The Role of Consultants in Organizational Learning

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This paper aims to find out how the OL processes (i.e. intuiting, interpreting, integrating and institutionalizing) are influenced by the roles of consultants. Through a longitudinal case study, it was found that based on the directive roles of consultants, the evidence of the direct use of intuition was weak but the processes of interpreting and integrating became the main constraints for lean knowledge to be learnt by managers and employees. The efficiency of institutionalizing was enhanced but its effectiveness was restrained by the processes of interpreting and integrating. Theoretical and practical implications of this study are provided in the conclusion.

INTRODUCTION

Given the increasing competition in the marketplace, many organizations attempt to learn and implement some advanced management concepts, techniques and methods such as mass customization, lean production or thinking, agile manufacturing, and business process re-engineering (BPR) to better meet different customer requirements. To learn and implement these techniques and methods efficiently and effectively, some organizations employ consulting companies to provide useful ideas and a professional service (O'Mahoney & Markham, 2013). Fincham and Clark (2002) describe the management consultancy industry as one of the fastest growing industries. However, it is worth noting that consultants play various roles in different projects. Kubr (2002) categorizes two basic roles of consultants as the resource role and process role. Antal and Krebsbach-Gnath (2001) and Kubr (2002) point out that the roles of consultants can be represented by a directive and non-directive continuum and these roles could have a strong impact on organizational learning (OL) processes and activities. This paper aims to investigate how the learning processes can be influenced by the roles of consultants. As the literature on OL is prolific, this paper focuses on Crossan, Lane and White's (1999) 4I framework (i.e. intuiting, interpreting, integrating and institutionalizing) which illustrates the dynamic of organizational learning.

LITERATURE REVIEW

Organizational Learning
The Definition of OL

Numerous studies can be found in the area of OL but there is no standard definition or interpretation of OL. Some researchers (e.g. Cangelosi & Dill, 1965; March & Olsen, 1976) emphasize that OL means the adaption to internal or external environment changes. While Fiol and Lyles (1985) argue that although contextual factors such as culture, strategy, organizational structure and environment can affect learning activities, adaption should not be confused with learning. They point out that adaption means adjustments or modifications based on the environment changes but learning stands for knowledge and insight development and the linkages between effective past actions and future actions (Fiol & Lyles, 1985). It implies that adaption is more passive rather than proactive and it may not contribute to knowledge or insight development.

Fiol and Lyles' interpretation of learning is confirmed and developed by other researchers. For example, Miller (1996) describes OL as activities to acquire new knowledge which could be implemented in decision making processes or affecting other organizations. Sadler-Smith, Spicer and Chaston (2001) and Lopez, Peón and Ordás (2005) agree that OL refers to the acquisition and development of knowledge and skills to achieving better organizational effectiveness or performance. However, from Crossan, Lane and White's perspective, OL is more than knowledge creation, acquisition or development. They point out that OL is "a principle means of achieving strategic renewal of an enterprise" (Crossan, Lane & White, 1999, pp. 522). In other words, OL could occur at all the levels of the organization such as individual, group and organizational levels and the tension between learning new knowledge and taking advantage of the learned one is the central issue of OL (Crossan, Lane & White, 1999).

OL Sources

Organizations can learn from both internal and external sources. Experience of the organization such as routines which has been adopted by individuals or groups or the organization (Levitt & March, 1988), organizational self-appraisal which examines and solves errors or problems or reflection of failure within the organization (Argyris, 1976; Daudelin, 1996; Huber 1991; Shrivastava & Schneider, 1984), can be viewed as the foundations of OL sources. Those routines or activities which could achieve positive results are more likely to be accepted and adopted by other employees in the organization (Cyert & March, 1963; Levitt & March, 1988). However, Argyris (1976, 1977) claims that OL is associated with error detection and correction and similarly Daudelin (1996) and Popper and Lipshitz (2000) argue that failure can also be a potential source of OL. In addition to the internal sources, indirect experience from other organizations or professionals such as customers, suppliers, management consultants, governmental advisers or other successful organizations can also facilitate OL. For example, Fletcher and Harris (2012) who have investigated ten cases of Scottish organizations which attempted to achieve internationalization found that consultants could provide internationalization knowledge to these organizations. Similarly, external sources such as consultants and professionals enable organizations to learn new knowledge based on their expertise and skills through training and implementing specific projects (Easterby-Smith & Araujo, 1999).

