Developing Research Culture: An Outcomes Perspective

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Abstract

This paper sought to describe the evidences of the development of research culture from gestation to maturation as a result of the input of human capital and resources. Anchored on the Gestation-Expansion-Maturation Theory of the Development of Research Culture, a narrative inquiry was conducted with key informants from seven reputable teacher education institutions in Region VII. Interview transcripts were coded with the aid of NVIVO 11.3.2. The findings reveal six overarching themes on the return of investments or outputs of an institution's research culture with its corresponding attributes and characteristics. The development of research culture is an investment and is therefore evidence-based consisting of observable and measurable outputs in terms of performance and product. Gestation is achieved with production that consists of conducting research and writing manuscripts. Expansion happens when research outputs are disseminated through paper presentations and article publications. Maturation in terms of outputs lead to creation, which refers to influencing policies and being able to introduce technology geared towards contributing to development and innovation.

Keywords:

research culture, investment, performance, product

Introduction

University rankings have been used to assess the quality of higher education. Assessing universities encompasses both academic and research evaluations (Boholano et al., 2014). Samarasekera and Amrhein (2010) identified the Academic World Ranking of Universities, QS World University Rankings and Times Higher Education Rankings as

the most widely accepted international rankings. One shared characteristic of these three rankings is the prioritization placed on research productivity. This affirms the argument that when research is defined as generating new knowledge, it becomes a distinguishing characteristic of a university (Marchant, 2009).

Times Higher Education in partnership with Thomson Reuters assesses universities based on their performance on the following areas: "Teaching", "Research", "Citations", "Industry Income" and "International Outlook". The criteria on "Teaching", "Research" and "Citations" are given a weight of 30% in the overall ranking score while the areas of "Industry Income" and "International Outlook" are given 2.5% and 7.5% weights respectively. The criteria on "Teaching" cover the learning environment while "Research" encompasses volume, income and reputation. "Citations" refer to research influence (Times Higher Education, 2015). These criteria reveal how research in the world rankings of universities is given emphasis and assessed through observable and measurable outputs.

No Philippine university is included in the Top 400 List of the World in the Times Higher Education World Rankings. The challenge of upgrading the research performance of institutions of higher learning is faced by the country. The Commission on Higher Education (CHED) issued Memo 46, s. 2012 that calls for the typology of higher education institutions. This quality assurance system puts into place horizontal typology wherein a higher education institution can be classified as a professional institution, college or university, recognizing that particular types of HEIs will respond fittingly to particular global and national challenges (Commission on Higher Education, 2014). Therefore, there is a need to invest in the development of research culture and the monitoring of research productivity.

Research culture, according to Evans (2012), refer to the shared values, assumptions, beliefs, rituals and other forms of behavior geared towards the acknowledgement of the value and significance of research practice and its outputs. Research undertakings are considered vital and meaningful in the overall operations of the academic community. Activities like sitting as a panel member in an oral defense, supervising and mentoring researchers, writing research papers and presenting them in the national and international conferences are agents for enhancing research culture (Narbarte & Balila, 2018). However, activities are not enough. The existing studies on research culture of educational institutions reveal that for it to claim the presence of a strong research culture, there should be clear indicators of valued research practice and output. Stahmer, Aranbarri, Drahota and Rieth (2017) even challenges institutions to come up with comprehensive research plans and inquiry to ensure that goals from basic science to application can create an impact in the community.

The researcher has observed that these outputs do not come all at once suggesting that the development of a research culture occurs in certain phases. In the Philippines, Wong (2019) reports that there is a need for capacity-building to spur productivity which is characterized simply as the conduct of research and the writing of a research report. However, due to growing demand to meet international standards for universities, higher education institutions are looking for ways to produce quality research for international publication and citation (Mirasol & Inovejas, 2017). Studying the research outputs gives insights on the maturity of the research culture.

