

IMPROVING THE RESEARCH SKILLS OF TEACHERS THROUGH REVITALIZED RESEARCH AND DEVELOPMENT PROGRAM

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Abstract

The Department of Education has issued the Basic Education Research Agenda to harmonize the activities in research and development (R&D) for nation-wide adoption. In response to this, the Division of Dagupan City had seen the need to revitalize its existing research process and the utilization of Division and School-wide conducted action researches. Hence, the Revitalized Research and Development Program under the mother umbrella of a bigger project, the Division-wide Project FINA (Fine Tuning Initiatives for Nurturing Achievers) was instituted. This action research focused on the determining the effect on improving the of research skills of teachers through a localized division initiative. The paper explored the level of research skills of respondents before and after the conduct of research intervention activities and determines its effect. Thirty two (32) purposively selected teachers were chosen as respondents using these inclusion criteria: (1) had an experience under the new research program; and (2) a teacher who is presently conducting an action research. The study used mixed model anchored on quantitative and qualitative data analyses. Quantitatively, the study employed quasi-experimental design using survey questionnaire as the main instrument. Further probing of quantitative data were carried through qualitative triangulation techniques: semi-guided interviews, focus group discussions (FGDs), and in-situ observation using field notes. The study revealed that the local research initiative had significantly improved the research skills.

Keywords: research skills, teaching skills, research training, technical assistance

1. Introduction

The Department of Education is mandated to provide quality basic education to all Filipinos, seeking to ensure that learning has relevant outcomes achieved by harnessing the full potential of all teachers and learners. Research is a vehicle and a means to achieve this end.

DepEd Order No. 39 s. 2016 entitled *Adoption of the Basic Education Research Agenda* provided guidance to DepEd and its stakeholders in the conduct of education research and the utilization of results.

The issuance of DepEd Order No. 39 s. 2016, the Division of Dagupan City was prompted to revitalize the research process and the utilization of Division and School-based conducted action researches, thus, it has crafted a Division Initiative for Research, the Revitalized Research and Development Program under the mother umbrella of a bigger project, the Division-wide Project FINA (Fine Tuning Initiatives for Nurturing Achievers). This new and fortified program has Division-led research interventions which include continuous research coaching, presentation of researches, TA (technical assistance) and capability training to promote a research culture in the Division.

Guided by the Project FINA (Fine-tuning Initiative in Nurturing Achievers), as the major flagship project of the Division, the PROJECT LINKAGE, A Division Initiative (Linkaging and Networking for Knowledge-seekers and Achievers for Globalized Education) was implemented with the following components: A. Enhanced Planning and Research Program, B. Linkaging and Networking Program, C. Training and Teambuilding, D. Learning Resources Development; and E. Innovations and Information Development Program.

The intervention being studied in this action research is the newly implemented Revitalized Research and Development Program (RRDP under the mother project- Project FINA).

The RRDP is a new Division initiative, an intervention of the Division to enhance the research and development program in the Division. It has new and fortified Division-led interventions to enhance research culture in the Division which include: Research Training; Division Presentation of Action

Research Proposals; BERF Orientation; and Continuous Research Coaching. Guided by these, this study has determined the effect of a new research process, the RRDP- a Division initiative in research with improved process in the teaching and research skills of participants.

This action research has served an evidence-based data as to whether the Revitalized Research and Development Program or RRDP is effective in improving the research skills vis-à-vis teaching skills of teachers.

2. Methods

2.1 Research Design

Quasi-experimental design using one-group pretest-posttest design was used in the study. A pretest was given to the selected respondents, followed by an intervention. Thereafter, a post test was administered. The posttest scores were subtracted from the pretest scores permitting an analysis of gain or loss of scores.

This study explored the effects of the research intervention program, the Revitalized Research and Development Program on research skills of teachers.

The mean and the corresponding descriptive values were used to determine the level research skills of respondents; in order to analyze the significant effect of the activities of RRDP on improving the research skills of teachers, t-test was used.

2.2 Participants

Thirty-two (32) teachers served as respondents using these two inclusion criteria: (1) had conducted a research under the RRDP; and/or (2) new teachers who were presently conducting an action research under RRDP. Pretest was given to the respondents and was followed by a posttest after administering the activities

In this study, the RRDP, a Division-based research intervention initiative of DepEd-Dagupan City Schools Division under Project FINA (Fine-tuning Initiative in Nurturing Achievers) for the school year 2015-2016 was studied based on its primary goal of improving the research and teaching skills of teachers.

