

Priming the Research Culture with Organizational Effectiveness and Research Engagement Activity

Eric C. Mendoza

College of Education, Eulogio “Amang” Rodriguez Institute of Science and Technology

Manila, Philippines

ecmendoza@earist.ph.education

Abstract: *A university's research culture involves the active engagement of the academic community in the different aspects of the research ecosystem that requires an attitude of thinking-and-doing research, a work ethic of persistence, patience, and walking-the-extra mile. This study aimed to determine the impact of organizational effectiveness and research engagement of students on promoting a research culture. It also identified policy enhancement measures in pursuit of research excellence. Using descriptive-correlation research design, 60 undergraduate students participated in the research activity which indicates that both research activity and organizational effectiveness contribute to the development of a research culture by its motivational impact on energizing the creative and innovative talents of the students. For an effective mechanism in the research ecosystem, policy enhancement measures were proposed to address performativity, intensification, and income generation for sustainable support to research engagement.*

Keywords—Organizational effectiveness; research culture; research engagement; research policy

INTRODUCTION

Change abounds all around us. We see how change impacts everything that we do. Definitely, it is can be observed that these modern relics and frolics of inventions and innovation are products of research. Indeed, this is the byword of the current 21st century. In the educational sector, the nurturance of a research culture is itself a challenge. At the very least, research culture is the active engagement of the academic community and students in the various facets and types of research. It requires an attitude of thinking-and-doing research. It demands a work ethic of persistence, patience, and walking-the-extra mile.

A vital component of institutional transformation is the development and nurturance of a research culture (Hsia-San Shu, 2006; Gonzales, 2006; Abdul Razak, 2006). To enable the active engagement of the academic community in establishing the research culture, the institution must create a research infrastructure (Sison, 2006; Tansio & Marquez, 2006) and build niche research areas that improve the institution's standing in the particular field. Thus, building a community of researchers is shaped by both internal and external factors.

In pursuit of the National Higher Education Research Agenda 2; 2009-2018 and the National Science and Technology Plan 2002-2020, this institution's Research Agenda focus on five thrusts: (a) Research in science and technology for institutional and national development; (b) Research to promote productivity and competitiveness of this higher educational institution; (c) Research to enhance capacity building and management in the Institute; (d) Research to improve instruction in the various disciplines; (e) Research to promote the institutional image. Guided by these institutional research agendas, various colleges cascade their

research thrusts and priorities to align their research efforts and activities. Thus, there is a synergy of purposes and utilization of resources.

Likewise, to give focus on the research initiatives which impact attaining a niche in the research milieu, this institution's Roadmap for Excellence in Research 2014-2018 identified three priority research thrusts for product development and commercialization on the following programs, namely, (a) Renewable Energy Sources Development Program; (b) Food Production Development Program; and (c) Automation and Gadget Development Program. Since the research roadmap requires this direction, the specific challenge is to direct the research proposals of faculty and students along these priority research programs and identify highly marketable products for income generation.

In pursuit of these priorities, the university provides a research ecosystem that supports this direction and engages the academic community in establishing a research culture, through policies, programs, projects, and activities to support its nurturance. A simple step undertaken which provides an appropriate opportunity to showcase students' research outputs is holding the annual invention and innovation contest and exhibit which is called, “Patimpalak sa Agham at Teknolohiya ng EARISTian (PATATE).” Also, students and faculty participate in external research competitions and exhibits such as the DOST-NCR/TAPI Regional Invention and Innovation Contest and Exhibit (RIICE), DOST-PUP Annual Research Awards (ARAW), and CHED-sponsored research exhibit during its foundation anniversary. Faculty and student paper presentations, publications, and participation in research capacity-building seminars are likewise prioritized by the administration.

This study determined the impact of organizational effectiveness and a research engagement of students in priming the research culture thru the identification of policy enhancement measures in pursuit of research excellence.

METHODOLOGY

This study used the descriptive-correlation research design with 60 student participants from the College of Education who answered the 5-point Likert-type scale survey questionnaire on the extent of implementation of the research activity and an adapted online organizational effectiveness questionnaire. To establish the validity of the survey instrument, a pilot test of the survey questionnaire was performed with 20 students from other colleges. The overall reliability of the instrument was determined based on the pretesting of the survey with a reliability coefficient of .79 from the returned survey. Data and information yielded by the survey questionnaire were treated in depth through the use of the following statistical tools: weighted mean, frequency counting, ranking, and Pearson product-moment of correlation.

