Transforming Research and Development Culture from a Technical-Vocational Based Institution to a Research University: Samar State University, Philippines Case

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Abstract

The conversion of technical-vocational schools in the Philippines into state colleges and universities had created a culture that has remained even after these schools became universities, a weak culture of research and innovation. Samar Trade School, now Samar State University, and about 31 became part of the nine state universities in 2004 without consideration on its capacities in performing one of the major identities of a university that is research. Samar State University through Republic Act 9313 became one of the many technical-vocational(tech-voc) institutions into a university. The transformation of SSU along research and extension functions was determined using a descriptive research methodology. Studies revealed that the major factors consequential in transforming the research culture from tech-voc based institution into becoming a research university was the R&D leadership skills of the top management. They crafted, approved and strictly implemented a strategic phase-by-phase introduction of reforms within the university toward improving research productivity. The formation of critical mass (more than half are involved in R&D/E related activities) for a sustainable change becomes a reality when government forcibly implemented reforms. The reforms were incorporated in the Philippine Higher Education Roadmap (PHER) that required higher productivity in R&D/E. The sustainability of the transformation can be secured if the university president as well as the members of the top management from academic and facilitative departments has high and strong R&D/E skills and R&D/E appreciation.

Keywords: technical-vocational, research and development, R&D management, culture transformation, Samar State University

I. INTRODUCTION

The knowledge-driven economy has brought several changes in an academic institution worldwide. The 21st century global knowledge economy demands a faster and greater number of generation of original research outputs generated from research universities (Altbach, 2011). The universities provide training the professionals, scientists, and researchers who can generate new knowledge in
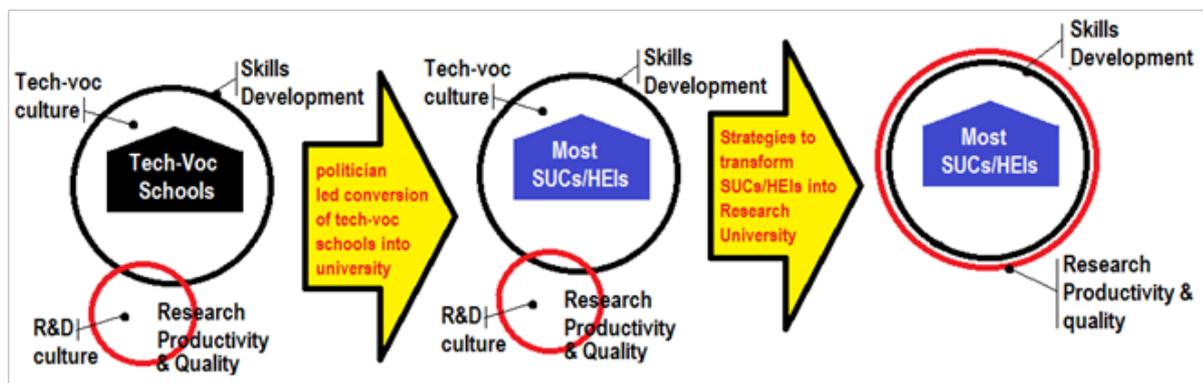
Figure 1. Transforming SUCs with technical-vocational culture into a research university process

support to innovation programs of any nation (Altbach and Salmi, 2011).

Universities in the Philippines are mandated to produce research products to serve as an effective instrument for national development. These universities are regulated by the Commission on Higher Education (CHED) through the Republic Act (RA) 7722 known as the "Higher Education Act of 1994." Moreover, the UNESCO World Declaration on Higher Education for the 21st Century states that "higher education institutions (HEIs) should advance, create and disseminate knowledge through research. They should provide, as part of its service to the community, relevant expertise to assist societies in cultural, social and economic development. They should promote and develop scientific and technological research as well as research in the social sciences, the humanities and the creative arts."

The Commission on Higher Education (CHED) is a regulatory agency of higher education institutions (both private and public) in the Philippines. The public higher education institutions are the 112 State Universities and Colleges (SUCs) that are mostly from technical-vocational (tech-voc) origins; which rise into state universities without strictly looking into research track records of international standards.