2.3 Instrumentation

In order to have a deeper probing of data obtained using quantitative tools, the triangulation method was used to have a deeper probing of responses. The data gathering instruments and techniques were questionnaires which were given as pretest and posttest; semi-guided interviews and focus group discussions (FGDs). Triangulation was intended for deeper probing of data (Creswell, 2008)

This study employed the used of questionnaire as the main instrument, supplanted by semi-guided interviews which were transcribed, analysed and extracted to find themes and meanings and focus group discussions (FGDS). The main instrument which is the questionnaire in a checklist form assessing the research skills of teachers.

The questionnaire consisted of 14-item checklist adapted from the standardized GSTAR instrument of David Feldon, PhD, University of Virginia and Joanna Gilmore, M.Ed, University of South Carolina (2014). Semi-guided interview technique which consisted of four open-ended questions was used, containing the information on the following: (1) the benefits derived in conducting an action research; (2) the difficulties experienced in conducting an action research; (3) the best feature or contribution of Revitalized Research and Development Program; and (4) the aspect that the Revitalized Research and Development Program or Division-initiated activities needs improvement.

2.4 Data Analysis

Quantitative and qualitative data analyses were used in the study. Quantitatively, numerical mean of responses from after intervention was subtracted from numerical mean of responses of before intervention. The mean and the corresponding descriptive values were used to determine the level of research skills of respondents. Inferential analysis using the paired t-test was used to establish the significant difference of the means. Paired t-test was used since the data obtained is interval data in nature, from an intact group, with paired sample (pretest and posttest). According to Ravid (2000), t-test for paired samples is suited when the two means represents two sets of scores which are paired. Such as the comparison of pretest and posttest scores obtained from one group of people.

Qualitatively, the responses gathered from interviews and focus group discussions were recorded, extracted and analyzed. The interview is made casual and relaxed and was conducted in a place chosen by the respondent. Before the interview, the teachers were informed that participation was

voluntary, and that they could withdraw from the interview any time and that they were free not to answer the questions if they felt uncomfortable. The interview was transcribed and was read several times in order to search for thematic patterns. Discourse analysis resulted to various themes or categories. Further, Focus Group Discussions (FGDs) and in-situ observation were likewise used to validate the data. Qualitative data obtained through interviews, FGDs and observations were transcribed, read several times and analyzed thematically until data were saturated.

2.5 Ethical Considerations

The researcher sought the permission from the authorities concerned before the conduct of the study. This process has secured the right to conduct a study or investigation in order to avoid further problem / issues as the study is being conducted.

In order to protect the identity and promote a sense of high mutual respect to the respondents, the researcher has dealt the data gathered with utmost confidentiality.

3. Results

The respondents who were selected using inclusion criteria were assessed in terms of their level of research skills before and after the implementation of the activities of the Revitalized Research and Development Program, as an intervention.

It is reflected in the table that reading skills improved significantly, while sense of big picture is least likely improved after the intervention.

Table 1 Research Skills Assessment

	Indicators	Pretest	Posttest	Mean Gained
1.	Critical Thinking	2.53 (WA)	4.03 (SA)	1.50
2.	Organizing ideas	2.44 (WA)	3.84 (SA)	1.41
3.	Finding information	2.44 (WA)	3.91 (SA)	1.47
4.	Writing skills	2.34 (WA)	3.69 (SA)	1.34
5.	Reading skills	2.25 (WA)	4.72 (EA)	2.47
6.	Ability to work with numbers and graphs	2.44 (WA)	3.66 (SA)	1.22
7.	Oral Communication Skills	2.34 (WA)	3.88 (SA)	1.53
8.	Ability to ask questions	2.44 (WA)	4.22 (EA)	1.78
9.	Methodological knowledge	2.53 (WA)	3.81 (SA)	1.28
10.	Sense of big picture	2.34 (WA)	3.19 (MA)	0.84
11.	Time management	2.06 (WA)	3.19 (MA)	1.13
12.	Ability to collaborate with others.	2.44 (WA)	4.25 (EA)	1.81
13.	Resiliency Skills (AQ)	2.16 (WA)	3.44 (SA)	1.28
14.	Digital Literacy Skills	3.09 (MA)	4.38 (EA)	1.29

Scale	Mean Range	Descriptive Value
5	4.20-5.00	Expert Ability (EA)
4	3.40-4.19	Strong Ability (SA)
3	2.60-3.39	Moderate Ability
2	1.80-2.59	Weak Ability (WA)
1	1.00-1.79	Negligible Ability (NeA)
0	0.00-0.99	No Ability (NoA)

Numerical responses were subject to inferential analysis using the t-test (paired sample). It is reflected that the intervention used significantly improved the research skills of respondents.

