Towards Innovation Performance among University Staff

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Abstract—This study examined how individuals in their respective teams contributed to innovation performance besides defining the term of innovation in their own respective views. This study also identified factors that motivated University staff to contribute to the innovation products. In addition, it examined whether there is a significant relationship between professional training level and the length of service among university staff towards innovation and to what extent do the two variables contributed towards innovative products. The significance of this study is that it revealed the strengths and weaknesses of the university staff when contributing to innovation performance. Stratified-random sampling was employed to determine the samples representing the population of lecturers in the study, involving 123 lecturers in one of the local universities in Malaysia. The method employed to analyze the data is through categorizing into themes for the open-ended questions besides using descriptive and inferential statistics for the quantitative data. This study revealed that two types of definition for the term "innovation" exist among the university staff, namely, creation of new product or new approach to do things as well as value-added creative way to upgrade or improve existing process and service to be more efficient. This study found that the most prominent factor that propels them towards innovation is to improve the product in order to benefit users, followed by self-satisfaction and recognition. This implies that the staff in the organization viewed the creation of innovative products as a process of growth to fulfill the needs of others and also to realize their personal potential. This study also found that there was only a significant relationship between the professional training level and the length of service of 4 - 6 years among the university staff. The rest of the groups based on the length of service showed that there was no significant relationship with the professional training level towards innovation. Moreover, results of the study on directional measures depicted that the relationship for the length of service of 4-6 years with professional training level among the university staff is quite weak. This implies that good organization management lies on the shoulders of the key leaders who enlighten the path to be followed by the staff.

Keywords—Innovation, length of service, performance, professional training level, motivation.

I. INTRODUCTION

ORGANIZATIONAL innovation performance is defined as the propensity of a firm to actively support new ideas, novelty, experimentation and creative solutions [1]. Many organizations can benefit from creating and sustaining a culture that supports innovation. There are many approaches that can stimulate organizations to achieve innovation performance. Importantly, every institution needs access to a ready supply of well-prepared leaders in taking steps to redesign university-based leadership preparation programs to emphasize who can lead improvement. Based on the opinion of [2], leadership behavior and employee commitment are the most essential factors related to human capital approach in affecting innovation performance. Institution needs leaders who are prepared to plan and implement institution improvement strategies from their first day on the job [3].

II. METHODOLOGY

A. Objectives of the Study

This study surveyed 123 university staff on how individuals in their respective teams contributed to innovation performance in their organization besides defining the term of 'innovation' in their own respective views. This study also identified factors that motivated the University staff to contribute to the innovation products. Besides that, this study examined whether there is a significant relationship between the professional training level and the length of service among university staff towards innovation performance and to what extent do the length of service and the level of professional training contributed towards innovative products among University Staff.

B. Research Questions

This study addressed the following research questions:
1) What does the term "innovation" meant to the University staff?
2) What motivated the University staff to contribute to the innovation products?
3) Is there a relationship between the professional training level and the length of service among university staff towards innovation?
4) To what extent do the length of service and the level of professional training contributed towards innovative products among University Staff?

C. Significance of the Study

If countries or state should provide guidelines to assist universities in recruiting and preparing a high-quality pool of potential leaders to meet current and projected needs. A key element in this design is the "leadership succession plan" to identify promising staff and create early opportunities for them to develop leadership skills [3]. Thus, the significant finding of this study is to enhance the awareness among

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university staff pertinent to the leadership role towards their contribution to innovation performance. Moreover, the results of this study will be useful to examine the strengths and weaknesses of the university staff when contributing to the innovation performance. Therefore, in general, this study could strengthen the role and responsibilities of Malaysian university staff as leaders.

This study focused on three vital variables, namely the length of service, level of professional training and innovation performance. With the rapidly changing society, the 21st-century workforce is global, highly connected, technology-savvy and demanding. Not only has technology become a critical and pivotal part of human resources but the length of service and the level of professional training are vital factors to maintain organizational progress. In order to keep pace with the 21st century workforce, organizations need ambitious, passionate and purposeful employees. Thus, millennials are the major force but so are older workers, who remain engaged and valuable contributors. Unfortunately, critical new skills are scarce and their uneven distribution around the world is forcing companies to develop innovative new ways to find people, develop capabilities and share expertise [4]. Thus, this study emphasized the length of service and the level of professional training towards innovation performance to fulfill the needs of the 21st century workforce due to the fact that trained staffs are better equipped to meet the divergent needs of an organization. Moreover, the relationships between these two factors are very important in examining the contribution to innovation performance.

