



LEARNING AS WORK: Teaching and Learning Processes in Contemporary Work Organisations

**'The Prawn Sandwich Will Live Forever':
Learning to Innovate in Commercial Sandwich
Production**

**Asma Khan, Fiona Shirani, Nick Jewson,
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**Learning as Work Research Paper, No. 17
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**‘THE PRAWN SANDWICH WILL LIVE FOREVER’:
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ABSTRACT

This paper examines processes of innovation in one of Britain’s fastest growing industries, commercial sandwich manufacturing. It is argued that the industry is characterized by two different productive systems, which we designate Retailer Label and Manufacturer Label. New product development (NPD) in the former is skewed towards high-volume, low-price products that match existing market trends. However, strategies of profit maximization in the latter facilitate the emergence of ‘new to the market’, premium priced products. The paper argues that these strategies reflect the contrasting balance of power between retailers and manufacturers in the two productive systems. This, in turn, shapes the learning environments and learning affordances available to NPD workers.

‘THE PRAWN SANDWICH WILL LIVE FOREVER’: LEARNING TO INNOVATE IN COMMERCIAL SANDWICH PRODUCTION

INTRODUCTION

It is hard to imagine that the first factory-made sandwich appeared on the shelves of supermarkets as recently as 1981. This is even more surprising when one considers that assembling food between two slices of bread is not a new phenomenon. The process has a long history stretching as far back as the first century BC. Even the meaning of the word ‘sandwich’ is hardly new. It was first used in 1762 when, in order to eat and play cards, the Fourth Earl of Sandwich asked to have his meat and cheese served between two slices of bread. Others sitting nearby requested ‘the same as Sandwich’, hence the meaning of the word ‘sandwich’ was established (Dunn, 2006).

From these humble beginnings sandwiches have become a major staple of the nation’s diet, but for many years, they have been made at home from items in the larder for immediate consumption or placed into lunchboxes to eat elsewhere. However, since the early 1980s a rising proportion of sandwiches have been made in factories and sold on the high street through supermarkets, convenience stores and coffee shops. Therefore, while the concept of the sandwich is nothing new, its commercialization certainly is. Industry estimates suggest that 1.67 billion sandwiches were purchased in 2005, at an average price of £1.66. Most people have purchased a factory-made sandwich at some time or other. Almost two-thirds of people do so at least once a year, with the most likely purchasers being those aged 25-34 years old. Over 30% of all sandwiches sold have chicken as their principal filling, with chicken salad being the most popular, followed by ‘mixed selection’, ‘chicken and bacon’, and ‘egg and cress’. The commercial sandwich market is worth around £3.5 billion and is over three times as big as the UK pizza market

(Winship, 2006). The most rapidly growing part of the market is the 'pre-packed, bought in' sandwich as opposed to those made on site, either to order or in advance of the sale. Two-thirds of this market is accounted for by 'pure sandwiches' - that is two slices of bread cut into triangles and packaged for sale - as opposed to other carriers, such as baguettes, rolls and wraps (Hunter, 2007). It is the traditional 'triangle' part of the sandwich market on which this paper is focused.

Like other foods, such as cook-chill meals (Glucksmann, 2008), the pre-packed shop-bought 'triangle' sandwich was developed and launched by the supermarkets. It was designed to provide a fast food alternative to the hamburger. It allows consumers who are time-short to eat while simultaneously undertaking other activities (for a discussion of other 'convenience' foods, see Warde, 1999). They continue to play a pivotal role in directing and overseeing how and what manufacturers do. Since sandwiches leave manufacturers' premises as supermarket products, and are labelled as such, we refer to these as 'retailer label'. Sandwich production destined for supermarkets (and other large purchasers such as coffee shop chains) is therefore 'buyer-driven' (Gereffi, 1994 and 1999). The label printed on the triangular container, known as the skillet, is emblematic of the power retailers have over their suppliers and their suppliers' suppliers. This, in turn, determines the parameters in which producers operate and the learning environments in which innovation takes place.

