

# Examining School Administrators' Technology Integration Leadership

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**Abstract**—Technology leadership drives the technology integration program of any educational institution. School administrators take challenging tasks in integrating technology in the classroom. Their roles are critical to ensure that students' learning in today's context is globally relevant. Relatedly, this study examined the technology integration leadership of school administrators involved in a school-wide initiative via a three-module series seminar workshop on action research using descriptive qualitative research approach. A thematic analysis of the written abstracts provided an overview of the technology leadership of school administrators. Specifically, results revealed four technology related themes namely; School Policy Development, Professional Development of Teachers, Blended Learning Approach, & Teaching Strategies to Enhance Learning. Further research focusing on each theme is recommended to determine its impact to the actual teaching and learning implementation in the school.

**Index Terms**—technology leadership, technology integration, action research, school administrators, professional development, school policy development, blended learning approach, teaching strategies

## I. INTRODUCTION

Technology leadership drives the technology integration program of any educational institution [1]. School administrators take challenging tasks in integrating technology in the classroom. Their roles are critical hence, they should equip themselves with Information and Communication Technology (ICT) knowledge and skills to ensure learning in today's context is globally relevant. Technology Leadership represents all technology-related activities at school including organizational decisions, policies and technology implementation at school [2]-[4].

De La Salle Santiago Zobel School (DLSZ) in the Philippines is an advocate of technology learning

environment. The institution provides personalized and transformative learning environment in the form of Next Generation Blended Learning (NxGBL) Program [5]. This program focuses on two main objectives; (1) to deepen the understanding of teachers on how to design authentic personalized learning; and (2) to enhance skills of teachers on how to design transformative learning environments for the students that make use of varied media and technology integrated learning resources [6]. As a result of this program, DLSZ is recognized as one of the Apple Distinguished Schools and Certified Microsoft Schools worldwide.

Another thrust of DLSZ is the conduct of action research among its faculty and school administrators to continually improve the school curriculum. Part of its curriculum framework is to have a pool of teachers and school administrators who are research practitioners. Action Research (AR) is recognized as an integral part of any educational system because it is used as evidence for educational reforms [7]. It is a strategy for systematic, intentional study practitioners' practice [8]. AR is widely recognized as a powerful tool for professional development [9]-[12].

Taken together, the NxGBL Program and Action Research are two important drivers of DLSZ's curriculum framework. This led to a school wide initiative on the conduct of action research via a three-module series seminar workshop among school administrators. This study aims to take a new approach to examining the school administrators' technology leadership by analyzing the data from the action research abstracts of the school administrators who participated in the Action Research Seminar-Workshop.

## II. METHODOLOGY

### A. Research Design

This study used descriptive qualitative research approach. Thematic analysis was used to analyze the qualitative data [13].

### B. Participants

Thirty school administrators from different departments participated in a three module-series seminar workshop on action research in Term 3 of Academic Year 2018-2019. Table I shows the demographics of the participants.

TABLE I. SCHOOL ADMINISTRATORS DEMOGRAPHICS N=30

Characteristic		%
Gender	Female	83%
	Male	17%
Years of Teaching Experience	5-10	6.67%
	11-15	36.67%
	16-20	30%
	21-25	20%
	26-30	3.33%
	31-35	3.33%
Area of Specialization	Art	3.33%
	Christian Living	6.67%
	English	23.33%
	Filipino	6.67%
	Library and Information Science	3.33%
	Science & Physics	20%
	Math	6.67%
	Music	3.33%
	Physical Education	3.33%
	Psychology	3.33%
	Political Science	3.33%
	Technology Livelihood and Education	10%
	Robotics	3.33%

Table II shows the departments where each participant is affiliated.

TABLE II. SCHOOL ADMINISTRATORS' DEPARTMENTS

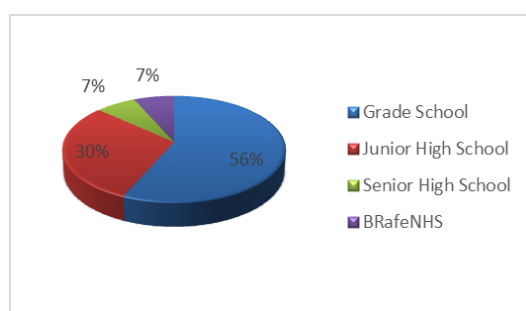


TABLE III. SCHOOL ADMINISTRATORS' DESIGNATION

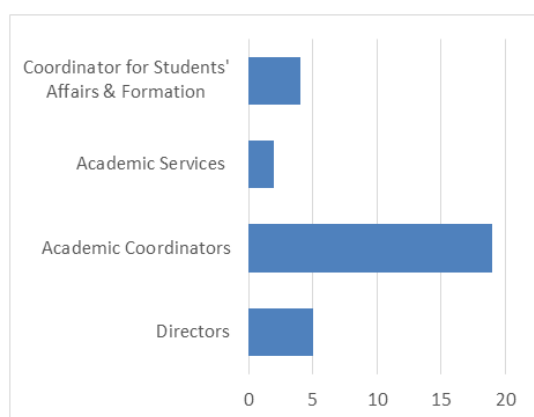


Table III refers to the designation of the administrator participants.

