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Activating Organizational Learning Capabilities through Service Operations Design

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Abstract— **Learning organization literature has paid little attention to tools and models that can activate learning capabilities in organizations. This paper presents an attempt to empirically study the impact of applying systems thinking principles for service operations design, expressed as the Vanguard Method [1], in activating organizational learning capabilities. The Dimensions of the Learning Organization Questionnaire (DLOQ) was used to collect data from employees in two large service organizations operating in the UK to measure their organizational learning capabilities as a result of applying the Vanguard Method. A total of 255 questionnaires were electronically distributed and a response rate of 65.8% was received. The results of the statistical analysis show a high level of organizational learning capabilities at both organizations with an overall mean score of 4.00. The results also show that employees perceive their organizations to be highest in the learning dimensions of "Strategic Leadership", "Empowerment", "Dialogue and Inquiry", and "Team Learning and Collaboration" respectively. The value of this paper is the identification of a service operations design model that can significantly enhance organizational learning capabilities to effectively improve organizational performance.**

Keywords— ***learning organizations, service operations, operations management, organizational learning; systems thinking***

I. INTRODUCTION

A prerequisite for organizational survival and growth in the fast changing knowledge economy is the ability to build highly effective learning systems to improve existing working methods and adapt to rapid environmental changes [2,3]. According to this perspective, organizational learning literature, so far, has widely discussed the connections between organizational learning and its significance to organizational performance such as enhanced innovation, knowledge creation ability, and competitive advantage [4,5,6,7,8], but paying little attention to tools and models that can activate learning capabilities in organizations. Dahanayake and Gamlath [3] argued that organizational learning is not easily achieved due to lack of; both, proper organizational structures and adequate business operations design models that can foster learning capabilities. They have also added that organizational learning requires fundamental cultural reforms where employees can question the power structures and flawed organizational techniques adopted [6,9]. Hannah and Lester [2] suggested that organizational reliance on only firefighting techniques to rectify problems, without internal learning processes adaptation, will lead organizations to loose congruence with evolving external environment, and eventually the organization will demise. This perspective has caused Wen [8] to assert that organizational learning achievement is not possible without proper operations design, and that connecting it with proper form of systems thinking is vital for building organizational learning capabilities. The challenge is, therefore, to study how, and what form of, systems thinking for business operations design operationalizes learning capabilities in organizations. Therefore, this paper is an attempt to close the aforementioned gap by exploring the impact of an innovative system thinking approach for service operations design on activating organizational learning capabilities, in the context of two large UK service organizations. This approach was first introduced by John Seddon [1] in his book "Freedom from Command and Control: A Better Way to Make the Work Work". The term "the Vanguard Method" will be used to describe this service operations design model throughout this paper. It is argued that the Vanguard Method is likely to promote a learning-centered culture focused on re-building current operations and policies based on continuous analysis of customer demand. This approach to service operations design is experiencing a significant take-up in the service sector, where it offers a considerable impact on improving the efficiency and competitive advantage of organizations [7,10].

In order to quantitatively measure the impact of the Vanguard Method implementation on building the organizational learning capabilities, the study made use of Watkins and Marsick's [11] seven Dimensions of the Learning Organization

Questionnaire (DLOQ). However, Ortenblad [12], in his study of learning organization literature, came up with four main aspects of the organizational learning concept; these are organizational learning, learning climate, learning at work, and learning structure. Yang et al. [13] found that the DLOQ is the only tool that included all four aspects of the learning organization in the literature. Furthermore, several researchers such as Argyris and Schön [14] and Mohd-Zainal et al. [15] have explained that measuring organizational learning requires doing it based on three different levels; individual level, team level, and organizational level. Watkins and Marsick's [11] DLOQ was found to cover all three levels together [15], and therefore, the DLOQ was deemed suitable for this study. The study is focused on measuring the level of learning organization capabilities post-the Vanguard Method implementation in two large service organizations operating in the UK.

The paper starts by characterizing the concept of learning organizations. Then, the methodology and philosophy of the Vanguard Method are explained with a focus on its implementation principles. Next, the research methodology is presented. Finally, results are shown and conclusions discussed.