However, although supermarkets and other larger retailers do sell large volumes of sandwiches, there are other outlets too. These retailers offer more numerous points of sale but their average sales volumes are far lower. This offers sandwich producers an alternative route to market products that carry the manufacturer's label. In these

circumstances, there is a greater potentiality for the chain to be ‘producer-driven’ and for there to be more of a push from the manufacturer and less of a pull from the retailer (Burch and Lawrence, 2005).

This paper examines the consequences these two distinctive productive systems have for the discretion exercised by whose responsibility is to develop and launch new sandwiches (known as New Product Development or NPD for short). This, in turn, has implications for the learning environments in which NPD takes place. In a further development of the ‘expansive-restrictive’ continuum (Fuller and Unwin, 2003), we argue that NPD does not have the same characteristics across these two productive systems. We show that both incorporate elements of expansive and restrictive learning environments, but that they do so in different ways. Neither can be placed at one or other extreme end of the expansive/restrictive continuum; both fall somewhere in the middle of the spectrum. However, it is also apparent that their particular combinations of expansiveness and restrictiveness are not identical. As a result, NPD personnel in each of the two productive systems are characterised by different strategies of innovation and patterns of learning. This paper, therefore, makes a contribution to the specification of points along the continuum that stretches between wholly expansive and wholly restrictive learning environments.

In addition, the substantive empirical focus of the paper allows us to make a contribution to the food processing literature, since we examine in detail the development of a particular food category rather than examining the emergence of the retail brand in general (cf. Harvey *et al.*, 2002; Burch and Lawrence, 2005). The product development focus of the paper also makes it distinctive from the existing literature on the sector

which gives a factory floor perspective. This emphasizes the monotony, low pay and racialized nature of sandwich making which we, too, observed but do not focus on here (e.g., Holgate, 2005; Edwards *et al.*, 2007; Lloyd *et al.*, 2008).

The paper begins with a brief account of the research methods used in generating the empirical data presented here. It goes on to outline the productive system of sandwich making, focusing in particular on the two contrasting forms associated with retailer and manufacturer labels. The next section examines the different ways in which these two productive systems shape patterns of innovation and learning by NPD personnel in manufacturing firms. The paper ends with a short conclusion that highlights how elements of both ‘expansiveness’ and ‘restrictiveness’ characterise the learning environments of NPD workers in retailer label and manufacturer label firms, thereby giving an insight into what constitutes the mid-points along the ‘expansive-restrictive’ continuum.

METHODS

Detective work is required to uncover where sandwiches for supermarkets are made. The location of manufacture is not evident from simply examining the fine print on the packaging; only the retailer’s head office address is given. Searching is required for manufacturers to become visible since they are not themselves household names. A total of ten interviews were conducted in four of the largest retailer label manufacturers. Together they supply all the major supermarkets, in addition to other smaller retailers. Manufacturer label sandwich makers are easier to identify since the packaging carries their name. We carried out 19 interviews with this type of manufacturer covering eight

brands. Interviews also traced back the horizontal stages of production to include suppliers of sauces, fruit, vegetables and packaging; three interviews were conducted with suppliers who had experience of both productive systems. To complete the picture, 13 interviews were carried out to trace the productive system forwards to include those who stocked their shelves with sandwiches for sale. These included chief buyers for large chains, coffee shop managers responsible for daily orders and corner shop owners, who could choose which manufacturers they used. These interviews gave us insights into the two types of productive system from the perspective of the retailer, both large and small. The vertical pressures under which sandwich manufacturers operate were frequently discussed in all the interviews. We carried out three interviews with stakeholders responsible for overseeing the industry by offering advice, providing training or verifying hygiene standards.

SANDWICH PRODUCTION

This section begins with a general overview of the productive system of commercial sandwich manufacture and then goes on to distinguish between the productive systems characteristic of retailer label and manufacturer label sandwich making.