This paper proposes that the development of research culture can be attributed to quality outputs in terms of research practices and products that vary in degree as a Teacher Education Institution (TEI) consistently undergoes phases from initiation to maturation. Furthermore, this presents research culture as that which undergoes different stages of development: 1) Gestation (initiating stage), 2) Expansion (developing stage) and 3) Maturation (flourishing stage). Gestation is the period of providing the necessary conditions that would serve as the foundation of the TEI's research culture. When an institution reaches a period of stability and steady increase in quality research activity and output, it has reached Expansion. Maturation of the research culture is reached when the TEI consistently takes on research activities and produces quality outputs and it reaches a period of the establishment of its standing in the academic community. Figure 1 reveals how these stages of development are achieved through a consideration of various factors. The development of research culture can be attributed to people, resources and research activities.

Development begins with the foundational period of the TEI's research culture or Gestation. In this phase, the institution asks: What does a Teacher Education

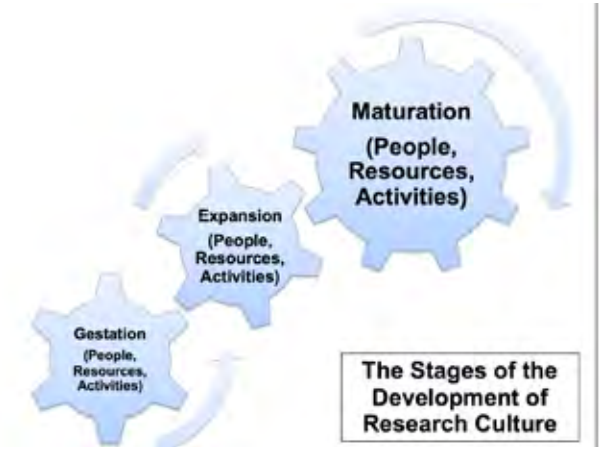

Figure 1

The Gestation-Expansion-Maturation Stages of the Development of Research Culture

Institution need in order to have a good foundation for a strong research culture? When an institution reaches a period of stable and steady increase in quality research activity and output, it is said to reach the stage of Expansion. The question to answer now becomes: What does a Teacher Education Institution need to build on the good foundation set for a strong research culture? This is the period wherein existing practices (policies, programs, and the like) are nurtured and other elements are added in order to continually expand. Maturation of the research culture is reached when the TEI consistently takes on research activities, produces quality outputs and reaches a period of the establishment of its standing in the academic community. It is at this point when the question takes on the form of: What does a TEI need to build credibility in the academic community as a reputable enduring research institution? In the development of research culture, an institution can retrogress if some factors are not nurtured or sustained. Although people, resources and activities spur the development of research culture, outputs are the indicators whether what has been done is effective in spurring research productivity. This paper seeks to describe research practices and output present in each stage in the development of research culture in TEIs.

Methodology

Qualitative research methodology—specifically, a narrative inquiry—was used as method of investigation as the development of research culture happens over a period of time as a form of narrative in the context of the experience of a Teacher Education Institution. Using purposive sampling, seven reputable TEIs in Region VII were selected, four of which are state universities while three are private higher education institutions. Semi-structured interviews were conducted with the Vice President for Research or Research Director (whichever is applicable) and Dean of the College of Education with the goal of capturing how research culture is developed in their context. Permissions were sought from the heads of agency and the participants of the study and informed consent was requested. As part of its ethics protocol, the researcher explained the purpose of the research and in what ways the gathered information will be utilized. All the names of people, institutions, events, and other data that might be used to track the informants have been coded to ensure confidentiality. Data was gathered in SY 2015-2016 in TEIs in Region VII that have a College of Education with at least Level II accreditation.

To analyze the data, thematic analysis using Braun and Clarke's (2006) approach was done to capture the development of research culture in the context of TEIs. First, the researcher went into the familiarization of data which involved transcribing the

interviews in verbatim, reading and reviewing the data, taking down initial ideas. Second, initial codes were generated and analyzed for themes. Third, themes were reviewed in relation to the coded extracts (Level 1) and the entire interview (Level 2), generating a thematic map of the analysis. The researcher did these three times with the aid of NVIVO 11.3.2. All the names of people, institutions, events, and other data that might be used to track the informants have been coded to ensure confidentiality.

The researcher identified significant statements from the answers relating to the evidences of research culture. Meanings were formulated from the statements focusing on the attributes and characteristics of these evidences in every stage of development. Themes were created from the meanings to map out the development of research culture. These themes were reviewed and the researcher identified the "narrative" that can be drawn out from them. Mind maps were drawn until as last step, themes were finally defined, named and reported in the next section of this paper.