OL Processes

By reviewing OL literature, a number of frameworks or models which describe and analyze OL processes or stages can be found. Among these models or frameworks, some researchers prefer to view OL processes as several highly structured and distinct constructs. For example, Huber's (1991) study identifies four typical constructs of OL (i.e. knowledge acquisition, information distribution, information interpretation and organizational memory). Similarly, Nevis, DiBella and Gould (1995) affirm that there are three important stages of OL including knowledge acquisition, knowledge sharing and utilization. However, it is argued by many researchers that OL processes are interacted with each other. In other words, one process or level can affect other processes or levels of OL. For example, Buckler (1996)

points out that learning processes cover three elements (i.e. focus, environment and technique) and these three elements can overlap and be interdependent with each other. Lam (2001) develops a three-dimensional model of OL which illustrates how these dimensions are interconnected with each other. Williams' (2001) belief-focused process model of OL which conceptualizes and presents the social interactions between OL processes is also a typical example. Although the above examples recognize the interactions between processes, they lack a clear analysis of different levels of OL.

In this study, we employ Crossan, Lane and White's (1999) 4I framework of OL which is widely accepted and applied by a large number of studies (e.g. Holmqvist, 2004; Schilling & Kluge, 2009; Vera & Crossan, 2004). It considers different levels of OL, interaction between these levels and reveals the dynamic of OL processes. There are four main OL processes (i.e. intuiting, interpreting, integrating and institutionalizing) that relate to three levels of learning (individual, group and organization). Crossan, Lane and White (1999) reject the perspective that OL is purely an analytical and conscious process by positing that learning could occur subconsciously. They argue that intuiting which means recognizing patterns subconsciously at the individual level is crucial to OL processes. Their perspective of intuiting is later supported and confirmed by other researchers. For example, Sinclair and Ashkanasy (2005) define intuition as "a non-sequential information-processing mode which comprises both cognitive and affective elements and results in direct knowing without any conscious reasoning" (Sinclair & Ashkanasy, 2005, p.353) and their model of decision-making clearly differentiates intuitive decision-making from analytical decision-making. In addition to intuiting, the second process-interpreting-enables individuals to consciously explain their insights or ideas through various languages and develop their cognitive maps (Crossan, Lane & White, 1999).

It is agreed by researchers that language is central to interpreting (Walsh, 1988; Weick, 1979). As individuals may explain the same phenomenon differently, the issue of equivocality could occur. However, according to Crossan, Lane and White (1999), this issue can be solved by group interpretive process. Compared to interpreting, the process of integrating emphasizes the development of collective action based on shared understanding across group members and the deeper shared understanding can be achieved through dialogue among group members (Crossan, Lane & White, 1999). The process which distinguishes learning at organization level from learning at individual or group level is institutionalizing. By proposing the assumption that OL does not simply equal the sum of individual or group learning, Crossan, Lane and White (1999) indicate that some learning results can be integrated and embedded in organizational strategy, structures, systems, practices and investments. They also suggest that it is not necessary for learning to go through every process and sometimes, some processes can be skipped. Although Crossan, Lane and White's (1999) study shows a rich and in-depth understanding of OL processes, some researchers argue that as OL includes various sources, it is also meaningful to extend the understanding of the 4I model from intra- to inter-organizational level (Jones & Macpherson, 2006). In other words, researchers should clarify how these 4I learning processes within the organization can be changed or affected by external professionals which in this paper we use management consultancy as a proxy.