Horizontal and Vertical Axes

The horizontal axis of the productive system of commercial sandwich manufacture includes a series of sequences or stages (see Figure 1). Primary producers generate raw materials, such as vegetables, fish or meat. Suppliers purchase raw materials from primary producers and assemble some or all of a range of ingredients required by particular sandwich recipes. They may also partially process some ingredients; for example, cooking chicken, baking bread or chopping vegetables. Manufacturers purchase

ingredients from (usually a variety of) suppliers. They typically undertake further processing of ingredients, prior to assembling a range of specific sandwiches. This may be a labour intensive process done by hand or by may be mechanized to varying degrees. When done by hand, Taylorised assembly line techniques are sometimes employed, breaking the job down into a series of small discrete tasks; alternatively, the whole sandwich may be put together from scratch by just one person. The later is more likely when production runs are short, frequently changed and involve ingredients that are difficult to manage other than by hand. Mechanized assembly lines may incorporate electronic weighing scales, overhead hoppers and metal detectors. More fully automated production is typically confined to sandwiches with a few easily managed ingredients and those incorporating viscous fillings, such as tuna mayonnaise, known as ‘splodge and dollop’. ‘Lieder line’ production has automated almost the entire work of producing high volumes of such basic sandwiches, while employing relatively few operatives. The manufacture of premium priced sandwiches, however, is usually labour intensive and undertaken by hand. Finished sandwiches are packed into ‘skillets’ (i.e., triangular plastic or cardboard cartons) and distributed to retail outlets. As we shall see, retail outlets take several forms but all receive packaged sandwiches from manufacturers, which are then sold to consumers through a variety of venues.

As far as the vertical axis of the productive system of commercial sandwich manufacture is concerned, in the analysis presented in this paper we are particularly concerned with the constraints exercised by regulatory bodies that bear on manufacturers (see Figure 2). Sandwich manufacturers are subject to several different potential and actual sources of regulation from above. All are required to comply with health and safety legislation governing food production, which has increased in specificity and scope

in recent years. Indeed, the production of food is more heavily regulated by national, European and global regulation and legislation than ever before (Kjaernes *et al.* 2007). Many sandwich manufacturers also seek to gain accreditation from industry-based regulatory organizations, which set rigorous standards, conduct site inspections and monitor voluntary codes of practice. Among the most respected is the British Retail Consortium (BRC). Another important agency is the British Sandwich Association (BSA). In the case of the BRC, validation may be sought and achieved at a range of different levels or grades. Another source of regulation that impinges on some manufacturers derives from retailers. Many small- and medium-sized retailers are content to rely solely on requiring manufacturers to obtain BRC, BSA or similar accreditation, rather than undertaking intensive investigations themselves. However, large retailers, such as national supermarket chains, typically have their own demanding in-house inspection processes, which address not only detailed aspects of the operations of manufacturers but also regulate all the steps in the productive system. For example, they typically specify which suppliers of ingredients manufacturers may use and suppliers are instructed about the primary producers from whom they may purchase. The controls imposed by large retailers, therefore, do not simply address manufacturers' premises and operations but also regulate relationships within the productive system as a whole.

These, then, are the horizontal and vertical axes of the productive system that constitute sandwich manufacture. However, we discern two different forms, or variants, of this productive system. These are defined by differences in the balance of power and locus of control within the productive system. The key indicator, or marker, of differences in the locus of control is the brand name under which sandwiches are presented to consumers.

Where sandwiches produced by manufacturers carry the brand name of the retailer, the balance of power in the productive system as a whole is weighted towards retailers and retailers often impose stringent controls on manufacturers. We designate this variant as the **Retailer Label Productive System** or **Retailer Label** (RL for short). In contrast, where sandwiches carry the brand name of the manufacturer, not the retailer, the balance of power within the productive system is less heavily weighted towards retailers. Manufacturers typically have greater scope for independent action and innovation. Regulation of manufacturers is less likely to be under the direct control of a small number of retailers. We designate this variant of the productive system **Manufacturer Label Productive System** or, simply, **Manufacturer Label** (ML).

These models are ideal types generated for the purpose of conceptual analysis. In the real world, manufacturers may engage in both types of productive system, although most are predominantly involved in one or the other. It is our contention that, in order to understand differences between firms in processes of innovation and product development, discussed in the next section, it is necessary first to identify and contrast the dynamics of RL and ML productive systems.