Results

An analysis of the interviews revealed six overarching themes on how research culture as an investment is characterized in the TEIs. The codebook containing the complete list of significant statements and formulated meanings has fifteen pages. For the purpose of this paper, only vignettes of the interviews are cited and a summary of formulated meanings and significant statements is appended (Appendix A-C).

Operating on the assumption that the development of research culture is evidence-

Research as an Investment: Output

Stage	Milestone	Performance	Product
Gestation	Production	Conducting Research	Writing Manuscripts
Expansion	Dissemination	Presenting Papers	Publishing Articles
Maturation	Creation	Influencing Policies	Introducing Technology

Table 1

Milestones and Key Action Points on the Outputs of Research Culture as Returns of Investment

based and consists of observable and measurable inputs and outputs, these themes are reported in milestones and key action points (see Table 1). However, it is important to consider that these themes are not to be taken separately but are interconnected aspects of the development of research culture.

Gestation

At its most basic, research culture development begins with production as outcome. The Teacher Education Institution goes into conducting research (see Appendix A, Table 2) as supported by ten formulated meanings with 34 significant statements. Seven of the 14 participants highlighted that the faculty is trained to do research which is supported by the Input milestone in terms of capacity building. In this case, however, the informants highlight how these trainings result to the conduct of research. P4 states,

> *"We're trying to envision that after the series of trainings, at the end, it can produce already the proposals which can be submitted to the research council or which can be submitted as well for funding."*

The conduct of research is not only expected from the faculty but also from the undergraduate students (P3, P7, P8, P9 and P10) to the graduate school (P3, P12). Some of the informants made mention that their faculty are now involved in commissioned (P1 and P11) and institutional (P1, P8 and P11) research because it is part of their function (P1 and P4) or out of their own initiative (P9, P13, and P14).

The interviews revealed interesting insights on this milestone as well. P1 and P9 mentioned how hiring new and young faculty members should be given consideration. P9 revealed that,

> *"We had a research on that way back 2005-2006.... We only had a few at around 10-15% (Gamay ra kayo to'ng gaconduct ug research, 10-15% raman tingale to) but now it has increased. And (mao gale na ingon ko) as I said, the young ones are doing it."*

This supports the contention that those who are already in the system or have been teaching in the university for a long time may not so readily accept doing research in contrast to their younger counterparts. However, one administrator has shared that teachers in HEIs are assumed to have some background in conducting research since the entry requirements include a Master's degree, which almost always requires a thesis before graduation. P5 states,

> *"First of all, you have to consider, we're talking about HEI ha, that no teacher could teach without Masters…So what I'm saying is, we will start with what they have. Teach them how to write, rewrite their thesis for publication."*

In any case, once faculty members are hired in the institution, asking them to write is not sufficient unless there is a sustainable system that ensures quality outputs (P13).

Side by side with the faculty's conduct of research should be the writing of manuscripts (see Appendix A, Table 3) or research reports. With 29 significant statements and 12 formulated meanings from all 14 informants, this key action point highlights that the faculty must be trained to write research papers (P1, P4, P5, P9, P13, P14). It is a skill in itself (P9 and P12) and the written works are proof of research culture (P2 and P3) especially in terms of accreditation (P8). These trainings on writing should be backed by policies (P4), as the faculty should feel that they are supported in their research endeavors (P7 and P13). In addition, these capability building activities should not be limited to teaching the faculty how to write proposals (P4) but also giving them sufficient time to write (P4, P6 and P11) in the pursuit of knowledge (P2). P13 shared that,

> *"There were already research trainings as well however the design of those trainings did not include any follow-up. It leaves a certain kind of feeling of what's next? The trainings were not sustainable."*

Some key insights in this key action point include the presence of core research faculty (P1, P13) which refers to faculty already conducting research and writing papers long before they were required by the university, while some write because it is a requirement (P8, P9, P10, P12). This highlights the need for a needs-based approach to capability building that will lead to research productivity. A single approach to training faculty members may not maximize existing skills present in the institution's manpower. Another finding was that two informants mentioned that school leaders must have manuscripts (P2 and P14). As stressed by P2,

> *"Another advice that I can really share is the deans or those who will be heading the different units or departments must really have the knowledge of doing research. (They) must also be doing some published materials and outputs so they can also share and empower to others the knowledge, the initiatives of also doing research."*

Conducting research studies and writing manuscripts summarizing the results are two of the most fundamental outputs of research culture in terms of performance

and by-product. But if one goes to the purpose of knowledge generation, these are not enough for maturity to be achieved and so expansion of the basics must be worked on.