Management Consultancy
The Definition of Management Consultancy
Trying to find out one unified definition of management consultancy can be problematic as it is defined differently by researchers. According to Sturdy's (2011) study which reviews and examines the literature of management consultancy, there are two dominated types of definitions. One type highlights activities that could assist or facilitate organizational change or improvement (Block, 2000). It implies that in addition to the experts or professionals outside the organization, any employee within the organization that provides help to others or the organization can be considered as the consultant. Compared to this broad and inclusive definition, the other type gives a narrower definition. It proposes that management consultancy is a special and professional service provided by specially trained and qualified persons (Greiner & Metzger, 1983). Based on these two distinct definitions, Kubr (2002) suggests a clearer and more fundamental definition of management consultancy which is employed in our

study. From his perspective, management consultancy or consulting is defined as "an independent professional advisory service assisting managers and organizations to achieve organizational purposes and objectives by solving management and business problems, identifying and seizing new opportunities, enhancing learning and implementing changes" (Kubr, 2002, pp. 10).

The Roles of Consultants

At a more macro level, consultants are normally viewed as "knowledge providers". For example, Kubr (2002) suggests that the role of consultants can be broadly categorized as resource role and process role. In the resource role the consultants are expected to provide a specific service to the client based on their expertise and in the process role consultants need to facilitate and enable the client to reflect upon and understand their own organization and its processes (Massey & Walker, 1999; Schein, 1998). Hence, it implies that consultants are expected to provide and transfer explicit and (or) tacit knowledge to the client organization (Richter & Niewiem, 2009). Gammelsater (2002) further points out that managers and consultants possess different knowledge base as managers' knowledge base includes more specific and organizational content and consultants' knowledge base is broader and external based. This difference implies that on the one hand, consultants can provide some new or at least different knowledge to the client organization but on the other hand, it may lead to "burdens of otherness" as consultants lack the context based knowledge of the client organization (Kipping & Armbrüster, 2002). A more critical perspective of the role of consultants argues that consultants actually do not provide new knowledge (O'Mahoney & Markham, 2013). Sometimes they just legitimize the existing knowledge (Bouwmeester & van Werven, 2011) or commodify some management concepts and then simply persuade managers to adopt them (Fincham, 1999; Fincham & Clark 2002; Nikolova, Reihlen & Schlapfner, 2009). The above views provide useful insights into the role of consultants in general but they are insufficient to analyze the diverse activities and roles of consultants in the project (Kubr, 2002). At a more micro level, some typologies of roles have been established by researchers to analyze the role of consultants in the project (e.g. Kubr, 2002; Nees & Greiner 1985; Turner 1982). In this paper, we employ Kubr's (2002) typology to identify the roles of consultants as it considers both the actual activities and different levels of involvement of consultants in the project. Based on Lippitt and Lippitt's (1979) study, Kubr (2002, pp. 73-76) propose eight roles of consultants from a directive extreme (i.e. consultants lead the project and directly tell the clients what should be done) to a non-directive extreme (i.e. consultants only provide information for clients without intervening the decision-making process in the client organization): advocate, technical expert, trainer or educator, collaborator, identifier of alternatives, fact finder, process specialist and reflector.

RESEARCH METHODS

In this study, a single and in-depth case study was adopted for three reasons. First, according to Handfield and Melnyk (1998), a case study are employed for the following research purposes: 1) exploration (i.e. to understand the uncovered domains of previous theories); 2) theory building (i.e. to identify key variables, their relationships and the reasons for these relationships); 3) theory testing (i.e. to test the previous theories); 4) theory extension (i.e. to better structure the theory based on the observed results). In this study, as the main purpose is to explain how the roles of consultants can affect OL processes, case study can be viewed as the most suitable research method. Second, as suggested by Yin (2009), case study is most suitable for answering "how" and "why" questions which could contribute to both theory testing and building. In this study, as the research question is a "how" question, it is reasonable to choose a case study approach. Third, in terms of the choice of cases, Voss et al. (2002) point out that single and in-depth case study is commonly used in longitudinal research. In this study, one of the authors had a unique opportunity to get access to a Chinese SME (Small and Medium Enterprise) in the foundry industry which was implementing a lean project with the support from a consulting company from Feb 2012 to Jan 2013. Table 1 provides the background information of these two companies. During this period, the author visited this company twice: the first visit was at the early-to-

