest unstandardized coefficient (B) score of 0.302 with a probability value of 0.003, which is less than the alpha level of 0.05, leading to the decision that the hypothesis "There is no significant influence of the schools' technological research services in terms of consultation on the teachers' career and professional development in terms of their attitude" is rejected. Also, it shows that there is a chance for the attitude of the teachers to be enhanced through their commitment, which is catered by the schools' consultation. Based on the R-value of 0.575, it indicates that there is a strong association between the schools' consultation and the teachers' attitude. Furthermore, there was a 33.1% possibility for the teachers to adapt the appropriate attitude in research brought by the consultation rendered by the schools through their technological research service, considering the  $R^2$  of .331.

This affirms that the more consultation be practiced by the schools to guide the teachers to determine the needs of improvement, update the remarks, develop research, inform the ethical standards, and advise the systematic workflow on the conduct of research, the more teachers instill and practice the prescribed attitude along with their research involvement that cultivates their patience, perseverance, goal-centeredness, hard work, and being practical. This is caused by integrating the appropriateness of the attitude as part of consulting the teachers along with their



research development. Further, the consultant gives advice and emphasizes the importance of those aforementioned traits or attitudes to establish, maintain, and sustain a sense of patience, perseverance, goal-centeredness, hard work, and practicality as a way that leads teachers to succeed in their research venture. Since the teachers practiced all of those aforementioned attitudes through the consultation served by the school, it becomes possible for them to translate those practices into their research involvement. Based on these findings, the significance of consultation on the attitude of teachers since it has already been developed meets the expectations of the Department of Education (2022), as they expect that teachers should have an appropriate attitude along with their overall educational service. In line with the findings revealed. It was confirmed that the schools' technological research services in terms of consultation can significantly influence the teachers' career and professional development in terms of attitude.

In addition, the schools' assistance along with the utilization process to promote the appropriateness of the teachers' attitude along with their research involvement (A\_UT) obtained an unstandardized coefficient (B) score of 0.292 with a probability value of 0.002, which is less than the alpha level of 0.05, leading to the decision that the hypothesis "There is no significant influence of the schools' technological research services in terms of utilization on the teachers' career and professional development in terms of their attitude" is rejected. Moreover, it confirms that there is a chance for the attitude of teachers to be practiced because of the utilization phase, which was implemented by the school and allows the teachers to be involved in it. It is supported by the R-value of 0.575, which indicates that there is a strong association between the schools' utilization and the teachers' attitudes. Furthermore, there was a 33.1% possibility for the teachers to practice and enhance the appropriateness of attitude when they were involved in the schools' utilization, considering the  $R^2$  of 331.

Based on this result, it affirms that the more assistance in utilization phases for the benefit of the schools, addressing the issues, decision-making, formulating interventions, and providing

needs, the more practices in the appropriateness of teachers' attitudes increase, which places emphasis on their patience, perseverance, goal-centeredness, hard work, and practicality along with their research venture. Overall, it shows that the opportunity given to the teachers to be involved in the utilization process conducted by the schools instills in them the attitude to practice.

$$TCPDA = 1.511 + 0.302 (CO) + 0.292 (UT)$$

Since the linear model for teachers' attitudes based on career and professional development is the sum of the products of schools' technological research services, particularly consultation and utilization. It conveys that these two services have a direct proportional relationship with the teachers' attitude. Furthermore, it affirms that the more consultation and utilization are implemented by the schools along with their technological research services, the more teachers are able to practice the appropriateness of attitude along with the conduct of research. It serves as a factor to instill, practice, and improve the traits or attitudes of the teachers along with their research involvement. Through this result, the teachers' attitude was significantly influenced by the consultation and utilization offered by the schools through their technological research services.

#### 1.4. In terms of Ethical Standards

The teachers' ethical standards as a component part of career and professional development based on the consultation served by the schools through their technological research services (E\_CO) got the highest unstandardized coefficient (B) score of 0.324 with a probability value of 0.001, which is less than the alpha level of 0.05, leading to the decision that the hypothesis of "There is no significant influence of the schools' technological research services in terms of consultation on the teachers' career and professional development in terms of their ethical standards" is rejected. Meanwhile, it confirms that there is a chance to increase the practices of teachers in terms of ethical standards, along with





their research involvement, through the consultation served by the schools. Based on the R-value of 0.583, there is a strong association between the schools' consultation and the teachers' ethical standards. Furthermore, there was a 34% possibility for the teachers to establish the ethical standards in research caused by the consultation served by the schools along with their research involvement, based on the  $R^2$  of .331.

This means that the more consultation served by the schools through the integration of technology along with their research services, which consider the determinants of the needs of improvement, updating the remarks of the research development, guidance on the conduct of research, informing the ethical standards, and advising the systematic process on the conduct of research, the more teachers are able to practice the different ethical standards along with their research involvement, which includes a sense of obedience, relevance, equity, confidentiality, and risk prevention that leads them to finish and succeed on their research venture. This becomes possible since the consultation considers the ethical standards that the consultant implements and orients the teachers along with the conduct of their research venture. Through orientation and the integration of technology, it becomes possible for the teachers to establish their ethical standards, which were caused by the consultation that the schools provided them in the first place. This is supported by the idea of Ramey (2022) that the technology may integrate with the consultation service offered by the schools and the teachers' activities to be oriented, informed, and guided in their practice.