D. Sample Survey

This study was carried out in a university in the state of Sarawak in Malaysia. This university was established in 1973 and it offers programmes ranging from diploma, degree, masters to doctorate levels. In addition to teaching, every lecturer is required to participate in research and consultancy work, and to be involved in other scholarly activities such as participation in seminars and conferences, publication and writing. Moreover, as a growing university, it encourages its staff to be involved in invention and innovation events. The participation and achievement of lecturers from this university in invention and innovation events was very promising, winning several gold, silver and bronze medals at university, national and international levels between 2007 and 2013. The encouraging performance of this university has prompted the researchers to examine the overview of how individuals in their respective teams operated and contributed to this organization. This study also identified the salient characteristics of how the respondents made progress as leaders in their respective faculties or departments towards identifying directions for innovative future practice through levels of professional training and length of service in an organization.

Stratified-random sampling was employed to determine the samples representing the population of lecturers in the study, involving 123 lecturers in one of the local universities in Malaysia. There were thirteen faculties involved in this study.

At the University level, stratified sampling was employed to select the possibility of lecturers from each faculty. Simple random sampling was conducted at the faculty level to select 12 lecturers for all the 13 faculties. The respondents in the study consisted of Heads of Department (1.6%), Heads of Unit (2.4%), Heads of Studies (2.4%), Course Coordinators (4.1%), Permanent Lecturers (80.5%) and Full Time-Part Time Lecturers (8.9%).

E. Data Analysis Methods

The main method employed to analyze the data is through categorizing into themes for the open-ended questions besides using descriptive and inferential statistics for the quantitative data. The authors used the distribution of frequencies, percentages and Crosstab to analyze and describe the results of the research findings.

III. FINDINGS

A. RQ1: What Does the Term "Innovation" Meant to the University Staff?

Generally, findings in this study revealed that most of the respondents understood the definition of innovation. Basically, they provided two types of definition for the term "innovation". Some of them (31.7%) [39 out of 123 respondents] defined innovation as creating new product or new approach to do things. However, majority of them (68.3%) [84 out of 123 respondents] perceived innovation as value-added creative way to upgrade or improve existing process and service to be more efficient. Table I illustrates some excerpts on the definition of the term "innovation" as mentioned by some respondents.

B. RQ2: What Motivated the University Staff to Contribute to the Innovation Products?

Findings showed that nearly half of the respondents (49.6%) from the population of the study (n=123) came out with innovation product in their respective faculty or department. It was found that numerous factors have motivated the respondents to create innovative product(s) in their organization. Fig. 1 shows the factors that motivate the creation of innovative product(s) by the respondents in their organization.
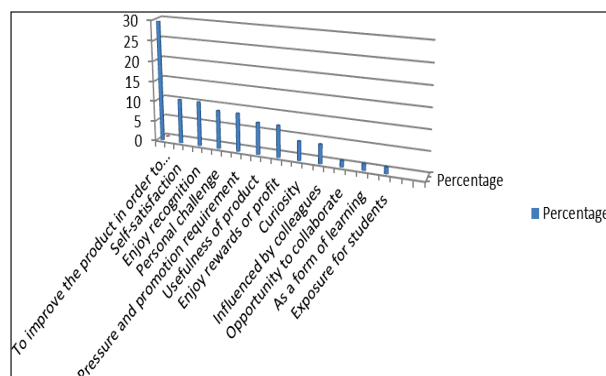

Fig. 1 Factors motivating the creation of innovative product(s)

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TABLE I
EXCERPTS ON DEFINITION OF INNOVATION

Types of Definition for Innovation	Excerpt on Definition of Innovation	Respondent
Creating new product or new approach to do things	Innovation is creating something new that has benefits for specific groups or the general public.	R8
	Something new, a new approach, a better approach	R20
	Something fresh and new that can bring about a change for something better, especially if it concerns people's lives. It does not have to be complicated but it can produce the desired change efficiently.	R27
	Doing something or creating something new/out of the box.	R39
	Create and design new things to meet demand of users.	R77
	A new means to make teaching and learning more effective.	R102
Value-added creative way to upgrade or improve existing process and service to be more efficient	Something that people create or renew that has new feature which can be helpful to others might be a product or service.	R25
	Innovation is individual endeavour to maximize potential of available product and services by adding some value based on one's creativity and thinking out-of-the-box mindset.	R31
	To value-add certain outcomes, teaching methods to enhance existing ways of doing things to make it more effective and efficient.	R38
	Improving a process to be more effective and user-friendly.	R107
	Change made to capitalise on available product for efficiency.	R112
	Innovation is redesigning improved ways to advance a product or method.	R120

As exhibited in Fig. 1, among the 12 factors that motivate the creation of innovative products as outlined by the respondents, the more prominent factors are to improve the product in order to benefit users (29.7% of the respondents), followed by self-satisfaction (10.9%), enjoy recognition (10.9%), personal challenge (9.4%), pressure and promotion requirement (9.4%), usefulness of product (7.8%) and enjoy rewards or profit (7.8%). This implies that the staff in the organization viewed the creation of innovative products as a process of growth to fulfill the needs of others and also to realize their personal potential. Some examples of the excerpts on the factors that motivate the creation of innovative products as expressed by the respondents are exemplified in Table II.