The mandate of tech-voc schools is to train students on specific technical skills that they can use after their secondary education. Hence, tech-voc schools' mandate is mostly on skills development. According to Tilak (2002), the tech-voc institutions were established to support socio-economic rural prosperity and progress with the hope that the graduates are honed with necessary skills to start their entrepreneurial works and jobs. It is on this objective that the vocational education act of 1927 passes and establishes several tech-voc schools in the Philippines. Most of these tech-voc schools were converted into state universities and colleges. One of these is Samar State University (SSU) converted on August 7, 2004 thru Republic Act 9313.

The conversion of SSU thru RA 9313 explicitly identifies research as one of the mandated functions of the university. Several strategies and approaches were implemented to establish a research culture. These strategies were documented and assessed thru a research study with the hope that the results were shared to other higher education institutions in transforming and establishing a research culture.

The paper assesses the transformation of the research culture from a tech-voc based institution to a research university and evaluates the research management of Samar State University. Specifically, the paper describes the R&D management from 1982 to 2012 in terms of leadership;

profile of faculty by education qualification and rank; historical accounts on R&D strategies and innovations implemented; and research outputs. It further determines the factors consequential in transforming the research culture from tech-voc based institution to research university in terms of leadership, government support, and incentives and awards.

Conceptual Framework in Transforming the Research Culture

The equal role of skills development and research productivity in the University is a key concept in transforming the tech-voc culture of Samar State University to a research university as shown in Figure 1.

II. METHODOLOGY

The study employed a documentary analysis and interview of leaders, academic administrators, presidents, and research managers on the stated timeline of this study. All information used to describe research management and accomplishments were generated from the university.

The factors consequential to the transformation of SSU into a research university were from the interviews of leaders compared to research accomplishments. The R&D leaderships were grouped according to the terms of the president divided into these periods: 1982-1992; 1993-1999; 2000-2004; 2005-2011; and 2012-present. In these periods, the leadership attributes such as research skills, research outputs, research policies supported, research capability conducted or supported, linkage established for R&D, and external funds sourced out for research projects were rated. The rating ranged from one to five, measured according to the number of these attributes. The researcher-made rating rubrics developed has rating of five as the highest and one as the lowest.

IV. RESULTS AND DISCUSSION

This section presents the R&D management and factors consequential in transforming the research culture from tech-voc based institution to a research university.

R&D Management

The research and development management was described in terms of leadership; profile of faculty by educational qualification and rank; historical accounts on R&D strategies and innovations implemented; and research outputs.

Leadership indicators or attributes were described in different periods. The leadership is best described in terms of numerical ratings as shown in Table 2. The leadership period was taken based on the years the president was elected into office like in 1982-1992 which was a 10-year period. The new president came in 1993 and stayed up to 1999. The next president was elected on August 9, 1999 and R&D managers were replaced in January 2000. The first university president was appointed in August 2004. On February 1, 2012, the current president was elected into SSU, second university president. The R&D managers were the R&D Center head, the Director for R&D/E, and the Vice-President for R&D/E. The academic heads were the deans and vice-president for academic affairs.

Figure 2 showed that over the period, the leadership attributes had improved from 17 points during the 1982-92 period to 66 points in the 2005-2011 period. Noticeably, the present administration (only one year in the position) has 76 points and is expected to increase further until the end of the period in 2016.