II. Characterising Learning Organizations

Senge [16] defined learning organizations as organizations "where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together" (p.3). This definition was further emphasized by the work of Garvin's [17] who defined leaning organizations as places skilled at creating knowledge through continuous behavioral changes at work. Watkins and Marsick [18] also defined the concept as places that learn continuously to improve themselves constantly. However, Davies and Nutley [19] have explained that there are five prerequisites for building a learning organization; these are: open systems thinking, individual capabilities, learning-oriented teams, continually updated mental models, and cohesive vision. Similarly, Ortenblad [12] introduced four main pillars for building learning capabilities in organizations. According to him, organizations are required to; first, continuously improve their existing systems by allowing employees to challenge the current processes to learn on how they can be improved. Second, employees receive training on-the-job by other experienced organizational members. Third, employees are encouraged to experiment new ways of doing things. Fourth, learning structure; building an organic organization with a decentralized decision making authority, open channels of communication, and a team-based work. These dimensions have been regarded by Senge [16] as essential components that organizations should instill in their daily operations, and that systems thinking approach is the way for connecting all of these components together in order to view the organization as whole. Lundberg [20] argued that organizations would learn from external circumstances only through activities and systems embraced by the organization itself, and that relocating individual to work within team is crucial enabler for the success of these systems. Based on this, it would seem significantly important to build organizational operations that combine both individual and team learning levels to enhance organizational knowledge generation and learning.

However, for an organization to truly build learning capabilities generating new knowledge alone is not enough; there is a need for this knowledge to be adopted in the form of system operational and behavioral changes [12]. This view is shared by Hannah and Lester [2] who emphasized that organizations can only learn by applying knowledge via adapting internal processes at multiple levels of the organization. This view has particularly informed and molded an effective type of systems learning called "double-loop" learning [14]. Argyris and Schon [14] explained that organizational learning can take place at two levels; "single-loop" learning and "double-loop" learning. "Single-loop" learning is the process of error detection and correction to improve individual performance without changing organizational processes. This type of learning is usually activated when there are transactional inaccuracies at work. However, "double-loop" learning is the process of looking behind mere transactional inaccuracies and errors with the intention to improve operational processes and systems.

In fact, majority of learning organizations definitions available in literature, including those presented above, all overlook the customer role in the organizational learning process [21]. Shipton et al. [22] indicated that putting the customer in the heart of the learning process provides opportunities for meaningful growth and competitive advantage [23]. This is due to the fact that facilitating the flow of customer inputs and problems from the outside in fuel internal understanding of problems hidden in the system, thereby providing valuable ideas for improvement and learning [24]. As a result, few researchers have started to realize the importance of engaging customers in the organizational learning process [21,22,25].

III. The Vanguard Method

Organizations are complex systems by nature, as they are composed of huge bundle of processes, information, policies, technologies, people and product flows. Generally speaking, interconnections between the complex system parts are essential for effective processing of operations. Therefore, if organizations are viewed from a reductionist perspective of its parts, discontinuous forces of silo working would prevent efficient handling of operations and, therefore, would hinder organizational learning of why their systems are behaving in a certain way. This conceptualization gave initiation to the work of Seddon [1],

described here as the Vanguard Method, of implementing systems thinking design principles into service delivery systems. The Vanguard Method is, therefore, centered on three core elements of interrelationships, dynamics, and wholeness [7,26,27].

The Vanguard Method is based on redesigning service operations around customer demand instead of functional hierarchies [1]. Customer demand understanding process begins with analyzing customer demands over a period of time to collect information about what customers want and expect and what matters to them most. The need for analyzing customer demands stems from the fact that a comprehensive understanding of the transformation processes in the operational system needs to be unequivocally presented before interpretations about the situation are made [26]. Customer demand is analyzed on the basis of two different types usually available in services [1]. First, value demand- is what the service system has been established to serve and what the customers want which is of value to them. Second, failure demand- is the demand that the service system was not able to serve due to the lack of information or supporting operations. The findings of customer demand analysis phase help to explore all the possible ways through which a better flow of processes can be designed against customer demand. This is followed by redesigning the processes flow charts taking what have been learned considering the customer "wants" and then mapping out the new logistics service system design. The most fruitful way to make full use of the Vanguard Method concept is through the use of a team who is basically from the people facing the problem at work and using the system [28].

Typically, the new service operations design is focused on minimizing non-value adding activities from a customer point of view. The new design is used in an experimental environment by using the new model after it has been discussed with the people doing the work. The new processes are induced gradually with careful observation of both employees reaction to it and customer feedback. The processes are tested, re-designed and re-tested again to make sure that customers get the best possible service before going fully live in the service system. However, to design against customer demand is to be more responsive by providing a solution for customer demands at the first time of delivery, thus being more productive [26]. Therefore, the Vanguard Method focus is shifted from conventional service measures (i.e. targets and statistics) towards the percentage of first time delivery service, exactly as customer wanted [7]. This is supplemented with the managers' continuous endeavor to further improve service operations to reduce, and ultimately prevent, repeated failure demands.