RESULTS AND DISCUSSION

3.1 Promoting Research Culture

The annual research activity which is held regularly ($M=4.50$, $SD=0.50$) promotes to a great extent a research culture in the school ($M=3.71$, $SD=0.70$) since it supports the innovation and creativity of the students ($M=4.23$, $SD=0.58$), as well as students' entries are in line with their field of discipline ($M=4.20$, $SD=0.70$). However, due to their least awareness of the Institute Research Agenda ($M=2.25$, $SD=1.05$), there is doubt whether their research entries are in line with this research agenda ($M=3.37$, $SD=0.68$). These imply a strong contribution of the annual research activity to nurture the research culture which is an essential function of higher educational institutions.

3.2 Stakeholder Engagement

There is a moderate extent of participation of students in this annual activity ($M=2.92$, $SD=0.86$) and there is the assistance of experts from the Department of Science and Technology-NCR who are invited as external judges ($M=4.30$, $SD=0.64$) which lends prestige to the competition. However, other schools have not participated in this innovation contest ($M=1.56$, $SD=1.11$). Likewise, projects undertaken by the students were not collaborative projects from other disciplines ($M=2.05$, $SD=1.05$) while prizes and incentives for winners are not sourced from external agencies ($M=1.97$, $SD=1.02$). There is evidence of the participation of the students in this annual research activity. However, it can still be expanded to include not only other internal stakeholders such as the faculty and staff but interested parties from other schools. The local initiative can be transformed into a competition among colleges and universities in the region.

3.3 Technical Requirements and Expertise

Technical requirements and expertise is an area that has the least extent of implementation ($M=2.54$, $SD=1.02$). The entries in the innovation contest are outputs of students' thesis projects ($M=4.05$, $SD=0.81$). While students are not familiar with the Innovation and Technology Support Office ($M=2.26$, $SD=1.04$), there is a need for technical support such as patent search ($M=1.90$, $SD=1.20$), intellectual property protection ($M=2.05$, $SD=1.02$), and standard research report writing ($M=2.54$, $SD=1.02$). There is a need to maximize the available resources in the school to support a technically sustainable research undertaking. Greater awareness of intellectual protection and commercialization of research outputs should be made a priority by the research managers.

3.4 Administrative and Financial Support

Experientially, there is a moderate extent of administrative and financial support in pursuing the research initiatives ($M=2.66$, $SD=0.88$). It confirms the strong support from the school administration for funds and requisite resources for holding the annual contest ($M=4.47$, $SD=0.66$) and participation in winning entries in external competitions or exhibitions ($M=3.70$, $SD=0.78$). However, certain areas needed more attention such as the commercialization of winning entries ($M=1.25$, $SD=1.04$), permanent exhibit area for winning entries ($M=1.90$, $SD=0.87$), and adequate and competitive prizes ($M=1.97$, $SD=1.05$). With increasing participation and strong administrative and financial support, the annual research activity can be assured of its sustainability and be a springboard to further the development of the institutional research culture.

3.5 Organizational Effectiveness

As regards the extent of organizational effectiveness in the Institute, there is a strong agreement among respondents on the manifestation of three out of 8 indicators which emphasize culture ($M=4.51$, $SD=0.81$), leadership ($M=4.39$, $SD=0.77$), and skills and competencies ($M=4.21$, $SD=0.77$). The respondents agreed that strategy ($M=3.95$, $SD=0.80$) and structures, systems, and processes ($M=3.95$, $SD=0.80$) have a great extent of implementation. There was a moderate extent of implementation of innovation ($M=3.13$, $SD=0.68$), performance measures and reward systems ($M=3.25$, $SD=0.87$), and environmental sustainability and responsibility ($M=2.95$, $SD=1.11$). In general, there is felt organizational effectiveness which impacts institutional activities that affect the nurturance of research culture. What is essential is to synergize efforts and resources to attain sustainability of this initiative by adopting measures from mentoring to production and commercialization as well as the transfer of technologies developed thru extension or outreach activities that would impact greatly the sustainability of a vibrant research culture.