Expansion

A Teacher Education Institution with faculty members conducting research studies and writing manuscripts summarizing the results of these academic undertakings can now expand in that dissemination is pursued as an output. This milestone can be manifested through presenting papers (Appendix B, Table 4) and publishing articles (Appendix B, Table 5). Thirty-four significant statements led to 16 formulated meanings for this stage in research culture development.

Paper presentations are considered indicators of research culture (P1, P3, P7, P10 and P13); research findings ought to be reported (P2 and P5) to all levels (P9 and P12), even to the international arena (P9 and P10). Two of the informants specifically highlight the need to support faculty presentations (P5 and P13) in a sustainable manner (P13), even those who present of their own initiative (P19, P13 and P14). Granting incentives (P4), provision of venues for presentations (P3, P7, P8, P12), and support for foreign travel (P10) are some of the ways to show this support.

Presenting research outputs is a skill that is equally important to be learned (P13) because it can be a platform for networking (P3 and P14), empowerment (P7, P12, P13), and powerful role modeling (P13). When screening papers for presentation, the review process should be given sufficient attention (P13). The rigor involved in the selection of papers for presentation is an evidence of quality assurance (P11 and P12). This is clear in the experience shared by P13 that,

> *"...when faculty members finished presenting their research; they would come back and share their experiences. In many ways, this motivated the faculty. In the case of ***, I think modeling was really very powerful in building the research culture."*

Dissemination is not only limited to paper presentations but includes publication of research articles. Six informants believe that a mature research culture necessitates the publication of research articles (P2, P4, P8, P10, P12, and P13). An institution should set publication targets (P2 and P14) to further aid research dissemination. (P5 and P14). Although there are those who acknowledge that publication is a requirement for a university (P2, P7), it remains a challenge for school administrators (P2, P3, P5, P14) as it requires a higher level of skill set (P11) and the quality of the journal where

the articles are published matters (P4 and P5). It is even suggested that the university have their own journal (P2, P10 and P11) and be able to sustain its operations (P2, P8 and P11).

To increase the number of publications, it is suggested that outstanding student work can be included (P3, P9, P12) and graduate school research be written in publication format (P5, P8). It can be incentivized (P3) or through the initiative of the faculty (P7 and P9). P5 identifies the presence of mentors to be helpful in the challenging task of publication in this statement:

> *"You really have to get people from the outside to teach us that because the people inside also grow used to the idea of the old."*

It is noteworthy that the academic leaders chosen to be informants of this study highlighted the value of quality publications (P4, P5, P11 and P13) to aid building the reputation of the researcher (P15 and P14). As P11 puts it,

> *"They need to do more and more quality research. That's the only way. They have started already so they need to satisfy the quality of their work because after making the research, after they have already the paper from the research conducted, we need to satisfy the journal already. The journal is this quality, like Category A, Category B. It has to be reviewed rigidly. And then not that point only to stop, we need to go further. We have to be accessed internationally."*

Benchmarking on international standards (P11 and P14) and ensuring the placement of quality assurance mechanisms (P11 and P13) are some of the identified ways of achieving this goal.

Maturation

Eight out of the 14 informants agree that for a university to have a mature research culture, the utilization of research should be evident (P1, P2, P3, P4, P5, P10, P12, P14). In this stage of research culture development, the milestone is Creation, which translates to evidences in influencing policies (Appendix J, Table 26) and introducing technology (Appendix J, Table 27) as key action points. This reveals that ultimately, in terms of outputs, a teacher education institution is considered to have a mature research culture if it can prove that it has contributed to new knowledge (P2) especially in their field of discipline (P3 and P7) in a way that it helps solve problems (P2) and improves the teaching-learning process (P2, P7, P13 and P14). In the mention of the teaching-learning process, the peculiarity of having informants coming from the TEIs comes out.