### C. Data Collection

The three module-series seminar-workshop was facilitated by two experts on educational action research. It was held in three consecutive days (equivalent to 18 hours) at six hours a day. The topic on Module 1 was Developing Action Research. Lecture, consultation and mentoring were done all throughout the workshop. The participants were trained on how to conduct action research. As an output for Module 1, participants were tasked to write abstracts of any topic related to their professional practice and duties in the institution. These abstracts were collected and made into a compendium. Twenty-nine AR abstracts were analyzed for this study. Of the 29 abstracts, ten dealt with technology integration. These ten abstracts were coded, and themes were deducted from the International Society of Technology Integration (ISTE) standards [14].

### D. Data Analysis

In this study, the data was analyzed through content analysis using the coding system in accordance with conceptions obtained from data. In this method, the important dimensions are determined in relation with the purposes of the research. Depending on the emerging meaning, codes are created with reference to the data. The codes are associated and themes were defined.

## III. RESULTS AND DISCUSSION

The first module in a three-module series is about developing action research proposals. Below were the topics discussed; (1) Action Research Theory, Principles, and Processes; (2) Designing Action Research for Continuous Improvement Part 1: The Plan Do Study Act (PDSA) Model Workshop 1: The Planning Stage: Defining the System, Assessing the Situation and Analyzing Causes; (3) Designing Action Research for Continuous Improvement - Part 2: Action Research Methodologies: Data Collection and Data Analysis Techniques Workshop: The 3Es: Methodologies for Gathering Evidences for AR Project; (4) Plan for Gathering Evidences and Indicators of Improvement Workshop; (5) Techniques for Reviewing the Relevant Literature; Instrumentation: Reliability and Validity Workshop; Developing and Preparing the Instruments; (6) Conducting Interview and Focus Group Discussion Presentation of Outputs with critiquing and mentoring were part of the process.

Table IV is a summary of the ten action research abstracts that dealt with technology integration.

TABLE IV. ANALYSIS OF ABSTRACTS' PURPOSE AND THEMES

Title of Abstract	Purpose	Theme
Assessing the Efficacy of Open High School Program: Leadership and Management Perspectives	Craft intensive guidelines and policies on • Student admission and improved	• School Policy Development • Professional Development

	<ul style="list-style-type: none"> <li>performance</li> <li>Faculty training</li> <li>Resource management</li> <li>Program sustainability</li> </ul>	of Teachers
Technology Integration Skills in NxGBL Program: Teachers' and Students' Perceptions	<ul style="list-style-type: none"> <li>Identify professional development needs</li> <li>Mentoring teachers on the use of instructional technology</li> </ul>	Professional Development of Teachers
Assessing Grade 5 Student towards Responsible Use of Mobile Learning Device	<ul style="list-style-type: none"> <li>Guidebook</li> <li>Program development for students' technology orientation</li> </ul>	School Policy Development
Improving Data Utilization through Data Management Program Model	Mentoring subordinates on data utilization	Professional Development of Teachers
Effective Technology-driven Pedagogy in Teaching Four Disciplines of Art Education	Identify technology-driven pedagogies for to cover discipline-based art education competencies	Teaching Strategies to Enhance Learning
Stakeholders' Evaluation of the DLSZ Robotics Program: Basis for Policy Development	Policy development for Robotics	School Policy Development
Creating Authentic Blended Learning Assessments Using the Flipped Learning Modality	Improved student performance	<ul style="list-style-type: none"> <li>Blended Learning Approach</li> <li>Teaching Strategies to Enhance Learning</li> </ul>
Enhancing Student's Thinking Skills through News Reporting using Video Enhancement Applications	Enhance creativity and critical thinking skills of students	Teaching Strategies to Enhance Learning
Paggamit ng Blended Learning na Estratehiya bilang Panghikayat sa Pagbabasa "Using Blended Learning Strategy to Motivate Students to Read"	Improved reading comprehension and critical thinking skills of students	<ul style="list-style-type: none"> <li>Blended Learning Approach</li> <li>Teaching Strategies to Enhance Learning</li> </ul>
Evaluating Lesson Playlist Approach in Concept-building Skills of Grade 3 Students	Improved students' concept building skills	Teaching Strategies to Enhance Learning

The data was analyzed using thematic analysis [13]. Thematic analysis is a popular method for analyzing qualitative data in different disciplines and fields.