TABLE II
EXCERPTS ON FACTORS THAT MOTIVATE THE CREATION OF INNOVATIVE PRODUCTS

Factors Motivating the Creation of Innovative Products	Excerpt on Factors Motivating the Creation of Innovative Products	Respondent
To improve the product in order to benefit users.	• To benefit the society.	R6
	• Improve product to help educators to teach more effectively.	R63
	• The innovation is from my own research and it will be useful for the masses.	R29
	• The contribution of new process into the current system.	R14
	• To increase speed of product and can work smart.	R22
	• To increase efficiency and keep abreast with current advancement in technology so as to make a product better	R74
Self-satisfaction	• It's for self-pleasure.	R84
	• I enjoyed participating in innovative product.	R6
	• I feel contented to be able to contribute something to enhance the process of teaching and learning.	R104
Enjoy recognition	• I enjoyed recognition. It shows that I can create new things.	R6
	• Organization recognition	R31
	• I feel good to be given the credit for the product I innovated.	R95
Personal challenge	• I enjoy showing my ability to create new things.	R55
	• To experiment with my ideas to see if it works.	R118
Pressure and promotion requirement	• Coercive pressure from the top management as part of the promotion requirement.	R23
	• I need that to get promotion and it also gives me the chance to think out-of-the-box.	R66
Usefulness of product	• My innovative products might be useful for research purposes.	R103
	• The opportunity to innovate is there and together with my creative colleagues and students, our ideas can be transformed into tangible products.	R1
Enjoy rewards or profit	• Rewards and incentives	R31
	• Long-term profit	R121
	• The reward I received for my innovation is meaningful and valuable and it feels good that the ideas come from me.	R90
Curiosity	• Curiosity to try out something new besides the routine teaching work.	R16
	• I am eager to see whether my creative ideas can help to improve a certain system.	R113
Influenced by colleagues	• Influence by colleagues, I follow them.	R24
	• My friends encouraged me to join their innovation group.	R103
Opportunity to collaborate	• Chance to work with colleagues and to share innovative ideas.	R12
As a form of learning	• Learning values	R4
Exposure for students	• To expose students (also innovators) to innovative work.	R32

C. RQ3: Is There a Relationship between the Professional Training Level and the Length of Service among University Staff towards Innovation?

In terms of relationship between the professional training level and the length of service among the university staff

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towards innovative initiatives, findings showed that there was only a significant relationship between the professional training level and the length of service of 4 - 6 years among the university staff (Likelihood Ratio= 28.500, df=12, p< 0.5). The rest of the groups based on the length of service showed that there was no significant relationship with the professional training level towards innovation. Moreover, Table III on directional measures depicts that the relationship for the length of service of 4 - 6 years with professional training level among the university staff is quite weak with eta=0.07. In other words, this finding implies that some of the respondents of this study who served the university for 4 – 6 years and had gone through professional training contributed more to innovation. However, their contributions to innovation performance are relatively small due to the directional measures of the data that showed the weak value of eta (eta=0.07).

TABLE III
DIRECTIONAL MEASURES FOR THE LENGTH OF SERVICE AND PROFESSIONAL TRAINING LEVEL

Length of Service		Value	
4 - 6 years	Nominal by Interval	Eta=0.070	Level of Professional Training Dependent Innovative Mean Dependent

D.RQ4: To What Extent Do the Length of Service and the Level of Professional Training Contributed towards Innovative Product among the University Staff?

From the crosstab analysis as displayed in Fig. 2, findings in the study suggested that for the 1-3 years length of service, only 30% of the staff came out with innovative product(s) in their respective faculty. Within 30% from the 1-3 years length of service, all of the respondents (100%) that went through international level of professional training did come out with innovative product(s) in their respective Faculty/Department/Centre. Only 60% that went through both local and international levels of Professional Training contributed towards innovative product(s) in their respective Faculty/Department/Centre whereas, for the 4-6 years length of service, a total of 75.7% among the staff came out with innovative product(s) in their respective faculty. The highest percentage that contributed to the innovative product was those staff with international level of Professional Training with a total of 94.4%. The lowest percentage that came out with innovative product(s) in their respective faculty was the staff that went through local professional training. However, 90% among the staff who came out with innovative product(s) in their respective faculty were those who underwent local and international Professional Trainings.