Retail Label Productive System

The overwhelming majority of sandwiches sold within supermarket chains carry the retailers' label, not that of the manufacturer. They are produced in very large numbers and delivered to retailers on a daily basis. Manufacturers may produce sandwiches for more than one retailer but the volumes typically demanded by supermarkets usually mean

that manufacturers in this productive system are heavily committed to one or two retail outlets. Retailers, in turn, typically develop a close relationship with a limited number of manufacturers and often play a significant part in the distribution process. The huge volumes of sandwiches required by big supermarkets means that manufacturers necessarily automate assembly lines. Relatively few manufacturers are of sufficient size and capital intensity to compete in this market.

The kind of sandwiches sold by large-scale retailers, such as supermarket chains, are those which have mass appeal. Hence, although supermarkets also often carry a premium RL range on their shelves, they tend to concentrate on a standard menu of predictable fillings and breads. This suits large-scale manufacturers who can automate, simplify and maintain long production runs.

“Supermarkets ... they’ve probably got maximum sort of ten, twelve sandwiches on the shelves. They’ve got a lot of each filling but, you know, they haven’t got that many varieties.”

National Account Manager, large ML, Firm A

“The standard range is pretty much cut and dry. You know, a tuna mayonnaise, tuna and sweet corn sandwich is pretty much a standard product commodity in the industry. Like cornflakes. Everyone does their own version of cornflakes and they are all pretty much the same. So it is the same with tuna and sweet corn sandwich. There is no creativity in it.”

NPD Specialist, RL, Firm C

Where huge numbers of sandwiches are being produced and sold, marginal savings on time and resources can be of great financial importance to manufacturer and retailer. Hence, economies of scale are attractive to both alike. Thus, innovations in production processes and cost savings may be as significant as creating a new sandwich filling.

Within the RL productive system, power balances favour retailers; the retailer is the predominant locus of control. Retailers award huge contracts, calling for tens of thousands of sandwiches each day. As monopsony purchasers (i.e., sole buyers), they are in a position to define product parameters, dictate terms and drive down margins. For their part, manufacturers are vulnerable to shifts in demand from the retailer.

“There’s always the squeeze on. I mean the retailers are notorious for squeezing the suppliers as much as they possibly can cos that’s where they make their profit.”

Senior Manager, Industry Accreditation Authority

“Everybody tends to say that we’re very [name of national supermarket chain] driven, and that we’re almost a slave to [name of national supermarket chain] I suppose. ... We are an extension of [name of national supermarket chain]’s really. ... We do a lot of liaising with them, you know, and obviously presenting new products to them as well. So they’re very much heavily involved in the business.”

Senior HR Manager, RL, Firm B

“[Name of national supermarket chain] have a number of policies, which we have to comply with as a supplier, but that’s part of doing business. ... You work within those parameters. So, they lay them down. “

Senior Production Manager, RL, Firm B

Retailers can vary the amount of product they purchase, up or down, on a daily basis and impose fines on manufacturers who fail to meet quotas. They can demand the most rigorous standards in every aspect of manufacturers’ factory operations, employment policies and product handling. Retailers can enforce these standards by a regime of rigorous in-house inspections. They also typically specify a limited list of suppliers of ingredients that manufacturers must use.

Manufacturers in the RL productive system necessarily commit themselves to supplying a product which is attuned to the needs and requirements of one or two retailers. They make efficiency savings by building large factories, investing in expensive

automated production lines and employing large workforces. As a result, their plants become dependent on the business provided by just one or two purchasers.

“Dedicated [name of national supermarket chain] facility. So we mould ourselves to what [name of national supermarket chain] want ... we do a lot of work to try and make sure that [name of national supermarket chain]’s stay ahead of their competitors. Rather than us staying ahead of our competitors, we make sure [name of national supermarket chain]’s stay ahead of theirs. So we’re looking at the bigger picture from that point of view as well.”

Finance Manager, RL, Firm B

“The retailers like to have dedicated facilities concentrating solely on their needs.”

Senior Production Manager, RL, Firm B

Periodically, manufacturers pitch to retailers a range of products that they hope retailers will chose to stock during the forthcoming months. In this bidding process, manufacturers are in competition with one another and may incur serious losses of business.

“[Name of national supermarket chain] have three sandwich suppliers. We compete amongst ourselves for business and innovation ... they will get their prices that they’re looking for by making the three of us compete against each other.”