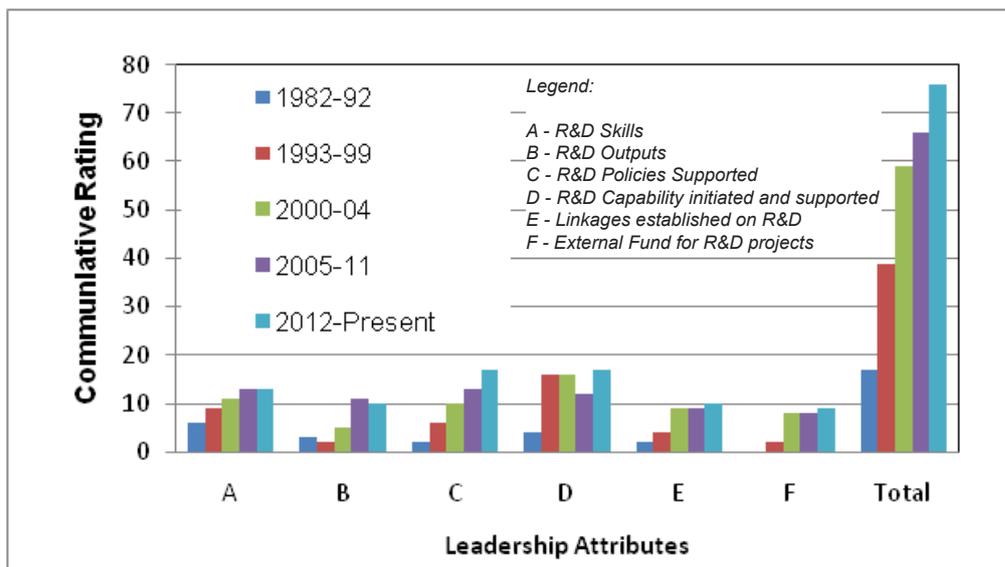Figure 3 showed the rating of R&D leaders

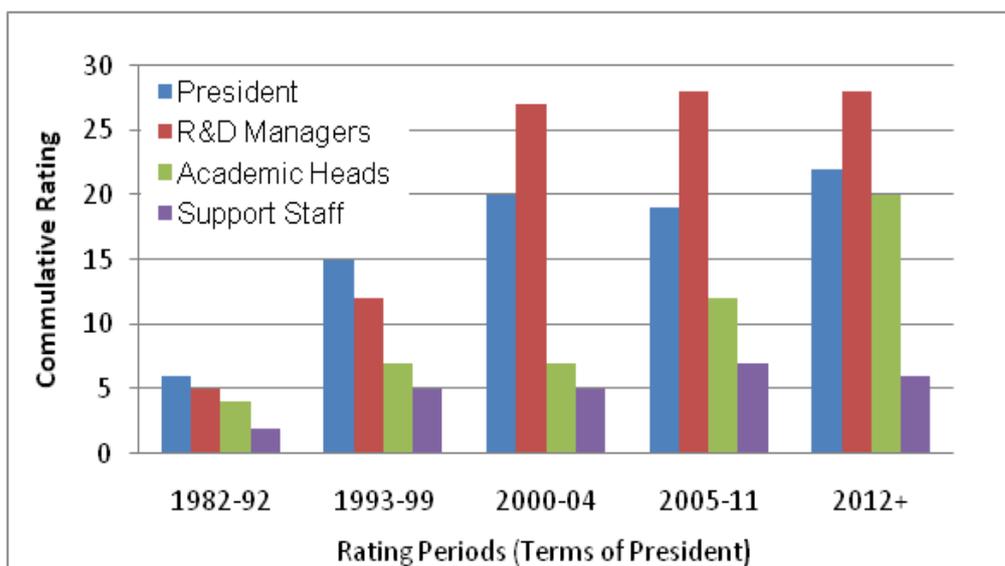Figure 2: Research Management Rating

Figure 3: R&D Leadership Attribute Rating

in the university. Maximum rating for all is 30 points. Improvement of leadership attributes over the rating periods is noticeable with R&D managers having the highest rating while support staff leadership attributes need to be improved further.

Profile of the Faculty

Academic personnel or faculty are the researchers of most SUCs in the country. They are expected to perform research together with instruction and extension services. The profile of faculty is presented in Figures 4 to 6.

Figure 4 illustrated faculty rank distribution. The percentage number of faculty with higher rank is an indicator of research productivity. Professors are expected to have research outputs.