3.6. Organizational Effectiveness and Implementation of Research Activity

Table 1 reflects there is a significant relationship between the organizational effectiveness and nurturance of research culture thru innovation activity. Stakeholder engagement and administrative and financial support show a high correlation while promoting research culture and technical requirements and expertise have a moderate correlation. Hence, this research engagement of students provides a positive venue to foster research excellence in the school.

Table 1. Relationship between Organizational Effectiveness and Implementation of Research Activity

Dimensions	Organization Effectiveness			
	r value	Correlation	Decision	Conclusion
1. Promoting research culture	0.73	Moderate	Reject H_0	Significant
2. Stakeholder engagement	0.92	High	Reject H_0	Significant
3. Technical requirements and expertise	0.57	Moderate	Reject H_0	Significant
4. Administrative and financial support	0.89	High	Reject H_0	Significant

Level of significance = 0.05

Critical value ≥ 0.195

Source: Own survey

3.7 Policy Enhancement Measures

Table 2 indicates the proposed policy measures which are intended to enhance the research ecosystem and support efforts to improve the research culture of the university.

Since its inception in 2011, the research engagement activity called the “Patimpalak ng Agham at Teknolohiya ng EARIST or PATATE” which is an annual invention and innovation contest is a highly anticipated activity that showcases the research outputs of students in various disciplines. It’s a fertile source of entries in various competitions and exhibits such as the DOST Regional Invention. As an institutional activity, it has gained a foothold in promoting research culture, encouraging stakeholder engagement, expanding technical requirements and expertise needed, and sustaining administrative and financial support. As a vehicle for nurturing research

Table 2. Policy Enhancement Measures

Concern	Policy Enhancement
a) Promoting research culture	<ol style="list-style-type: none"> Greater dissemination of institutional and college research agenda Regularly review the institutional and college research agenda
b) Stakeholder engagement	<ol style="list-style-type: none"> Encourage collaborative projects or interdisciplinary research Increase contest prizes and incentives from internal funds or external agencies Expand the innovation contest as a regional or national competition
c) Technical requirements and expertise	<ol style="list-style-type: none"> Information drive on intellectual property protection and ITSO services Require patent search for all technical projects Orientation on standard research report format
d) Administrative and financial support	<ol style="list-style-type: none"> Provide exhibit area for award-winning entries Promote and support the commercialization of winning entries Establishment of a Research and Production Center Maximize use of the vacant lot in EARIST Cavite Campus for research inputs and production

excellence, greater research involvement such as this engagement activity and interdisciplinary research provides access to research experience and positive experiences of the research culture (Sproken-Smith, Miroso & Darrou, 2014;

Wayment & Dickson, 2008, Davis, Mahatmya, Garner & Jones, 2015).

Thus this research ecosystem which involves implementing systematic and programmatic changes contributes to the importance of organizational culture to school improvement and school effectiveness as well as the benefit from a supportive environment on educational changes and the implementation of technology-enhanced innovation (Cheng, 1993; Zhu, 2015; Wayment & Dikson, 2008). The research culture is promoted by the active engagement of school stakeholders. Through increased awareness and experience of research by learning research skills and practical applications of theory (Spronken-smith, Mirosa & Darrou, 2008), the research program must emphasize the actual research and provide resources for funding (Abernathy, et al, 2017) and mechanisms for the dissemination of outputs (applied/action, basic and strategic research (Holligan, Wilson & Humes, 2011) that enhances the motivation for research and priming a research culture.

CONCLUSIONS

Both the research activity and organizational effectiveness contribute to the development of a research culture by its motivational impact on energizing the creative and innovative talents of the students.

As an effective mechanism in the research ecosystem, there are policy enhancement concerns that would address performativity, intensification, and income generation which would redound to sustainable support for research engagement.