Senior Production Manager, RL, Firm B

The balance of trust and risk in relationships between manufacturers and retailers in the RL productive system is nowhere more evident than in the process of ‘category management’. Category management involves manufacturers undertaking market research, and spotting future trends, in order to appraise retailers of likely shifts in the demand for sandwiches. Much of the costs of this process are born by manufacturers and, clearly, manufacturers have an interest in foregrounding their own products in order to increase sales. However, only impartial advice will be of value to retailers and, hence, worth retaining by the award of further contracts for products. Thus, category

management involves a delicate balance of trust and instrumental calculation of self interests.

“It is basically a support role really. So the retailers ... expect the suppliers to do the work for them ... At the end of the day the products are vitally important to us, we are happy to do that We make recommendations to them and, with the right data to support it, then it is all well and good.”

National Account Manager, RL, Firm D

“You are supposed to be making recommendations to the retailer as a totally independent body.... It shouldn't be any concern of who's supplying the product. It's ... what you believe is best for the consumer. ... The benefits are that obviously if you are very good at category management, the retailer wants to work with you extremely closely. And then obviously bonds a stronger relationship over your competitor.”

Senior Finance Manager, RL, Firm B

The intensity of the controls exercised by retailers reflects the enormous commercial value attached to their brand names. The failure of just one product carrying a supermarket's brand can threaten the market viability of all. Thus, isolated problems with one sandwich product could damage retailers' entire business. As a result, retailers strenuously try to reassure customers about their ethical trading, corporate responsibility, ecological credentials and hygiene standards. They also seek to circumscribe the autonomy of sandwich manufacturers; minimizing risk to their brand by reducing the discretion of, and maximizing their surveillance over, manufacturers and suppliers. In so doing, however, they also transfer the legal responsibility, and hence risk, for much 'due diligence' to themselves. Thus, for example, fall-out from a problem with an item from a supplier might well be the legal responsibility of the retailer who specified and inspected the premises, rather than the manufacturer who was required by the retailer to use this source of ingredients.

In practice, then, the RL productive system is confined to large-scale production of a limited range of products by a small number of manufacturers for a few national retail organizations. Consequently, this productive system is characterised by a relatively high degree of homogeneity of organizational forms. Retailers are mostly national supermarket chains with an established reputation for quality and service. Most manufacturers operate large plants producing high volumes of a standard range of popular products.

Manufacturer Label Productive System

Sandwiches produced within the ML productive system are sold under the brand name of the manufacturer, not the retail outlet, and packaging carries the name of the producer. ML producers are more varied and heterogeneous than RL in scale and character. At one extreme, there are large numbers of small producers, operating out of cramped premises with a handful of staff, servicing their immediate geographical area. Their production is typically by hand and rarely involves capital intensive methods. Frequently, firms such as these sell a relatively high proportion of their stock directly to the public from peripatetic company-owned vans. These vehicles travel between localities, such as industrial estates, where it is known that customers purchase snacks and lunch-time food. Small-scale ML producers also often seek to place sandwiches on the shelves of corner shops, newsagents, garages and similar outlets. Typically, relationships with these retailers are informal, short-term and involve small numbers of products at each 'drop'. There is often intense competition between small-scale ML manufacturers over price and access to retail outlets, with rivals undercutting one another.

Medium-sized and large-scale ML producers - with more staff, better premises and operating at a regional or even national level - are less likely to rely on van sales and more likely to sell their sandwiches through retail outlets. Some of these retail outlets will be similar to those sought by small-scale firms; consequently, garages and corner shops may carry sandwich brands that are widely known alongside those that are highly localised. However, medium- and large-scale ML producers are also likely to seek formal contracts with larger, established retail outlets, such as universities or hospitals. Typically, such contractual arrangements will identify a small number of ML sandwich manufacturers who are tied to the retailer over an extended period. Volumes purchased by retailers may vary over time, and may shift between recognised manufacturers, but only contracted manufacturers will be used. However, to enter the competition for such contracts requires higher levels of external accreditation than is common among small-scale producers. The investment, expense and trouble involved in attaining and maintaining these accreditation standards restricts the numbers of ML producers who can enter these markets.