Figure 5 showed that members of the faculty with Ph.Ds. have increased but the growth is slow. Notably, the number of BS degree holders has the highest percentage primarily because faculty hired in replacement of those who got out of the university for various reasons were BS degree holders. No effort yet was exerted to hire MS and Ph.D. holders through extensive recruitment efforts. In
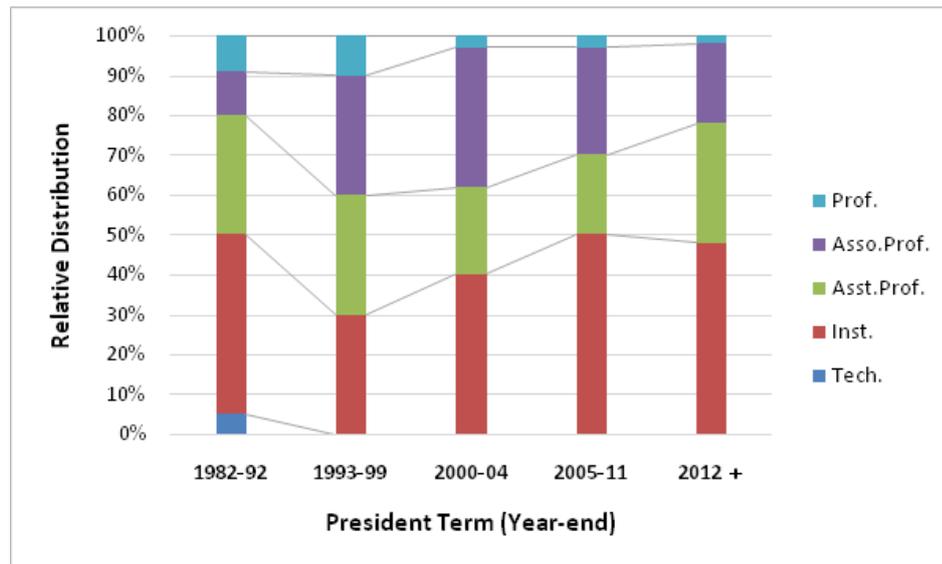
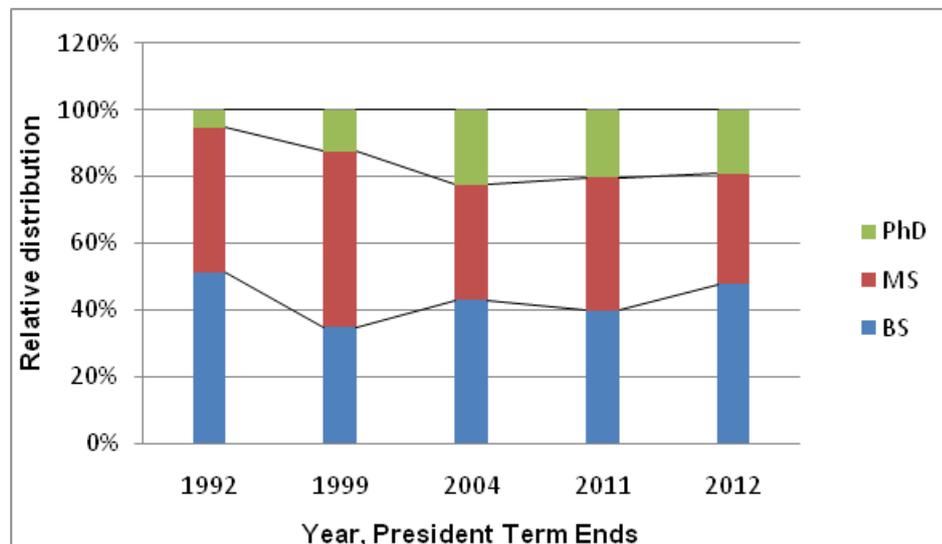*Figure 4: Faculty Rank at the End of President Term*

Figure 5: Academic Qualification of Faculty

2012, efforts to hire faculty with at least MS was implemented.

Figure 6 showed that the number of projects undertaken funded locally and externally increased. Several faculty members had received awards since 2000. In 2012, the university was able to file nine patents for approval.

Research Outputs

Figures 7, 8 and 9 respectively reflect the average R&D presentation in scientific fora, publication and research involvement of university personnel.

Figure 7 and 8 showed an increasing trend in presentation and journal publication in scientific journals. The number of faculty and personnel involved in R&D has also improved over time. Even instructors have performed comparable with the rest of academic ranks. Despite the relatively stagnant faculty profile in terms of degrees and academic rank, it still was able to manage to grow which is attributed to the R & D leadership qualities which have also improved.