Table 2 Paired Samples Test on Research Skills Assessment

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	Posttest Results on Research Skills Assessment - Pretest Results on Research Skills Assessment	1.68687	.20567	.03636	1.61272	1.76103	46.397	31	.000

4. Discussion

4.1 Pretest results

Research skill is also a major variable being measured. Out of the 14 indicators on research skills, 3 indicators received the lowest perception as rated by the respondents, and these are: time management (1.72), ability to adapt or resiliency (1.88) and sense of big picture (1.94). Among these underrated indicators, the ability to manage one's time received the lowest appraisal. The same indicator on time management was rated the lowest by the participants in teaching skills assessment.

The ability to manage one's time, ability to adapt or resiliency and sense of big picture were some of the perceived indicators which restrict the development of research skills.

Studies of Maher, Timmerman, Hurst & Gilmore (2009) found that some activities may restrict the development of research skills. Their research findings had examined the synergistic relationship between teaching and research skills development while controlling for the amount of time that students invest in teaching and research. With the voluminous work and endless expectations from teachers, it is no wonder then that teachers are really having difficulties to meet both ends, thus, result on their inability to manage one's time.

Validating their responses using Focus Group Discussion (FGD) and interviews, there were similar responses emerging. According to teachers, since there are so many activities and paper requirements to be submitted on or before its due, ability to manage one's time is very difficult for them.

It is apparent that the respondents are having difficulty in adapting to the nature of teaching especially to teachers who are teaching in the SHS. The topology of SHS requires the teachers to keep abreast as fast as each day, which was viewed both as a new learning opportunity and a challenge of teachers.

4.2 Post test results

The digital literacy skill was rated as the highest among the indicators could be due to the fact, which is one of the 21st century skills. It is deemed of great importance since we are already living in a technologically-based society. Further, the ability to ask questions was given the highest appraisal since probing or questioning skill is one of the cornerstone of a good researcher.

Reading skills, ability to ask questions, ability to collaborate with others and digital literacy are inherent in the nature of their work since in their daily execution of their duties, they always exercise these skills.

4.3 Mean difference

After the conduct or administration of the activities, *all of the indicators of research skills* have significantly gained in their individual mean.

The indicators on reading skills ($X_{\text{gained}}= 2.72$), ability to ask questions ($X_{\text{gained}}= 2.16$) and ability to collaborate well with others ($X_{\text{gained}}= 2.13$) received the most improved appraisal registering a significant increase in mean scores.

In general, the indicators of research skills have significantly improved after exposure to the activities of RRDP (Revitalized Research and Development Program).

Studies of Bound, Turner, & Walsh, (2009) and parallel study of Steigelmeyer & Feldon (2009), reported that teachers have improved significant growth in across an academic year on research skills which include oral communication skills, finding information, and methodological knowledge. Gains in oral communication skills such as reading skills and ability to ask questions were enhanced as teachers conduct their researches which were evident in the results of this study.

4.4 T-test results for paired (dependent) samples on research skills

This section addresses problem number 2, which is to find if there is a significant effect of the RRDP activities, as an intervention of the Division, on improving the research skills of teachers.

The obtained t value of 46.397 exceeds greatly the critical values under $p=0.5$ (1.694). and a significance of 0.00 tested at 0.05 alpha. Therefore, the null hypothesis which states that there is no difference between the pretest and posttest scores focusing on the assessment of research skills is rejected. The chance that the means are the same is less than 1% ($p<0.5$).

Hence, the research hypothesis which predicted that the posttest scores will be significantly higher than the pretest is confirmed. According to this study, the Revitalized Research and Development Program had been effective in improving the teaching and research skills of respondents.

5. Conclusions

Based on the findings, the following conclusions were drawn:

1. Majority of the teachers were engaged in research activities.
2. Research activities greatly improved the teaching skills in the following aspects: pedagogical knowledge (subject area) of teachers, ability to adjust instruction to meet student's needs and ability to plan for instruction; likewise had greatly improved the following research skills: reading skills, ability to ask questions and ability to collaborate well with others.
3. However, some skills were not greatly improved even after the implementation of the research program such as time management, sense of big picture, ability to facilitate student investigation and ability to identify student misconceptions since these skills are perfected through time and long term practice.
4. In general, the Revitalized Research and Development Program Further, is very effective, as all indicators of a competent researcher have gained in mean scores.
5. Research and development activities are essential in the development of teachers' research skills. Thus, these skills must be enhanced or enriched regularly through various modes.

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