For some smaller ML firms, formal contracts with retailers are likely to comprise a large proportion of their total output, putting them potentially at risk in the event of the loss of just one source of business. Accordingly, some ML firms consciously adopt a policy of preserving their autonomy by maintaining a broad customer base, avoiding dependence on one or two retail outlets. Where manufacturers do business with many retailers, each of whom represents a limited proportion of total sales, retailers are less able to dictate terms to manufacturers.

“It’s better to have a diverse customer base ... it’s just spreading your risk.”
Senior Operations Manager, medium-size ML, Firm E

“We’ve got a name known in the industry. To change to retail, we’d be a small fish in a big pond ... And we have always said as a company we’d never have a customer more than 10% of our sales ... if you have something like a supermarket, they’d be sort of 90% of your sales. And they hold you over a barrel with prices. And it’s just something we don’t want to get into.”

National Account Manager, large ML, Firm A

As a result, within the ML productive system the balance of power is not so heavily weighted in favour of the retailer. In general, ML manufacturers enjoy a greater degree of autonomy and discretion in their business activities and are less at the beck and call of retailers.

“We’ll take the views of our customers and we often do, but at the end of the day ultimately it’s up to us to put out the range. ... The fact it is our brand allows us to do what we want ... And the fact that we don’t have our eggs in one basket also contributes to that.”

Senior Production Manager, large ML, Firm A

“Everything we do is our decision. We decide we want to move in that direction, so we can do. Although some of our customers do lead us, it’s still sort of our decision because it is our brand.”

Senior NPD Manager, large ML, Firm A

ML producers are freer to seek alternative suppliers, rather than those prescribed by the retailer. They are freer to develop products according to their own criteria, without having to seek authorization from major monopsony retailers. They are also freer to find new and additional retail outlets. The corollary is that, within the ML productive system, each member of the supply chain is more likely to be responsible for their due diligence with respect to specifications and standards. Greater autonomy is matched by greater legal accountability.

Thus, whereas the RL productive system is, in practice, fairly homogeneous, the ML productive system is more diverse and heterogeneous. ML manufacturers differ in

the size of their output, workforce and range of products. Their sphere of operations varies from local through regional to national markets. There is also diversity in the way their products reach end consumers; some ML producers sell directly to the public, some place products with retail outlets, some have formal contracts with retailers, some operate a mixture of ways of selling their product.

NEW PRODUCT DEVELOPMENT AND LEARNING ENVIRONMENTS

In the previous section we examined the overall characteristics of the productive system of commercial sandwich making, and identified power balances within the RL and ML variants. This section draws out the implications of the two types of sandwich productive systems for processes of new product development (NPD), and the learning environments of NPD personnel. We will begin by briefly describing the elements of the NPD process, before moving on to examine ways in which the two productive systems shape patterns of innovation.

The NPD Process

The NPD process typically involves strategic and regular changes to the products offered to the market, often following a seasonal and/or annual cycle (Akgün and Lynn, 2002; van der Valk and Wynstra, 2005; Bakker *et al.*, 2006; Mikkola and Skjøtt-Larsen, 2006). New sandwiches may be introduced, existing products amended and established items ‘delisted’. Regular and consistent NPD cycles may constitute a formal and explicit, or informal and implicit, condition of a supply agreement or contract with a retailer. RL manufacturers and larger ML producers typically employ specialist personnel engaged in NPD and their work constitutes a distinct business function within the organization. NPD

work may lead to the development of products that have never before appeared on the shelves of retailers ('new to the market' products). However, it may also involve the development of products that have already proved popular in the marketplace but which have not previously been offered by the firm ('new to the firm' products) (Tether 2000). The latter approach is reactive; it involves identifying and matching market trends. The former is proactive; it entails generating products that create, lead and direct market trends.

“There’s many different angles about what you do as a product development manager. There’s obviously the newness, so there’s the innovative stuff. ... There’s things that we call ‘gap analysis’. So there might be someone else in the marketplace that’s got a product that works quite well that we don’t have. So that’s about matching and launching something similar. We might have price things that we want to do some more to. Like lower the price ... So it’s not about just creating new products.”

Senior NPD Manager, National Supermarket Chain

“It could be something completely new sort of blue sky development ... or it could be that they are taking it from someone else and they want just to match.”