The Vanguard Method integrates the decision-making processes with the work itself [27]. This way allows for more control on service processes because data is in the hands of the people doing the work, and provides ability and creativity in responding to the service system's surrounding environment [7]. However, the success of the Vanguard Method is based on achieving economies from understanding the flow of the work, and not from the scale of production (i.e. quantity of transactions). Measures used are built in so they automatically tell you what is happening. These measures are usually centered on the concept of how good the service is in achieving the purpose and absorbing the demand variety. When demand variety is absorbed service productivity increases. The Vanguard Method absorbs variety by making intelligent use of the empowered employees [27]. The result is a self-organizing system [26]. The above philosophy usually follows three main practical steps of "check-plan-do" for implementation. These steps are explained below and summarized in Table I as adapted from Jackson et al. [27].

A. Check

A specially formed team, called the check team, from the workplace records and analyze customer demands to understand what customers expect and want from the service system and what matters to them most, they need to be able to use views of different people involved in the problematic system. Once the team understands the type of demand received and how capable the system is to respond to it, it can start to map the flow of processes in the system.

B. Plan

The check team redesigns the service processes flow charts taking what have been learned considering the customer "wants" and then mapping out the new service system design. Typically, this stage is focused on minimizing non-value adding activities from a customer point of view.

C. Do

At this final stage the new design is used in an experimental environment with the check team using the new model after it has been discussed with the people doing the work. The new processes are induced gradually with careful observation of both employees' reaction to it and customers feedback. The processes are tested, re-designed and re-tested again to make sure that customers get the best possible service before going fully live.

TABLE I. THE VANGUARD METHOD IN PRACTICE

Stages in Process	**Stages Activities**	
	What is it?	***What does it do?***
Check	An analysis of the what and why of the current system	Provides an understanding of the system as it is and identifies waste and the causes of waste.
Plan	Exploration of potential solutions to eliminate waste	Provides a framework to establish what the purpose of the system should be and how the flow of work can be improved to meet it.
Do	Implementation of solutions incrementally and by experiment	Gradual introduction of changes whilst still considering further improvement. Continue to review changes, Work with managers on their changing role.

IV. RESEARCH METHODOLOGY

The Dimensions of the Learning Organizations Questionnaire (DLOQ) was used in this study as the questionnaire instrument. It was initially developed by Watkins and Marsick [11] and contained 43 items categorized in seven different dimensions. However, Yang et al. [13] have shortened the questionnaire to only contain 21 items for those seven dimensions. The shortened questionnaire was found to be a superior measurement tool than the 43 items version [13,15]. Therefore, the 21 items DLOQ is used in this study with 5-point Likert scale to measure the level of the learning organization capability in two service organizations implementing the Vanguard Method and that are operating in the United Kingdom. The service organizations selected for this study were chosen with the help of "extreme case sampling" technique [29]. Thus, the selection of the two organizations was based on the availability of full application of the Vanguard Method in, at least, one service department where all service operations are carried out following the Vanguard Method principles. The first service organization is a main provider for a wide range of Adult Social Care service in north Wales. Their services include providing equipment and adaptations, such as stair rails, ramps or stair lefts, to assist older people to live as independently as possible in their own home. They also provide enablement services to support elderly people after a period of illness or accident to reclaim their independence, besides a number of other services. The organization has a total of 55 employees, and fully implemented the Vanguard Method principles a year before the commencement of data collection. The second service organization is a leading UK based financial services group providing a wide range of banking and financial services, focused on personal and commercial customers in the UK. The second organization started a Vanguard Method intervention almost two years before the commencement of this research inquiry and covered almost all of its 200 employees.

The seven dimensions of learning included in the questionnaire are continuous learning, dialogue inquiry, team learning, embedded systems, empowerment, system connection, and leadership. Over a period of 5 weeks, a web-based version of the DLOQ was used to collect data from all employees working under the Vanguard Method principles at both organizations. Therefore, a total of 255 employees were invited to take part in the survey in both organizations and a response rate of 65.8% (i.e. 168 responses) was received. The responses collected from the DLOQ were analyzed using the SPSS (Statistical Package for the Social Sciences) software (Version 22.0). The analysis provided a measurement of the level of the learning organization attribute.

V. RESULTS

The respondents to the DLOQ mainly composed of front-line employees dealing with customer demands on daily basis, intervention team members who are heavily involved in applying the Vanguard Method in other areas of their working place, and the remaining respondents were a mixture of middle managers and team leaders of front-line employees. Details of the DLOQ respondents are shown in Table II.