Specifically, the deductive way was used in this study. This approach directs coding and theme development to

existing concepts or ideas. The phases in the analysis process are:

(1) Familiarization with the data. This involves reading and re-reading the data to become immersed and intimately familiar with the content. The abstracts were read and reread carefully;

(2) Coding. This phase involves generating succinct labels that identify important features of the data relevant to the research purpose. The abstracts were coded. All codes were then, collated for later stages of analysis;

(3) Generating initial themes. It involves examining the codes and collated data to identify broader patterns of meaning. Potential themes were identified. From this process, initial themes to describe school administrators' technology integration practices emerged;

(4) Reviewing themes. Here, themes are refined. Pattern of shared meaning underpinned by a central concept or idea are identified;

(5) Defining and naming themes. It involves deciding on an informative name for each theme;

(6) Writing up the analytic narrative. This is the final phase. It involves weaving together the analytic narrative and data extracts in relation to existing literature.

The themes were summarized in accordance with technology leadership constructs of National Education Technology Standards- Administrator [14] from the International Society of Technology Integration in Education [15]. NETS-A has five constructs namely; visionary leadership, digital age learning culture, excellence in professional practice, systemic improvement, and digital citizenship. Among the five constructs, three were related to the themes. These are visionary leadership, excellence in professional practice, and digital age learning culture. (see Table V)

TABLE V. SUMMARY OF SCHOOL LEADERS' TECHNOLOGY LEADERSHIP CONSTRUCTS

Themes	Technology Leadership Construct (Defining Themes)
1. School Policy Development	Visionary Leadership
2. Professional Development of Teachers	Excellence in Professional Practice
3. Blended Learning Approach	Digital Age Learning Culture
4. Teaching Strategies to Enhance Learning	

#### *Theme 1: School policy development: Visionary leadership*

One of the emerging themes extracted from the data is the use of technology integration study to develop school policy. Some school administrators would like to evaluate current technology programs to develop policies that will support effective instructional practices. This theme is consistent with the technology educational construct on Visionary Leadership. Based on NETS-A [14], educational administrators inspire and lead development and implementation of a shared vision for comprehensive integration of technology to promote excellence and support transformation throughout the organization.

*Theme 2: Professional development of teachers: Excellence in professional practice*

According to NETS-A [14], excellence in professional practice means educational administrators promote an environment of professional learning and innovation that empowers educators to enhance student learning through the infusion of contemporary technologies and digital resources. Some AR abstracts were focused on mentoring, training, and creating professional development programs for the teachers.

The findings of this study support and contribute to the model that technology training and ICT infused training programs for school leaders and teachers are provided [2].

*Themes 3 & 4: Blended learning approach and teaching strategies to enhance learning: Digital age learning culture*

These themes are related to the technology leadership construct on Digital-Age Learning Culture. NETS-A [14] states that educational administrators create, promote, and sustain a dynamic, digital-age learning culture that provides a rigorous, relevant, and engaging education for all students. This is evident from the different learning modalities such as Lesson Playlist, Flipped Learning and strategies used in teaching that the school leaders presented on their abstracts.

#### IV. CONCLUSION

The participation of school leaders in the action research seminar-workshop is an indicator that they take active roles in engaging in professional development programs in writing action research and integrating technology. This corroborates to the findings that it is the school leaders' primary responsibility to become dynamic technology leaders and research practitioners, who will be the driving forces for technology integration to be implemented in the institution [12], [16], [17].

Results suggest that future iterations of this initiative will benefit from explicit attention to technology-driven pedagogies, use of different learning modalities, potential of technology as instructional tool, and increase focused on learner-centered technology integration practices. There are also implications for the department heads who could use the AR projects completed by the school administrators as a guide to technology and professional development planning in the institution.

#### V. RECOMMENDATIONS

School administrators must show expertise in professional practice and stay connected with emerging technology trends and educational researches. They must become visionary leaders and promote technology learning environment that capacitate teachers to amplify learning through digital resources. School administrators must be front liners in the conduct of action research to be deeply engaged in their profession thereby, effecting educational reforms successfully.

This study provides evidences that conducting action research with the support of expert researchers is a viable strategy to study school administrators' practices about

technology integration initiatives. The results presented here provide a panoramic view of practices across departments. From the results, a micro-level analysis could reveal other interesting trends. For example, future studies might examine effectiveness of technology integration practices across content areas or grade levels. They might also look at the implications of certain policies of NxGBL program on student achievement. These studies can provide rich details of effective and (possibly not so effective) educational performances.

#### CONFLICT OF INTEREST

The authors declare no conflict of interest.

#### AUTHOR CONTRIBUTIONS

Ms. Torrato conducted and wrote the research; Dr. Aguja analyzed the data; Dr. Prudente reviewed and edited the paper; all authors had approved the final paper.

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