mid stage of the project from Feb 2012 to May 2012 and the second visit was at the mid-to-end stage from Nov 2012 to Jan 2013.

TABLE 1
THE BACKGROUND OF CASE STUDY

Background	The Case Company	The Consulting Company
Ownership	Private	Private
Founded in	1983	1985
Business sector	Manufacturing-Foundry industry	Management consulting
Position in the market	Tier 2 supplier	-
Customers	Tier1 supplier (Domestic, Japan and U.S.)	SMEs (Domestic)
Products/service	Auto parts such as knuckle and brake drum	A wide range of services including strategic management, performance management, human resource management, marketing, financial management and most recently, lean production (since 2005)
No. of employees	296 employees with 40 engineers	58 full-time (6 CMC) and 98 part-time

To aid the rigorous collection of data some instruments for case study were employed. Yin (2009) suggests that the interview can be viewed as a vital source for case study. In this study, one of the most important instruments is the semi-structured interview. Gubrium and Holstein (2001) indicate that compared to structured and unstructured interview, semi-structured interview possesses unique strengths. On the one hand, some closed questions can enable the researcher to compare and contrast answers from interviewees and on the other hand, some open-ended questions can be asked to gather rich information. To understand the learning processes which occur at different levels and the roles of consultants, managers, consultants, supervisors and operators were interviewed. For managers, they were interviewed with the focus on their past experience of lean, their attitudes and understanding towards lean and reasons to employ consultants and their expectations of consultants. For consultants who were directly responsible for the project, they were interviewed in terms of their interpretation of their roles, their understanding of lean, learning and training issues or difficulties in the project. For supervisors and operators who attended different workshops, they were interviewed in relation to their attitudes and interpretations of lean, courses delivered by consultants and learning and communication issues. All the interviews were transcribed and then sent to interviewees to confirm these were accurate recording of the interview.

In addition to the semi-structured interviews, direct observation and documentation were also employed to enrich the case study. For direct observation, the author was given access to the shop-floor, training courses and meetings to observe how managers, supervisors and operators worked and communicated with each other and how training courses were delivered by consultants or managers. The documentation included materials from the training courses, the improvement project plan, the implementation handbook, reports from consultants and new documents of rules and performance assessment. Memos were also used to record ideas and thoughts during the field work. To analyze different sources of data in a logical way, coding was employed. A group of codes that linked to the roles of consultants and OL processes were generated and developed from literature prior to collating any data.

New codes were also developed and added during data analysis. As there was no pre-defined hypothesis of how the OL processes can be influenced by the roles of consultants, patterns that emerged from the data (e.g. interview transcript) were recorded and then compared with other sources of data (e.g. observation and documentation). To enhance the validity of analysis, several meetings were held between authors to discuss and draft the results. Additionally, before completing the final version of results, the drafted results were circulated with senior managers and consultants.

FINDINGS

The Roles of Consultants in the Project
Through the analysis of the interview transcripts and data from observation and documentation, four types of roles were identified.

The first one is trainer. It was found that both managers and consultants mentioned this role frequently during the interviews. From the managers' perspective, consultants can be labelled as their "teacher" who possessed "various types of knowledge and experience" in this area and educated them to understand and implement lean. From the consultants' perspective, they were responsible for training the managers and employees in terms of the meaning of lean, the approaches and requirements of lean.