Senior NPD Manager, Supplier, Firm F

Not least because of the labelling of ingredients, it is difficult for manufacturers of ‘new to the market’ products to keep their recipes secret and prevent other firms from offering ‘me too’ products over relatively short time periods. Nevertheless, manufacturers, particularly those in the RL productive system, like to maintain a degree of secrecy around the work of their NPD departments.

NPD specialists in both RL and ML are in the business of innovation. They draw on a wide range of sources of ideas for new sandwiches. They monitor the products of competitors, attend trade fairs and professional venues, compete for industry awards, study culinary texts and seek inspiration from their personnel experience of cooking, eating out and holidaying in exotic places. They are acutely interested in interpreting the

direction of consumer tastes. They liaise with retailers of their products and involve them in future developments. They are aware that the capacity of competitors to develop ‘me too’ products means that NPD is a continuous and competitive process. NPD personnel, then, enjoy opportunities for learning in the workplace that entail crossing boundaries between bodies of knowledge, skill and practice both within and outside the firm.

However, notwithstanding these similarities between NPD personnel within the two productive systems, there are important contrasts in their roles which have implications for their learning experiences. Differences in the structure of the RL and ML productive systems shape the direction, contents and form of their learning.

RL Manufacturers

The high degree of control that retailers exercise over the RL productive system means that they play an active and directive role in the development of new products. NPD personnel often work to specifications generated by retailers that guide the direction of the innovation process and establish time-lines for their completion. Initial suggestions for the development of new products by manufacturers may come, wholly or in part, from retailers. Retailers may set specifications for NPD initiatives, and play a part in organizing the NPD process, within the manufacturing company. Similarly, signing off a new product requires agreement and approval of the retailer.

“We give them a brief. ... We kind of guide them into what we want.”

NPD Manager, National Coffee Shop Chain

“[In RL] you are told what you are selling, these are the prices, this is what you’ve got to sell, this is the promotional activity and this is what you’ve got to do. ... You’ve got to work closer with the retailer.”

Senior Finance Manager, RL, Firm B

“They can even dictate like down to the products that you actually use in your sandwiches. And what that does is that takes away your degree of freedom and flexibility for let’s say innovation and new product development.”

HR Manager, large ML, Firm A

RL retailers also shape the NPD process through the controls they exercise further back in the production chain over suppliers and primary producers. Supermarkets typically specify to manufacturers which suppliers they can use and which ingredients may be incorporated in a sandwich, with implications for the autonomy of NPD personnel.

“... that’s the inhibiting thing is that when you sort of develop a sandwich, you have to make sure you’ve got the right ingredients in it so that [name of national supermarket chain] have approved or meet their specs, their minimum specification.”

Finance Manager, RL, Firm B

“So we don’t have much of a choice in certain areas and so that does constrain us a little bit ... It does narrow who you can work with.”

NPD Specialist, RL, Firm C

Because purchasing decisions have such huge potential ramifications for supermarket chains, ML retailers seek to evaluate all the risks and explore the implications of NPD decisions by manufacturers. This entails co-ordination between a series of stakeholders across manufacturer and retailer companies. As a result, development times can be extended. Furthermore, retailers within the RL productive system are unlikely to opt for untried and unusual products. They are more likely to seek to spot emerging market trends, rather than to strike out in wholly new directions. Innovation then tends to be skewed towards ‘new to the firm’ rather than ‘new to the market’ products.

“What people are expecting to see ... is traditional with a twist rather than really wild and whacky flavour combinations.”

Finance Manager, RL, Firm B

“What generally tends to happen is ... if the product is incredibly popular it then becomes a commodity product. The minute it starts to become a commodity product people start producing it in mass volumes and the larger manufacturers jump onto the band wagon.”

Managing Director, medium-size ML, Firm H

Managing their relationships with monopsony retailers thus dominates the profit maximization strategies of ML manufacturing companies. NPD personnel are at the forefront of this process. They engage in extensive consultation and collaboration with retailers and form on-going relationships with their opposite numbers. Particular NPD teams within RL manufacturers are often dedicated to working with specific retailers, seeking closely to match their organizational structures. Category management, in which NPD personnel are prominent part and which is more extensive in RL than ML firms, plays a major role in these relationships.