Figure 9 showed the participation of the faculty in research activities wherein lower rank faculty like instructors have high
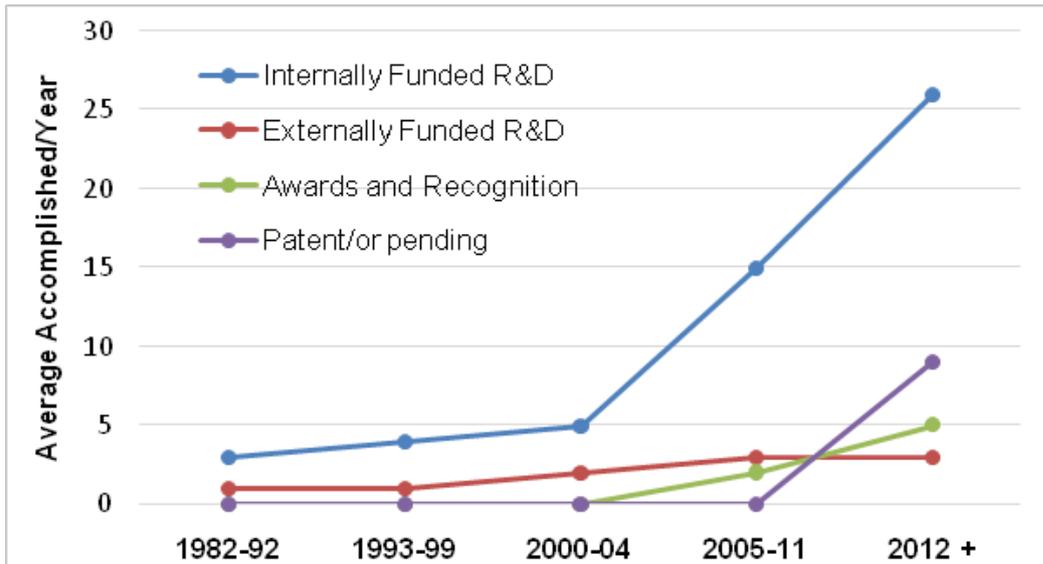
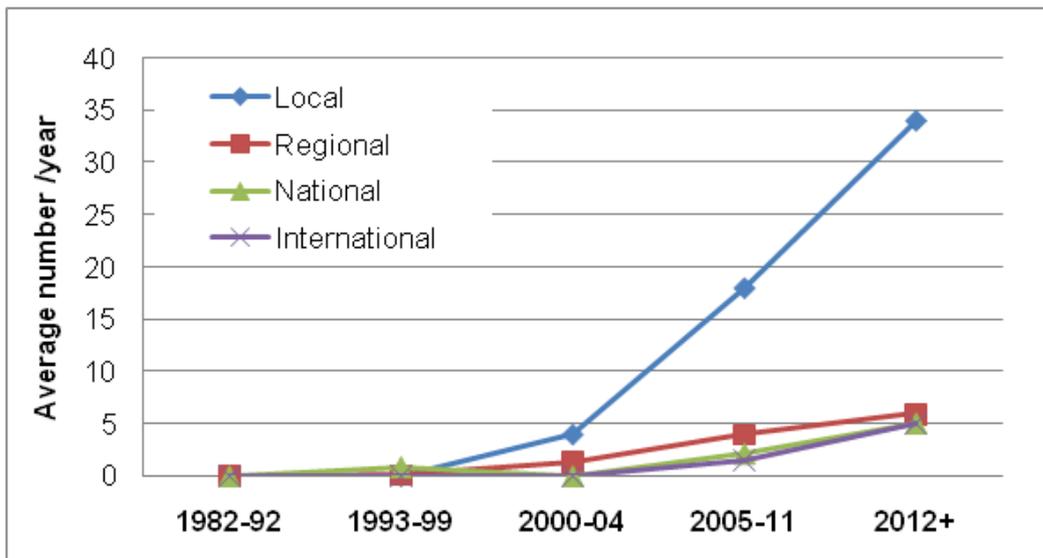*Figure 6: Average Accomplishment per Year/term*

Figure 7: Average R&D Presentation in Scientific fora/year

participation and involvement in research activities.

Factors Consequential in Transforming R&D Culture

The factors consequential in transforming the R&D culture from tech-voc institution to a research university were evaluated through structured interview. The respondents were about 30 faculty members who are active in research for the past ten years.