The second role identified is the advocate. One of the most important reasons for managers to choose lean implementation was as a result of the recommendation from the consultants. During the first meeting, the consultants explained the benefits of implementing lean, such as cost reduction, quality improvement and employee quality enhancement and successful cases of lean implementation after the senior managers described their difficulties and problems the organization was experiencing. In this case, the consultants persuaded their client (the case company) to select and adopt a particular solution (i.e. lean production) and the introduction of benefits and successful cases convinced the managers that lean production could be a suitable and valuable solution. Additionally, the consultants also designed and proposed the detailed plan and guidelines for lean implementation. It is worth noting that the role of the advocate should not be confused with the collaborator in problem-solving or identifier of alternatives. The advocate tries to promote specific ideas or solutions and persuade managers to accept and adopt these ideas or solutions rather than providing alternative solutions. In the case of this project, the consultants offered one detailed plan for the whole project which they believed could be the most suitable and comprehensive approach (including organizational, operational and technical levels of changes) rather than several alternative plans. Additionally, when applying lean tools such as 6S and visual management, the consultants directly provided 6S implementation and assessment method which formulated why and how to change the status quo by using 6S.

The third role is the fact-finder. The consultants investigated the status quo (e.g. organizational structure, culture, employee quality, shop floor management) of the case company through interviewing managers and employees and observing their management, production processes and shop floor during the preparation stage to identify the problems, potential improvement areas and the main focuses of the project.

The final role identified is the one of technical expert. When interviewing managers, it was found that they described themselves as having a "lack of sufficient knowledge of lean production" and therefore the most important reason to employ consultants was for their experience and knowledge to cope with problems. In other words, the consultants could provide a professional service. For the consultants, it was evident that they had developed their lean based knowledge from both direct and indirect experience. For indirect experience, they invited professors in academia and experts in the consulting industry (who had successfully completed lean implementation projects) to deliver lean based training courses to enable them to better understand the concepts and practices. Additionally, the consulting company purchased some databases which cover a wide range of trade magazines and academic journals to enable the consultants to learn from various cases. For direct experience, the consultants were required to submit monthly reports to reflect the tasks completed, the results that were achieved, the problems or difficulties they identified and the plan or solutions for the next step. By the end of project, the consultants were

required to submit a full project report which reflected their tasks and achievements. By writing the reports, the consultants were able to record, review and reflect their experience in a regular and structured way and therefore, learn from this reflection.

In summary, although the consultants acted as fact finder that is closer to non-directive extreme at the beginning of project, it was evident that the roles in this project were more directive and resource based.

The Roles of Consultants and OL Processes
The Roles of Consultants and Intuiting

As documented in the previous section, intuiting is an important process for OL. The results from this case study suggest that the evidence for direct use of intuition is weak for two main reasons. One reason is that the process of intuiting at an individual level is largely replaced by the roles of consultants. For example, as the consultants acted as the fact finder, they were mainly responsible for identifying problems and potential solutions by using different data collection methods (i.e. interviewing employees and managers, getting access to company documents, sending mini-questionnaires and observing shop floor) and analytical tools (i.e. statistical analysis such as descriptive statistics of mini-questionnaire, content analysis of company documents or reports and interviews). Through this analytical work, a report of the 'status quo' can be generated. This report can also be viewed as the source for their planning process and evidence for persuading managers to accept their plan. In other words, instead of the employees or managers, consultants recognized patterns or problems by using professional data collection methods and analytical tools. It may be argued that the consultants could recognize patterns subconsciously or directly identify patterns based on their expertise and experience. However, when interviewing the consultants, it was found that they rarely use intuition. The consultants explained that they needed to show the evidence for their proposed plan or guideline through scientific methods. It implies that when playing a directive role particularly as an advocate, consultants should list and analyze reasons and benefits to persuade managers and therefore, it is automatically a counterintuitive process. The other reason is that lean itself is counterintuitive. Emiliani (1998) points out that managers' intuitive or natural way of thinking is batch and queue production mode rather than lean production. Hence, wastes identified by lean thinkers cannot be recognized by managers unless they are educated to learn lean tools or lean concepts (Emiliani, 1998). In the case of this project, most managers and employees have not been trained or taught lean based knowledge before. Therefore, it is less likely for them to intuitively recognize waste or process improvement opportunities.