TABLE II. PROFILE OF THE DLOQ RESPONDENTS

Role	**No. of respondents**	**Percentage**
Middle manager	3	1.78%
Team leader	19	11.31%
Intervention team member	43	25.60%
Front-line employee	103	61.31%
Total	168	100%

An item analysis procedure is followed to measure internal consistency and reliability for each of the seven learning organization dimensions in the DLOQ using Cronbach's alpha. The results of the Cronbach's alpha calculated ranged from

0.73 to 0.90. According to Vogt [30], Cronbach's alpha results with scores above 0.70 are normally accepted as they represent good internal consistency and reliability. The results of the Cronbach's alpha for the DLOQ questionnaire are shown in Table III.

TABLE III. INTERNAL CONSISTENCY AND RELIABILITY

Dimensions of the DLOQ	Cronbach's alpha
Continuous learning	0.79
Dialogue and inquiry	0.90
Team learning and collaboration	0.81
Embedded systems	0.82
Empowerment	0.90
Systems connections	0.77
Strategic leadership	0.87
Overall Cronbach's alpha	0.73

However, the mean and standard deviation for each item in the DLOQ was found with the help of the descriptive statistics achieved from the SPSS software. Also, an overall mean and standard deviation for each dimension of the learning organization, and a final overall mean and standard deviation for respondents were also achieved. Table IV provides complete descriptive statistics for the seven dimensions of the DLOQ.

TABLE IV. DESCRIPTIVE ANALYSIS OF THE DLOQ

Dimensions of the DLOQ	N	Mean	Standard Deviation
Dimension 1. Continuous learning		3.88	1.20
Q1. In my organization, people help each other learn.	168	4.24	1.49
Q2. In my organization, people are given time to support learning.	168	3.99	1.60
Q3. In my organization, people are rewarded for learning.	168	3.41	1.60
Dimension 2. Dialogue and inquiry		4.11	1.31
Q4. In my organization, people give open and honest feedback to each other	168	4.34	1.59
Q5. In my organization, whenever people state their views, they also ask what others think.	168	4.13	1.57
Q6. In my organization, people spend time building trust with each other.	168	3.86	1.50
Dimension 3. Team learning and collaboration		4.04	1.20
Q7. In my organization, teams have the freedom to adapt their goals as needed.	168	4.07	1.60
Q8. In my organization, teams revise their thinking as a result of group discussions or information collected.	168	4.39	1.54
Q9. In my organization, teams are confident that the organization will act as their recommendations.	168	3.67	1.49
Dimension 4. Embedded systems		3.56	1.18
Q10. My organization creates systems to measure gaps between current and expected performance.	168	3.03	1.45
Q11. My organization makes its lessons available to all employees.	168	4.14	1.60
Q12. My organization measures the results of the time and resources spent on training.	168	3.53	1.45
Dimension 5. Empowerment		4.25	1.10
Q13. My organization recognizes people for taking initiatives.	168	4.19	1.57
Q14. My organization gives people control over the resources they need to accomplish their work.	168	4.53	1.48
Q15. My organization supports employees who take calculated risks.	168	4.03	1.43
Dimension 6. Systems connections		3.79	1.12
Q16. My organization encourages people to think from a global perspective.	168	3.15	1.60
Q17. My organization works together with the outside community to meet mutual needs.	168	4.27	1.53
Q18. My organization encourages getting answers from across the organization when solving problems.	168	3.96	1.52
Dimension 7. Strategic leadership		4.42	1.32
Q19. In my organization, leaders mentor and coach those they lead.	168	4.39	1.50
Q20. In my organization, leaders continually look for opportunities to learn.	168	4.27	1.58
Q21. In my organization, leaders ensure that the organization's actions are consistent with its values.	168	4.61	1.71
Overall mean and standard deviation for the seven dimensions		4.00	1.21

The overall results indicate a high level of organizational learning capabilities at both organizations with an overall mean score of 4.00. At a more subtle level, respondents perceived their organizations to be highest in "Strategic Leadership" with a score of 4.42, but lowest in "Embedded Systems" with a score of 3.56, indicating some potential areas for improvement. Further, the second highest dimension is "Empowerment" with an overall score of 4.25, followed by the dimensions of "Dialogue and Inquiry" and "Team Learning and Collaboration" with overall scores of 4.11 and 4.04, respectively. This would suggest that the Vanguard Method of service operations design is an adequate enabler for activating organizational learning capabilities. Fig. 1 also provides a visual representation for the mean scores for the seven dimensions of the DLOQ in both organizations.