REFERENCES

- [1] D. Abdul Razak, "Developing a Research Culture: The Experience of University Sains Malaysia," in *Research and Higher Education Development: Asia-Pacific Perspectives*, A.B.I. Bernardo, M.P. Munoz, & M.N. Valencia, Eds. Manila: De La Salle University Press, Inc., 2006, ch. 8, pp. 58-70.
- [2] K. Abernathy, Z. Abernathy, B. Costner, J. Rusinko, and K. Westover, (2017). Cultivating a culture of undergraduate research at a public comprehensive university. *PRIMUS (Problems, Resources, and Issues in Mathematics Undergraduate Studies)*, [Online]. 27(3), pp. 337-351. Available: [doi.org/10.1080/10511970.2016.1183247](http://dx.doi.org/10.1080/10511970.2016.1183247)
- [3] Y.C. Cheng, (1993). "Profiles of organizational culture and effective schools. *School Effectiveness and School Improvement: An International Journal of Research, Policy and Practice*, [Online] 4 (2), pp. 85-110. Available: <http://dx.doi.org/10.1080/0924345930040201>
- [4] S.N. Davis, D. Mahatmya, P.W. Garner, and R.M. Jones (2015). Mentoring undergraduate scholars: A pathway to interdisciplinary research? *Mentoring and Tutoring: Partnership in Learning*, [Online]. 23(5), pp. 427-440. Available: [doi.org/10.1080/13611267.2015.1126166](http://dx.doi.org/10.1080/13611267.2015.1126166)
- [5] A.E. Gonzales, "Creating a Culture of Research in a Developing Country University: A Case Study," in *Research and Higher Education Development: Asia-Pacific Perspectives*, A.B.I. Bernardo, M.P. Munoz, & M.N. Valencia, Eds. Manila: De La Salle University Press, Inc., 2006, ch. 7, pp. 52-57.
- [6] C. Holligan, M. Wilson, and W. Humes, (2011). Research cultures in English and Scottish university education departments: An exploratory study of academic staff perceptions. *British Educational Research Journal*, [Online]. 37(4), pp. 713-734. Available: [doi.org/10.1080/01411926.2010.489146](http://dx.doi.org/10.1080/01411926.2010.489146)
- [7] F. Hsia-San Shu, "Developing Research Cultures in the Asia-Pacific Region," in *Research and Higher Education Development: Asia-Pacific Perspectives*, A.B.I. Bernardo, M.P. Munoz, & M.N. Valencia, Eds. Manila: De La Salle University Press, Inc., 2006, ch.2, pp. 10-18.
- [8] Organizational Effectiveness Survey. Available: <http://www.quantisoft.com/cgi-bin/OrganizationalEffectivenessSurvey.asp>
- [9] L.J. Sison, "Creating Research Infrastructure: The Roadmap of the University of Santo Tomas," in *Research and Higher Education Development: Asia-Pacific Perspectives*, A.B.I. Bernardo, M.P. Munoz, & M.N. Valencia, Eds. Manila: De La Salle University Press, Inc., 2006, ch. 16, pp. 145-155.
- [10] R. Spronken-Smith, R. Mirosa, and M. Darrou, (2014). Learning is an endless journey for anyone: Undergraduate awareness, experiences, and perceptions of the research culture in a research-intensive university. *Higher Education Research & Development*. [Online]. 33(2). pp. 355-371. Available: [doi: 10.1080/07294360.2013.832169](http://dx.doi.org/10.1080/07294360.2013.832169)
- [11] N.C. Tansio and E.Z. Marquez, "Creating a Fertile Environment for Promoting Research in HEIs: The UPHR Experience." in *Research and Higher Education Development: Asia-Pacific Perspectives*, A.B.I. Bernardo, M.P. Munoz, & M.N. Valencia, Eds. Manila: De La Salle University Press, Inc., 2006, ch. 22, pp. 145-155.
- [12] H.A. Wayment and K.L. Dickson. (2008). Increasing student participation in undergraduate research benefits students, faculty, and department. *The Teaching of Psychology*, [Online]. 53(3), pp. 194-197. Available: [doi.org/10.1080/00986280802189213](http://dx.doi.org/10.1080/00986280802189213)
- [13] C. Zhu. (2015). Organisational culture and technology-enhanced innovation in higher education. *Technology, Pedagogy, and Education*, [Online]. 24(1), pp. 65-79. Available: [doi.org/10.1080/1475939X.2013.822414](http://dx.doi.org/10.1080/1475939X.2013.822414)