The Roles of Consultants and Interpreting and Integrating

Consultants attempted to teach and explain the ideas and benefits of lean production through meetings and training courses. As training courses delivered by the consultants were the main pathway for managers and employees' learning, how to interpret lean in an understandable and acceptable way can be a challenge for consultants. By observing their training courses, it was found that these were mainly delivered through lectures (the consultants acted as trainer or teacher while the managers or supervisors or operators acted as students). However, when interviewing some of the "students" after the first and second training courses, which mainly focused on organizational structure and job responsibility, negative feedback was received. Some "students" complained that they could not memorize what the consultants said as they were not familiar with conceptual words or phrases in the training courses. Several "students" highlighted that the examples or cases employed by consultants did not link closely with their daily jobs and thereby, they did not know what or how to change. It implies that the consultants failed to develop common language to interpret the training materials. Additionally, as "students" could not memorize or understand the training course, it was difficult for them to change their existing mindset, or develop shared understanding or engage in the project. This difficulty was also reflected in their meetings. While consultants tried to explain their guideline for lean implementation in the meetings, several middle managers questioned the benefits of lean production and they complained that actually they did not quite understand it as the linkages between lean production and their current daily work were unclear. They

argued that they needed a more practical and easy-to-understand or easy-to-use guideline for lean production which could directly reflected on their daily work.

Moreover, consultants attempted to integrate lean production into employees' behavior by changing the current operations procedures and policies as well as their performance assessment methods. However, both middle managers and employees felt uncomfortable with the new proposed procedures and policies as they were too wordy and abstract. Hence, finding a common language or at least an acceptable language to interpret the ideas of lean production became a core issue. To deal with this issue, the managers and consultants decided to change the training method. As managers knew their company and employees better than the consultants, and also as the consultants worked closely with the managers during the project, the consultants attempted to train the managers first. Managers were then expected to deliver the training courses with the common language to supervisors or operators. In this case, the consultants acted as "head trainers or coaches" who educated managers. Managers acted as "assistant trainers" who were responsible to educate employees in their department. For example, one of the important training courses is 6S implementation. As this course was mainly associated with the operations management (OM) department, the head of OM was expected to be the "assistant trainer".

As a result of interviewing consultants and managers, it was found that compared to the previous training method, the new method provided more opportunities for both managers and consultants to discuss or communicate with each other and this immediate communication enabled consultants to gain better understanding of the situations in the company. By interviewing supervisors and operators, they highlighted that it was easier for them to understand the managers' language and cases or examples provided by managers directly reflected their daily jobs. Based on this training course, some collective actions can be found in several workshops. For example, two supervisors mentioned that their operators began to clean machines and floors after the training course. Another supervisor reported that operators realized the importance of safety and they proactively checked whether their colleagues wore helmets and gloves.

In addition, a revised version of operations procedures and policies was provided by the consultants during the later meetings. Although the language and structure was simplified in the revised version, manager (particularly middle managers) and supervisors still felt difficult to read and understand it. Several middle managers argued that the content included in the revised version was too general and conceptual. They were not interested in reading "a general conceptual book" and once again they highlighted what they expected was "practical guideline" which can exclusively match the context of their company. As middle managers and supervisors were unsatisfied with the revised version, consultants were forced to do a second revision of their proposed procedures and policies. One of the consultants complained that it was an endless work as none of them had the working experience in this company and it was difficult for them to gain a comprehensive understanding of each department in this company within a short period. Another consultant worried that they lagged behind their schedule. As planned, the current state of shop floor should be changed and the new policies and work procedures should began to be implemented during the middle to end stage but actually, consultants were still in the process of developing and revising the procedures, policies and assessment methods. If they could not accomplish all the tasks on time, managers would complain again at the end stage of this project.