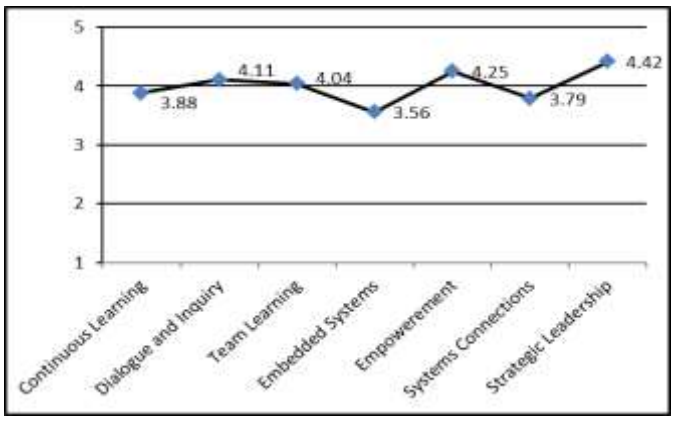

Fig. 1. Mean scores for each dimension of the DLOQ

VI. Discussion and conclusion

The results of analysis have shown that the implementation of the Vanguard Method is positively related to activating organizational learning capabilities; through the achievement of high levels of improvement in the seven dimensions of the DLOQ. However, the dimension of "Strategic Leadership" in the DLOQ achieved the highest score of 4.42 as perceived by respondents. This can be attributed to the new philosophy of managers' role in the workplace; where employees are no more in need for managers to instruct them on how to do things, they now only need support and advice from their managers [27]. The new role of managers includes becoming a part of the workforce by supporting the efforts to look for opportunities to improve the system and learn, and eventually flourish. This has created amity between employees and their managers. Moreover, the dimension of "Empowerment" was the second highest dimension with a score of 4.25. This can be explained by the fact that it was recognized in the Vanguard Method principles that it is only possible for employees to learn from customer demands and problems when they are given enough power to make work decisions. It is as described by Jaaron and Backhouse [7], individuals having the right tools, tend to learn better from external opportunities if they have enough time to think and analyze the situation after detecting a problem. According to him, this is a condition for building learning in organizations. In addition, it is suggested that employees were trusted when working on received demand failures and building relationships with customers. As a result, employees would naturally build a sense of freedom and responsibility [26].

The results also show that the dimensions of "Dialogue and Inquiry" and "Team Learning and Collaboration" were also among the highest dimensions with scores of 4.11 and 4.04 respectively. These dimensions concur well with the principle that the Vanguard Method requires that employees be relocated to work within teams [1]. In this environment, open channels of communications and deep dialogue between employees are encouraged to facilitate learning. Team members, in this environment, are able to seek more information regarding the needs of customers if a service delivery is inhibited by the current system and policies, they can then question what reasons are in place that the current system was not able to provide the requested demand. Furthermore, the remaining three dimensions of "Continuous Learning", "Systems Connections", and "Embedded Systems" are also having relatively high scores of 3.88, 3.79, and 3.56 respectively; despite the fact that they were perceived the lowest by respondents. It is evident that the Vanguard Method tends to build an organically structured organization where the organization is viewed as the living organism that can adapt to the surrounding environment in order to survive. As stated by Robey & Sales [31] "they interpret novel situations and adopt appropriate coping responses". Consequently, organizations employing an organic system delegate a great deal of decision making authority to their employees to allow for flexibility and quick response to unpredictable circumstances [7]. Employees, this way, can approach each other informally as well as officially as the personal relationships comprise an important aspect for the continuous learning aspect in learning organizations [22]. Ultimately, these types of employees' communications can facilitate integration among business units, and eventually achieving system connections and embeddedness [26]. Arguably, this environment is where the new mode of thinking in the workplace, following the systems thinking theories of interrelationships and wholeness, is practiced. Therefore, the concept of systems thinking is an integral part of the Vanguard Method [7,26]. It is as Bagodi and Mahanty [32] have explained that theories of systems thinking are the only way through which learning capabilities can be practiced in organizations. Finally, the main aim of this research study was to investigate whether the Vanguard Method of systems thinking is significantly related to activating learning capabilities in service organizations. For this purpose, this research has set out to study the impact of applying a new form of system thinking, expressed as the Vanguard Method, on leveraging the level of organizational learning capabilities in service organizations. The study has proven that enhancing

organizational learning capabilities is possible by effectively involving external stakeholders, and particularly customers, while simultaneously updating and improving internal operations. Furthermore, the focus on customer demands, as the place where organizational learning opportunities are initiated ensures that organization's strategic plans are meaningful for the parent organization. For future research, it would be valuable to replicate this study in other industrial sectors to determine the extent to which the findings can be generalized to other settings as well.

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