For the length of service of 7-9 years, the finding showed that a total of 63.2% among the staff came out with innovative product(s) in their respective faculty. The highest percent of staff that contributed to the innovative product were those with both local and international levels of Professional Training with a total of 83.3%. The lowest percent that came out with innovative product(s) in their respective faculty were the staff that went through local professional training with a total of

44.4%. In contrast, for the length of service of more than 15 years, only 20% of the staff came out with innovative product(s) in their respective faculty. 100% that contributed to the innovative products were those staff with the international level as well as the local and international levels of Professional Training. In contrast, 100% of the staff who had more than 15 years of service and had gone through local professional training did not contribute to the innovative product(s) in their respective faculty.

Length of Service				Innovative Yes	No	Total
1 - 3 years	Level of Professional Training	Local	% within Level of Professional Training	.0%	100.0%	100.0%
			% within Innovative_R46	.0%	85.7%	60.0%
			% of Total	.0%	60.0%	60.0%
		International	% within Level of Professional Training	100.0%	.0%	100.0%
			% within Innovative_R46	50.0%	.0%	15.0%
			% of Total	15.0%	.0%	15.0%
		Local and International	% within Level of Professional Training	60.0%	40.0%	100.0%
			% within Innovative_R46	50.0%	14.3%	25.0%
			% of Total	15.0%	10.0%	25.0%
	Total		% within Level of Professional Training	30.0%	70.0%	100.0%
			% within Innovative_R46	100.0%	100.0%	100.0%
			% of Total	30.0%	70.0%	100.0%
4 - 6 years	Level of Professional Training	Local	% within Level of Professional Training	22.2%	77.8%	100.0%
			% within Innovative_R46	7.1%	77.8%	24.3%
			% of Total	5.4%	18.9%	24.3%
		International	% within Level of Professional Training	94.4%	5.6%	100.0%
			% within Innovative_R46	60.7%	11.1%	48.6%
			% of Total	45.9%	2.7%	48.6%
		Local and International	% within Level of Professional Training	90.0%	10.0%	100.0%
			% within Innovative_R46	32.1%	11.1%	27.0%
			% of Total	24.3%	2.7%	27.0%
	Total		% within Level of Professional Training	75.7%	24.3%	100.0%
7 - 9 years	Level of Professional Training	Local	% within Level of Professional Training	44.4%	55.6%	100.0%
			% within Innovative_R46	33.3%	71.4%	47.4%
			% of Total	21.1%	26.3%	47.4%
		International	% within Level of Professional Training	75.0%	25.0%	100.0%
			% within Innovative_R46	25.0%	14.3%	21.1%
			% of Total	15.8%	5.3%	21.1%
		Local and International	% within Level of Professional Training	83.3%	16.7%	100.0%
			% within Innovative_R46	41.7%	14.3%	31.6%
			% of Total	26.3%	5.3%	31.6%
	Total		% within Level of Professional Training	63.2%	36.8%	100.0%
			% within Innovative_R46	100.0%	100.0%	100.0%
			% of Total	63.2%	36.8%	100.0%
13 - 15 years	Level of Professional Training	Local	% within Level of Professional Training	8.7%	91.3%	100.0%
			% within Innovative_R46	15.4%	87.5%	62.2%
			% of Total	5.4%	56.8%	62.2%
		International	% within Level of Professional Training	100.0%	.0%	100.0%
			% within Innovative_R46	38.5%	.0%	13.5%
			% of Total	13.5%	.0%	13.5%
		Local and International	% within Level of Professional Training	66.7%	33.3%	100.0%
			% within Innovative_R46	46.2%	12.5%	24.3%
			% of Total	16.2%	8.1%	24.3%
	Total		% within Level of Professional Training	35.1%	64.9%	100.0%
			% within Innovative_R46	100.0%	100.0%	100.0%
			% of Total	35.1%	64.9%	100.0%
More than 15 years	Level of Professional Training	Local	% within Level of Professional Training	.0%	100.0%	100.0%
			% within Innovative_R46	.0%	100.0%	80.0%
			% of Total	.0%	80.0%	80.0%
		International	% within Level of Professional Training	100.0%	.0%	100.0%
			% within Innovative_R46	50.0%	.0%	10.0%
			% of Total	10.0%	.0%	10.0%
		Local and International	% within Level of Professional Training	100.0%	.0%	100.0%
			% within Innovative_R46	50.0%	.0%	10.0%
			% of Total	10.0%	.0%	10.0%
	Total		% within Level of Professional Training	20.0%	80.0%	100.0%
			% within Innovative_R46	100.0%	100.0%	100.0%
			% of Total	20.0%	80.0%	100.0%