Leadership

It was evaluated qualitatively based on the capacity of the research leaders in the implementation of programs, policies, support to research capability building, laboratories support to research and other infrastructures used in research. These are shown in Table 1.

It can be gleaned from Table 1 that the respondents "moderate agree" that the research culture was transformed due to the leadership skills in setting R&D programs. The leadership attributes "R&D programs" and "R&D policies" were rated "strongly agree." It implies that these were the factors in the building of R&D culture in the University. Table 1 implied further that the respondents "strongly disagree"
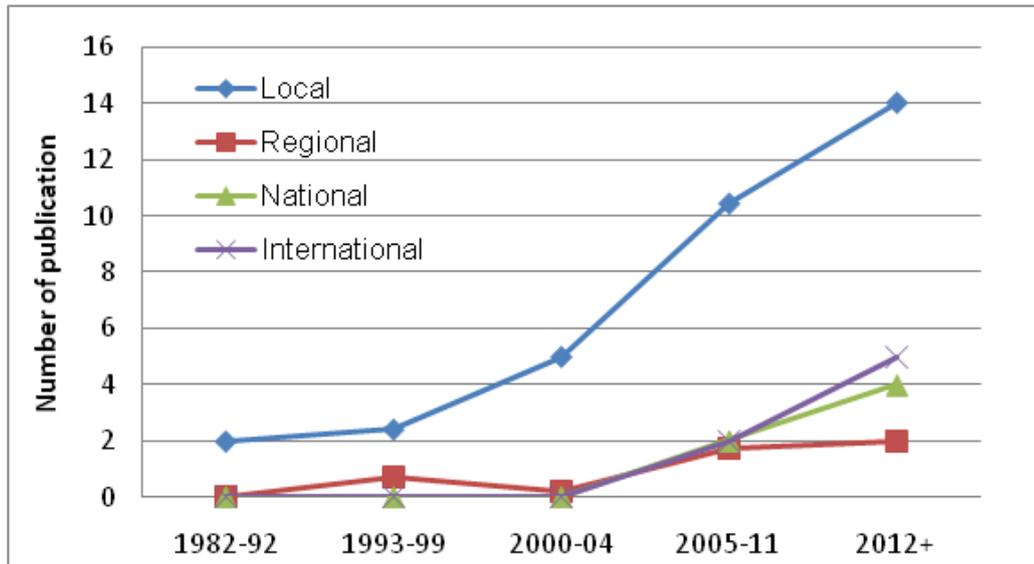
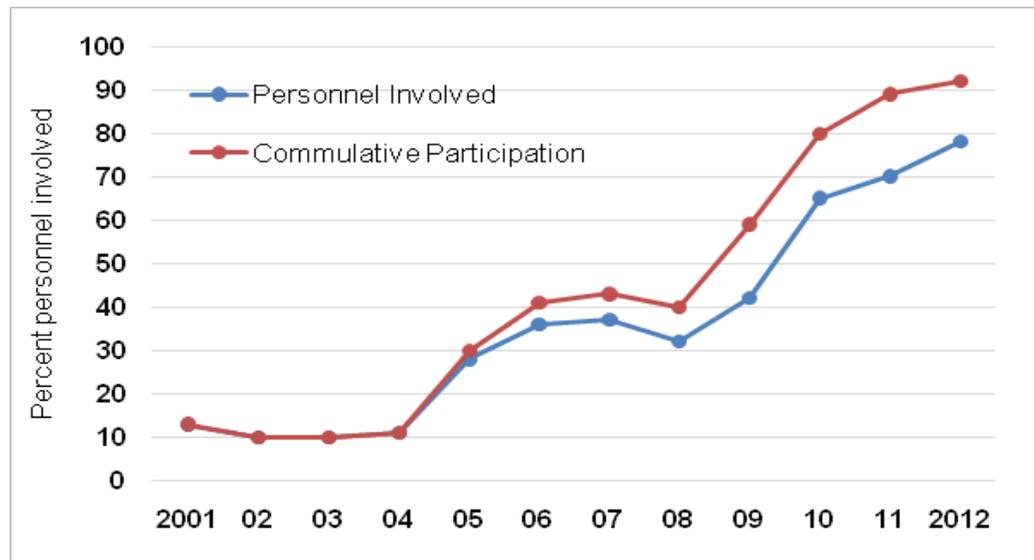*Figure 8: Average Publication in Research Journal per Year/term*

Figure 9. Participation of Faculty & Staff in R&D

that the support to infrastructure in leadership attributes was not a factor to this transformation.