In terms of influencing policies, this can be manifested in the inclusion of research in all the activities of the institution (P12 and P13). Research will not be able to permeate all the other functions of the institution if it is not backed by policy. Another measure of influence is citation (P7 and P11), which is used by many as indicator of a mature research culture. The informants highlight that development does not only start with really good research (P3) but that the mindset of contributing to the development of the community and one's discipline should be inculcated in the minds of the researchers (P5, P13). P13 stated,

> *"Research should be responsive to the changing needs and demands of the society."*

For a mature research culture, the outputs of research undertakings must reach international recognition (P7) and improve practice in the same manner that practice improves research in a discipline (P2). All of the ideas in this theme are summed up by P3,

> *"That is how I think we can say there is maturity in the research culture. When certain theories of education are associated with the school. That is why I said patents, ideas, theories. Theories that are now associated with the school. For example, would be if there are intellectuals and gurus that are associated with the school, the institution. The theory or the philosophy or whatever now exudes and now brings the name of the school outside as a respected kind of thinking or thought that is really the mature research culture."*

In addition to this, although not a popular thought in this group of informants, is the idea that a mature research culture introduces technology. With only 18 significant statements and 6 formulated meanings, this may be taken to mean that TEIs are not naturally geared to producing patents and utility models. The prevailing idea is that research should translate to something that is useful to the community (P1, P2, P10, P12, P14). P2 explained,

> *"Teachers need to be instilled in their responsibility that it's not just for classroom, it's also for the community and for global practice also. That's when the knowledge is shared to everyone in the community. It's when there is an innovation of new knowledge."*

As product, research should result in patents in a mature research culture (P3, P10, P11, P12, and P14). P3 said this of their institution's research culture,

"It's not mature yet. There is still a room for, a lot of room for improvement. Maybe, just maybe, this is my take on a full maturity for a research culture is number one, when research translates to development. Meaning, development of systems, procedures and you really see the application. And so, related to research would be patents, development of patents. Right now, they have to establish the intellectual property office. Right now, we don't have the IPO office yet."

It should be noted that there should be the provision of research infrastructure to support patenting (P11, P12).

One key insight shared by the informants, as a manifestation of a mature research culture is that even at this stage, researchers are reminded that research should anchor on what is happening in the actual field (P14) and with due consideration with coming up with something novel (P11). Research, as P11 believes, should be undertaken with utilization in mind. This means that building a research culture entails continually learning from the field in order to be able to identify areas of contribution and to have a much clearer view of what is considered novel in the academic community and industry.

If one looks at the data closely, an observation would be that only seven of the 14 informants have contributed to this theme. This may imply that there are TEIs that see the contribution of research more for the improvement of policies, systems and practices than actual technological contributions. Also, as observed by the researcher, some informants see that a mature research culture ends at being able to publish their papers. The answers of the informants give a clue as to what level of research culture development their institution is in. Most of those who struggle in producing papers think that being able to publish is maturity but those who are able to publish pursue something more.

Discussion

In looking into the outputs of the Teacher Education Institution (TEI) over the period of research culture development, interviews revealed that the milestones move from Production to Dissemination until the TEI goes into Creation (see Figure 2). In gestation, the TEI begins to manifest the existence of its research culture in terms of performance and product. Production involves conducting research and writing manuscripts. As the research culture of the university reaches the expansion stage, it now moves from doing research and writing research papers to the dissemination

of results. Dissemination is not only done within the university or college but to other educational stakeholders through presenting papers and publishing articles. The shared results of conducted researches can be used in influencing policies and introducing technology. It is when their outputs are relevant and are useful to the academe, community, and industry or when the university or college goes into creation, that it can be said that maturation has been reached.