Also, the teachers' ethical standards that were established by the utilization that was given to the teachers by the schools along with the technological research services (E\_UT) attained an unstandardized coefficient (B) score of 0.254 with a probability value of 0.006, which is less than the alpha level of 0.05, leading to the decision that the hypothesis "There is no significant influence of the schools' technological research services in terms of utilization on the teachers' career and professional development in terms of their ethical standards" is rejected. Further, it assures that there is a chance for the utilization that was given

by the schools to establish the teachers' ethical standards based on the R-value of 0.583, indicating that there is a strong association between the schools' utilization and the teachers' ethical standards. Furthermore, there was a 34% chance for the schools through the utilization given to the teachers to establish their ethical standards along with their research involvement based on the  $R^2$  of .331.

Based on this result, it implies that the more assistance rendered by the schools during the utilization phase to benefit the schools, addressing the issues, decision-making, formulating interventions, and provision of needs, the more teachers can practice the different ethical standards, which include the sense of obedience, relevance, perseverance, equity, confidentiality, and risk prevention brought by the assistance of the schools through the utilization given to them that conforms to the benefits of the schools, addressing the issues, decision-making, formulating interventions, and provision of needs. Thus, the schools' utilization that was given to the teachers has an impact on their ability to establish their ethical standards.

$$TCPDE = 1.496 + 0.324 (CO) + 0.254 (UT)$$

Since the linear model for teachers' ethical standards as a component of career and professional development is the sum of the products of schools' technological research services, particularly consultation and utilization. It confirms that these two services have a direct proportional relationship with the teachers' ethical standards. This means that the more consultation and utilization able to be served by the schools, the more ethical standards will be established by the teachers along with their research involvement. Thus, the teachers' ethical standards were significantly influenced by the schools' consultation and utilization offered to them.

## CONCLUSIONS

This study concludes that the secondary schools in Zamboanga Peninsula were able to render their services, especially utilization, evaluation, and consultation, along with their



technological research services, beyond expectations. However, the admissions process and training were rendered with moderate satisfaction.

Furthermore, the TLE and TVL teachers were able to cultivate and nurture their knowledge, attitude, and ethical standards for their career and professional development. In contrast, their skills were able to moderately develop.

In relation to this, there was a significant influence of the schools' technological research services towards the teachers' career and professional development.

## RECOMMENDATIONS

This study recommends to the division administrators to mandate, monitor, and control all schools for the compliance of educational research with all their teachers on an annual basis. Establish a collaborative environment with the integration of technology to update and inform their school heads pertaining to trends and issues in educational research.

Furthermore, the school heads may encourage and collaborate with their Schools' Research Committee (SRC) through face-to-face or virtual modes pertaining to schools' planning, development, implementation, monitoring, and control. Upgrade the quality of the admission process, training, consultation, evaluation, and utilization with the collaboration of their Schools' Research Committee (SRC). Adapt and disseminate to their schools' research committee (SRC) guidance on the implementation of the schools' technological research services.

In addition, the Schools' Research Committee (SRC) may integrate the technological methodology to strategize the cultivation of educational research in their schools. They may adapt the formulated intervention plan to serve the teachers' research involvement that manifests in their career and professional development and to address identified problems. They may strategize the enhancement of teachers' knowledge through the enhancement of schools' evaluation and utilization processes. They may develop skills for teachers along with the conduct of research through enhancement of the conduct of training

and establishing the prescribed skills as a pre-requisite for the admission process. They may establish a policy that promotes the appropriate attitude and ethical standards that the teachers need to comply with, along with the schools' consultation and utilization phases.

Also, the teachers are encouraged for their participation, involvement, and collaboration in the educational research that the schools may implement and conduct. They may browse for the available online training programs offered to instill their knowledge, skills, attitude, and ethical standards as a pre-requisite for their research involvement.

Lastly, the future researchers may conduct further study in relation with the technological integration of research involvement among teachers as a basis for management information system development.

## REFERENCES

- Ali, Y. (2023). Why knowledge is important in research – 16 reasons. Curious Desire Official Website. [https://curiousdesire.com/why-knowledge-is-important-in-research/?fbclid=IwAR1iD3rYBtDq4FubaMGCfgUiGiqcJY-vJIHnWqc-wlLbsxEeTPv\\_X-qzt0U](https://curiousdesire.com/why-knowledge-is-important-in-research/?fbclid=IwAR1iD3rYBtDq4FubaMGCfgUiGiqcJY-vJIHnWqc-wlLbsxEeTPv_X-qzt0U)
- Austin, R. (2022). What are the benefits of educational research for teachers?" SAGE Publications. <https://uk.sagepub.com/en-gb/eur/what-are-the-benefits-of-educational-research-for-teachers>
- Baturay et. al (2016). Associations among teachers attitudes towards computer-assisted education and TPACK Competencies". Informatics in Education, 2017, Vol. 16, No. 1, 1–23. Vilnius University. <https://files.eric.ed.gov/fulltext/EJ1140678.pdf>
- Bell, R. et al. (2022). Methods research designs and their methodological implications: investigating tacit knowledge, its use, and application in automotive development. Sage Research Methods. <https://methods.sagepub.com/case/concurrent-sequential-mixed-methods-research-methodological->



Woodward, G. (2022). The top 5 training needs of early career researchers. Wiley Official Website. <https://www.wiley.com/en-us/net-work/publishing/research-publishing/writing-and-conducting-research/the-top-5-training-needs-of-early-career-researchers#:~:text=Peer%20review%20is%20a%20vital,the%20fundamentals%20of%20peer%20review.>

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