Fig. 2 Length of Service and Level of Professional Training on Innovative

IV. DISCUSSION

The findings in this study revealed that the respondents provided two types of definition for the term "innovation". Some respondents defined innovation as creating new product or new approach to do things. This finding concurs with the definition of innovation in [5] study, that is "innovation is the ability to define and develop new products and services and deliver them to market" (p. 1). On the other hand, most of the respondents defined "innovation" as value-added creative way

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to upgrade or improve existing process and service to be more efficient. This is similar to the definition stated by [6], that innovation is "a process of developing and implementing a new idea" (p. 12). Thus, [7] maintained that "in order for an organization to remain relevant and to compete in pursuit of its mission, the management must focus on both ends of the process, generating creative ideas frequently and utilizing its innovation process to realize the potential value of those ideas" (p. 240).

Findings in this study indicated that the leading factors that motivate the creation of innovative products as outlined by the respondents are to improve the product in order to benefit users followed by self-satisfaction, enjoy recognition, personal challenge, pressure and promotion requirement, usefulness of product and enjoy rewards or profit. Drawing on the work of scholars, among others, these findings are comparable to the findings in [8] study which identified five dimensions of organizational climate that influence creativity, including goal emphasis, means emphasis, reward orientation, task support, and socio-emotional support. In addition, this finding is consistent with [9] assumption that workers who are primarily self-motivated and self-controlled would seek to 'find their own way' towards realization of their personal goals and objectives. According to [9], this act is termed as 'self-actualization'. Moreover, [10] study found that excitement in pursuing an idea, intrinsic motivation and curiosity contributed to incredible creativity and innovation.

In addition, findings in this study indicate that respondents who were exposed to both international and local professional training exhibited greater confidence in innovation performance. Likewise, in terms of the relationship between professional training level and length of service among the university staff towards innovation performance, findings showed that university staff with the length of service of 4-6 years and had gone through international professional training contributed more innovation products than the rest of the groups. Hence, these findings imply the importance in the relationship between exposure to the types of professional training and the length of service of the staff in an organization. These findings concur with the findings of various researches which showed that professional development can enhance the skills of both new and longtime staffers. Findings in [11] study revealed that the length of service was related to continuance and occupational commitment. Likewise, [12] study found that length of service might affect the organizational commitment in Nigerian state universities. Moreover, findings in [13] study related to determining the effect of years of service on the organizational commitment of workers, suggested the importance of maintaining a balance between organizational and professional commitment as well as providing a method for identifying the critical period for interventions designed to increase retention of Research and Development (R&D) professionals during their early organizational socialization. This finding supports [14] statement that "many people emerged as leaders who have little education or sophistication, and many people who never hold a managerial post demonstrate leadership in a daily basis, not necessary by accomplishing great things, but commanding respect in little things they do" (p. 4). That old myth that "leaders are born, not made" is bunk and should not prevent managers from preventing leaders within their staff.

V. CONCLUSION

Knowledge and skill in accountability structures are collective goods, not private goods. That is, the knowledge and skill necessary to improve the performance of schools do not belong to those schools, or to people who work in them, but belong to the system as a whole [15]. Similarly, [16] supports the notion of teamwork as an important part of innovation as the team members "provide interaction, conflict, critical thinking, reflection and constant dialogue" (p. 104) to attain quality.

In addition, the findings in the study suggested that there was only a significant relationship between the professional training level and the length of service of 4 - 6 years among the university staff. The rest of the groups based on the length of service showed that there was no significant relationship with the professional training level towards innovation. Nevertheless, the findings showed that majority of the staff who contributed to innovative products were those with international level of Professional Training. The lowest percentage that came out with innovative product(s) in their respective faculty was the staff that went through local professional training. Besides that, it was found that staff who worked for more than 15 years with the organization and had gone through local professional training did not contribute to the innovative product(s) in their respective faculty. This indicates that besides providing exposure to local professional training, staff also needs to be given more international training exposure opportunities. Effective training focused on developing the thinking skills associated with creativity, hence leading to concrete outcomes in terms of quantity and quality of creative and innovative output [17]. In other words, by emphasizing on teaching methods and training groups to be creative in their thinking, it is important to emphasize the process rather than the product. Nevertheless, training programs need to be monitored and reinforced in the organization in order to lead to desirable impact.

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