The Roles of Consultants and Institutionalizing

The efficiency of institutionalizing was improved based on the directive consultants' roles. This study found that as the consultants acted as the technical expert and advocate, they were responsible to re-design and re-organize the operations procedures, policies, job responsibility, and performance assessment criteria based on their knowledge of lean production. For example, the safety and quality policy was developed by consultants. The assessment of Total Productive Maintenance (TPM) and 6S was included in the supervisor and operator's performance assessment criteria and related activities incorporated in their operations procedures. This implies that the process of institutionalizing can be led by consultants rather than managers. Consultants could directly and efficiently embed their knowledge of lean production into organizational level change within a relatively short time period. Managers and

employees were then expected to be persuaded and trained to accept or implement the re-designed organizational structure, policy, job responsibilities and performance assessment criteria. However, it is worth noting that efficiency does not mean effectiveness. For example, as discussed in the previous section, middle managers did not understand the ideas and benefits of lean production. In this case, the consultants drafted the documents relating to the operations procedures and policies in a relatively short time, but whether these documents, without proper interpretation, could be adopted and implemented by managers or employees effectively remained as an issue.

CONCLUSION

The aim of this paper was to establish how the learning process can be affected by the role of consultants. The 4I framework, which illustrates the dynamics and different levels of learning, was employed to identify learning processes. Kubr's (2002) typology was also employed to identify the roles of consultants. Through a longitudinal and in-depth case study of a Chinese SME which implemented a consultancy-led lean project it was found that the roles of consultants were directive and operated at four levels; trainer, advocate, fact-finder and technical expert. There was insufficient evidence to show the direct use of intuition in this project. However, the consultants were forced to improve the processes of interpreting and integrating. These processes, although intervened by directive roles of consultants, became the main constraints for lean production to be understood and accepted by managers and employees. The directive roles of the consultants can contribute to the efficiency of institutionalizing but its effectiveness can be restrained by the process of interpreting.

This paper enriches the OL literature (particularly 4I framework) by investigating learning activities and processes in a specific project and illustrating how these four processes can be affected by external professionals such as consultants. Furthermore, it also has practical implications for consultants and managers. For consultants, while they play directive roles in the improvement project, it is insufficient for them to simply introduce the new knowledge such as lean production, provide guidelines for implementation or directly change the rules and policies in the client organization. The main constraint is how to enable the managers and employees to understand lean production. In other words, consultants should focus on how to interpret the new ideas in an acceptable way and integrate them into managers and employees' daily work. As argued by Gammelsater (2002) and Kipping and Armbrüster (2002), the different knowledge base of consultants and managers may lead to "burden of otherness". In the consultancy-led project, to enable new knowledge such as lean production to be learnt and implemented effectively, the importance of middle managers should be recognized by consultants. Middle managers normally do not directly involve in the first contact or meetings at the beginning of project. Their importance can easily be underestimated by consultants as consultants who play directive roles in the project and seek to persuade the senior managers to accept and support their suggestions. However, middle managers work closely with employees and are actually more familiar with the organizational (particularly operational) context. Hence, instead of solely focusing on senior managers, consultants should actively cooperate with and involve middle managers during the project (e.g. involving middle managers in the training courses). For senior managers, on the one hand, they should involve middle managers at the beginning of project as they can provide useful and up-to-date operational information. On the other hand, the selection of consultants should be considered carefully. Consultants with experience in the relevant industries seem to be a more realistic and suitable choice. As a single case study, the generalizability of these findings is limited. Therefore the long-term research aim is to investigate more cases and compare and contrast different roles of consultants and their effects on the effectiveness of 4I learning processes.

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