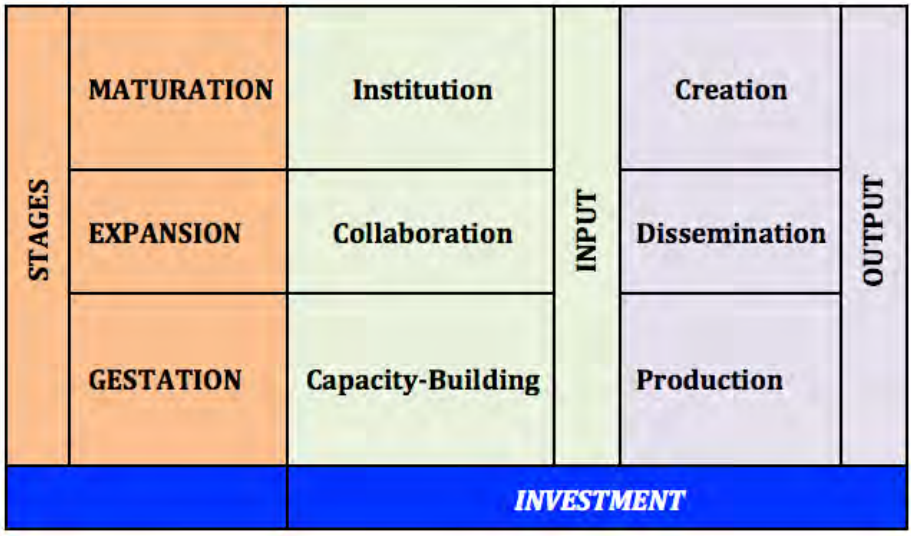

Table 1

The Milestones of Research Culture as an Investment

In terms of return of investment, production involves conducting research which translates to how institutions pursue institutional and commissioned research, hire technologically-literate and research-competent faculty members, recognize research as a function of a TEI faculty, require students to conduct research and consider sustainability of systems in place for conduct of research. This would require an investment in the human resources of the institution and careful planning on the part of the institution. It is noteworthy as well that literature indicates that teacher educators increase their research productivity and build their own identity as fully fledged researching academics when they are given opportunities to work with more experienced colleagues in a supportive academic environment (Hill & Haigh, 2012).

Complementary to this key action point is writing manuscripts which require institutions to support the faculty in writing research proposals and papers, prove the presence of research culture through written work, accreditation and polices that facilitate research activities, have core research faculty and researching school leaders, write in the pursuit of knowledge and require research from the faculty. The technical writing aspect of research is considered by many as a special skill set that needs to be learned by a researcher in order to get his findings across in an effective manner. The institution in turn should invest in their faculty and help them learn this skill. In a study on research culture, findings suggest several policy implications for institutions of higher learning. These include the need to have a strong faculty development program and enhanced research collaboration to promote and enhance the research culture in higher education institutions (Quimbo & Sulabo, 2014). It should be noted that it is through the reports written of research activities where evidences of rigor and scientific contribution can be evaluated.

In the Expansion Stage, Dissemination involves presenting papers, as indicator of the presence of research culture. Part of quality assurance, it is a powerful form of role modeling and a tool for empowering and motivating researchers. Institutions need to inculcate the idea that findings must be reported and encourage the conduct of research presentations in all levels and to various audiences. It should also support paper presentations through incentives, provide a venue for such activities, fund research-related travels in a sustainable manner, and encourage the faculty members to form professional networks. Presenting findings and reporting research activities give opportunities for learning for the faculty and could be effective in building their confidence in conducting research. This highlights the communal aspect of developing research culture. Tynan and Garbett (2007) affirm the value of teams in their study, highlighting the need for collaboration in the higher education research landscape that may have put too much emphasis on individualism and competition between researchers.

As a product, the conduct of research is expected to translate to the publication of articles. Similarly, this is spurred because it is considered as a requirement of the faculty, a challenge for the administrators, prerequisite for the establishment of a researcher's reputation and an indicator of a mature research culture. The challenge here includes the ability to sustain your own journal and publication targets benchmarking on international standards, address the requirement of a higher level of skill set, necessitate quality research, and facilitate publication through mentoring. The findings also ask that one look into the quality of the journals where the articles are published and train students to publish their work. These findings stress the importance of the role of management in the development of research culture.

Pratt, Margaritis, and Coy (1999) identified decentralized management in the higher education institution's structure and strong leadership at the dean level to be vital considerations for the maturation of a research culture.