The data in Table 1 showed that the research leaders must set a clear research programs with appropriate policies supported by capability building activities in the building of R&D culture.

Government Support

It is defined in terms of programs, policies, funds for capability building (training & seminar), funds for facilities, and funds for research projects as shown in Table 2. As shown in Table 2, the

respondents "strongly agree" that the government support on research was a factor consequential in transforming the R&D culture in SSU. Hence, the R&D culture had been transformed because of government support from the national level.

Incentives and Awards

The honoraria received by the researchers during the conduct of research, publication incentives, travel incentives, awards and recognition as shown in Table 3.

In Table 3, the respondents "moderately agreed" that incentives and awards are

Table 1.
Leadership Factor in transforming R&D Culture

Leadership attributes	SA (5)	MA (4)	A (3)	DA (2)	SDA (1)	Mean	Interpretation
R&D programs	15	12	3			4.40	MA
R&D policies	19	11				4.63	SA
R&D capability building	8	2	16	4		3.46	A
Support to laboratories	3	7	14	3	3	3.13	A
Support infrastructure		4	14	2	10	2.53	DA

Table 2.
Government Support as Factor in Transforming R&D Culture

Government Support in terms of:	SA (5)	MA (4)	A (3)	DA (2)	SDA (1)	Mean	Interpretation
R&D programs	26	4				4.73	SA
R&D policies	28	2				4.93	SA
Funds for capability building	23	7				4.76	SA
Funds for R&D facilities	26	4				4.86	SA
Funds for R&D Projects	27	3				4.90	SA

factors in transforming the R&D culture in SSU.

V. CONCLUSIONS

Developing and transforming SSU's R&D culture from being that of a tech-voc based institution to that of a research university is a life-long process. The administrators (deans to the university president) must have a high level of research appreciation and understanding to the encourage faculty to conduct research. The support of the University President was a remarkable contribution to this transformation process of the research culture in SSU. Hence, the university president may exhibit excellent research exposure in order to sustain the R&D culture.

The culture of appreciation of the administrators on R&D/E had not been intensified due to some accountability such as financial matters, poor understanding toward R&D/E, and lack of longterm planning and visioning. Faculty and staff had poor appreciation on R&D function, because the orientation of tech-voc faculty was on instruction and skills development.

The strong support and the leadership skills of the R&D managers with the support of the university management are in terms of setting direction and implementation of R&D programs, policies, strong capability building among faculty and staff. These support were the factors consequential in transforming the R&D culture in SSU. Many of the faculty members hired as technical instructors had difficulty in translating ideas into a formal research activity.

Policies of government agencies like CHED, DBM, DOST and even the Accrediting Agency of Chartered Colleges and Universities of the Philippines (AACCUP) were also contributory factors consequential in transforming the R&D culture of the university. The realization and appreciation of the administration of SSU with government support from the national level like policies, funds, trainings, and others have contributed in transforming the tech-voc based education into a research-based SSU.

Table 3.
Incentives and Awards as factor in Transforming R&D Culture

Incentives and awards	SA (5)	MA (4)	A (3)	DA (2)	SDA (1)	Mean	Interpretation
Honoraria	12	4	14			3.93	MA
Publication incentives		8	12	10		2.93	MA
Other incentives(travel, etc.)			12	18		2.40	DA
Awards and recognition	9	15	6			4.10	MA

The national government should provide strong support to newly converted tech-voc institutions for easy transition of the four functions of the University such as advanced higher education service, research, extension, and production. There is a need to hire researcher-ready personnel in replacement of retiring tech-voc hired faculty. There is a need to re-tool existing personnel for greater appreciation towards R&D.

Transformation requires a phase-by-phase strategic approach and could not be achieved in very short period.

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