Dissemination as a milestone differs largely from production in that it is in this stage when an institution acknowledges that research is meant to contribute to a much greater cause. Quality assurance in research is reinforced in presentations and publications as it provides not only a way of sharing significant findings, but it provides a system of check and balance. It adds protection to the academic integrity of the work done. However, the 45 significant statements and 18 formulated meanings in this category reveal that dissemination is not the ultimate goal of research but is a vehicle for impact which is addressed in Maturation.

The highest level of development is indicated by the institution's ability to create. Creating includes the ability of research outputs to influence policies. This is considered an indicator of a mature research culture. The challenge for the institution is to make research a part of all its activities and provide evidence for research utilization and contribution. The focus is the institution's ability to significantly contribute in solving problems in the field of discipline. It is important to remember that research improves practice and practice improves research. For Teacher Education Institutions, a focus on contributing to improving the teaching-learning process is also recommended. Overall, it can be said that the level of impact of the research is a reflection of how grounded the choice of research problem is to what is really happening in the field of study.

Together in this milestone is the key action point of introducing Technology. This is also considered as an indicator of a mature research culture. Key insights that needed to be studied if an institution is serious about becoming a reputable institution for research is to invest in the ability to provide infrastructure supportive of patenting. All these efforts need to anchor research on realities in the field of discipline. Right from the very start, one needs to undertake research with 'utilization' in mind, which translates to something useful in the community. The challenge of creation also includes the ability to produce something novel. In this age, innovation and ingenuity are given premium even in the academe. To be able to reach this level takes high levels of commitment in the work setting that, according to Edgar and Geare (2013), is a core feature of high functioning departments in a university in terms of research productivity.

Conclusion

The development of research culture is an investment and is therefore evidence-based consisting of observable and measurable outputs in terms of performance and product. Gestation is achieved with production that consists of conducting research and writing manuscripts. Expansion happens when research outputs are disseminated through papers presentations and publications of articles. Maturation in terms of outputs leads to creation, which refers to influencing policies and being able to introduce technology, geared towards contributing to development and innovation.

Any institution that seeks to build a strong research culture should have a clear monitoring and evaluation system of research outputs as part of their investment plan for this academic endeavor. The return of investment should be identified in order to check the effectiveness of practices and recommend redirection of initiatives if evidences suggest otherwise.

Acknowledgment

The researcher would like to extend her gratitude to the Commission on Higher Education for being a recipient of its Dissertation Grant, without which, this study would not have been possible.

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Appendix A

Summary of Formulated Meanings for Production

Table 2

Formulated Meanings for Key Action Point - Conducting Researches

FM Code	Formulated Meaning	#	Sources
CR01	Hiring of young faculty members is vital	2	P6, P9
CR02	Presence of commissioned researches	2	P1, P11
CR03	Presence of institutional researches	4	P1, P8 (2), P11
CR04	Recognition of research as a function of the faculty.	2	P1, P4
CR05	Researches are done through faculty initiative	3	P9, P13, P14
CR06	Students are required to do research	6	P3, P7, P8, P9 (2), P10
CR07	Sustainability of systems should be considered	2	P13 (2)
CR08	The faculty is assumed to have some background of doing research	1	P5
CR09	The faculty is trained to do research	9	P2, P4 (2), P6, P9, P11, P13 (2), P14
CP10	The graduate school is focused on research	3	P3, P12 (2)
TOTAL			**34**

Table 3

The Milestones of Research Culture as an Investment Formulated Meanings for Key Action Point - Writing Manuscripts

FM Code	Formulated Meaning	#	Sources
WM01	Accreditation is proof of existence of research.	1	P8
WM02	Policies facilitate the research activities	1	P4
WM03	Presence of core research faculty	3	P1, P13 (2)
WM04	Research is a requirement	4	P8, P9, P10, P12
WM05	School leaders must also have manuscripts	2	P2, P14
WM06	The faculty is trained to write research papers	6	P1, P4, P5, P9, P13, P14
WM07	The faculty needs to feel they are supported in their research endeavors	3	P7, P13 (2),
WM08	The faculty should be given sufficient time to write	3	P4, P6, P11
WM09	Writing in pursuit of knowledge	1	P2
WM10	Writing research is a skill	2	P9, P12
WM11	Writing researches start with writing proposals	1	P4
WM12	Written works are proofs of research culture	2	P2, P3
TOTAL			**29**

Appendix B

Summary of Formulated Meanings for Dissemination

Table 4

Formulated Meanings for Key Action Point - Presenting Papers

FM Code	Formulated Meaning	#	Sources
PP01	Encourage international presentations	2	P9, P10
PP02	Encourage presentations from all levels	2	P9, P12
PP03	Faculty presentations should be supported	2	P5, P13
PP04	Findings have to be reported	2	P2, P5
PP05	Paper presentation is a skill to be learned	1	P13
PP06	Presentation of papers is an indicator of research culture	5	P1, P3, P7, P10, P13
PP07	Presentations are part of quality assurance	2	P11, P12
PP08	Presentations can be incentivized	1	P4
PP09	Presentations provide a platform for networking	2	P3, P14
PP10	Provide a venue for research presentations	4	P3, P7, P8, P12
PP11	Quality control is vital in paper presentations	1	P13
PP12	Research dissemination is meant to empower	4	P7, P12 (2), P13
PP13	Research presentations can be undertaken through faculty initiative	3	P9, P13, P14
PP14	Supporting international travels for research presentations can be motivational	1	P10
PP15	Systems to establish sustainability should be in place	1	P13
PP16	The act of presenting papers is a powerful form of role modeling	1	P13
TOTAL			**34**

Table 5

Formulated Meanings for Key Action Point – Publishing Articles

FM Code	Formulated Meaning	#	Sources
PA01	A university should have its own journal	3	P2, P10, P11
PA02	An institution should set publication targets	2	P2, P14
PA03	Benchmark on international standards	2	P11, P14
PA04	Graduate school publications are advised to be written in publishable format.	2	P5, P8
PA05	Journals should be sustained	3	P2, P8, P11
PA06	Outstanding student work can be published	3	P3, P9, P12
PA07	Publication is a challenge for school administrators	4	P2, P3, P5, P14
PA08	Publication is a requirement for a university	2	P2, P7
PA09	Publication requires a higher level of skill set	1	P11
PA10	Publications can be incentivized	1	P3
PA11	Publications can be pursued through faculty initiative	2	P7, P9
PA12	Publications establish researcher reputation	2	P5, P14
PA13	Publications is an indicator of a mature research culture	7	P2, P4, P8, P10, P12, P13(2)
PA14	Publications necessitate quality research	1	P11
PA15	Quality assurance mechanisms should be in place for publication	4	P11(3), P13
PA16	Research is made useful through publication	2	P5, P14
PA17	The presence of mentors aid in publication	2	P5(2)
PA18	The quality of the journal where the articles are published in matters.	2	P4, P5
TOTAL			**45**

Appendix C

Summary of Formulated Meanings for Dissemination

Table 6

Formulated Meanings for Key Action Point –Influencing Policies

FM Code	Formulated Meaning	#	Sources
IP01	Citation is an indicator of a mature research culture	3	P7 (2), P11
IP02	Development starts with really good research	1	P3
IP03	International recognition is important	1	P7
IP04	Research improves practice and use of research in practice improves research in the discipline	1	P2
IP05	Research in the academe should contribute to the improvement of the teaching-learning process	4	P2, P7, P13, P14(2)
IP06	Research is done to contribute new knowledge	2	P2, P5
IP07	Research is part of all the activities in the institution	2	P12, P13
IP08	Research translates to solutions to problems.	1	P2
IP09	The development mindset needs to be inculcated	2	P5, P13
IP10	The school is identified with significant contributions to the field of discipline	3	P3, P7(2)
IP11	Utilization of research should be evident	11	P1, P2(3), P3, P4, P5, P10(2), P12, P14
TOTAL			**31**

Table 7

Formulated Meanings for Key Action Point – Introducing Technology

FM Code	Formulated Meaning	#	Sources
IT01	Patents is an indicator of a mature research culture	6	P3, P10, P11 (2), P12, P14
IT02	Research infrastructure should support patenting	2	P11, P12
IT03	Research should anchor on what is happening in the actual field	1	P14
IT04	Research should be undertaken with utilization in mind	1	P11
IT05	Research translates to something useful to the community	7	P1, P2 (2), P10(2), P12, P14
IT06	The challenge in patenting is novelty	1	P11
TOTAL			**18**