“We all man mark different people within [name of national supermarket chain]. So we all have different people that we talk to. ... and obviously build a relationship with them.”

Senior Financial Manager, RL, Firm B

NPD personnel in the RL productive system thus acquire knowledge about the culture, style, image, offer and plans of their retailer, both directly and indirectly. They not only advise retailers but also learn a great deal about how retailers themselves conceive of the development of their business. They become aware not simply of trends in the market for sandwiches but also of how retailers see sales of sandwiches fitting into their market offer as a whole, now and in the future. NPD personnel know that they have to bring forward products that not only conform to the strict regulations imposed by manufacturers but also realize the aspiration of retailers to develop a certain kind of business and to be perceived by consumers in a certain light. NPD personnel, thus, gain a great deal of broadly-based and wide-ranging knowledge about the business of their designated

retailers and of how their retailer sits in the food market as a whole. NPD specialists in ML firms learn how to attune the innovative potential of the manufacturer to the demands and vision of a particular retailer. Not surprisingly, relationships with retailers can be an important source of identification for NPD personnel in RL firms.

“I mean the main job satisfaction probably comes with working for retailers. Because ... selling just a bacon butty to, you know, some petrol station somewhere, you know, well it is not quite the same as getting a product listed with one of the retailers.”

NPD Specialist, RL, Firm C

Within RL firms, NPD departments often contain a number of different specialists, engaged in a variety of roles and ranked in a hierarchy of responsibility and authority. The internal division of labour of the NPD function tends to be more complex, differentiated and stratified in RL than ML firms. NPD personnel learn to co-ordinate and co-operate with colleagues in a corporate process that embraces a range of stake holders. They are often organized in teams which include specialists not only in food preparation but also other functions such as marketing, category management and sales. RL firms are characterised by relatively structured and formalised NPD processes, with a series of separate steps. NPD personnel thus tend to develop specialist knowledge that is relevant to their particular roles.

NPD personnel within the RL productive system are constrained in their work by the available relationships and technologies of production embedded within their employing organizations. In particular, profit maximization requires them to generate new products that take advantage of the capital investment typical of RL firms. This directs them towards innovation at the high volume, low cost end of the market, where automated and

mechanized assembly lines are most effective. These sandwiches are unlikely to be ‘new to the market’ products.

“If you’ve got a certain piece of machinery that you know performs in a very good way and produces sandwiches in a certain way, but it’s a big, big machine and you’ve spent a lot of money on it, then your NPD could be swayed to always producing or bringing in sandwiches that are able to go down that machine.”

Senior NPD Manager, National Supermarket Chain

“It is quite restrictive in some respects because you are just trying to do a ‘me too’ products and generally you are trying to do it cheaper.”

NPD Specialist, RL, Firm C

In summary, then, new product development by sandwich manufacturers within the RL productive system is heavily influenced by relationships with monopsony retailers, who are involved in devising, developing and signing off new products. The NPD function within RL manufacturing organizations tends to be relatively specialised, differentiated and professionalized. The NPD process is often formalised and organized in a series of stages that involve retailers. There is a tendency to spot and follow emerging market trends rather than shape and lead the market, resulting in a focus on ‘new to the firm’ products. Hence, the learning environments of NPD personnel are likely to overlap with a wide range of aspects of the learning environments of specific retailers, encourage the development of a broad awareness of industry-wide developments, facilitate the emergence of corporate-based team working with other specialists, generate skills in negotiating formalised procedures, favour ‘new to the firm’ innovations that match emerging trends in the market, and reward cost-conscious use of mass production technologies.

Small ML Manufacturers

Elsewhere we have explored the work of van drivers directly involved in selling sandwiches to end-consumers. We have acknowledged their potential for expansive learning, generated by the range of tasks they undertake and their role as a key source of marketing information for production managers and firm owners (Fuller *et al.*, 2007).

“It’s down to us at the end of the day. He’s blind. We’re like his eyes. We have to go out there and we come back with information. Can you change this? Can you change that? Can you give us more of that? Can you do this? Can do that? And come back to [name of manager] and he makes them. That’s how it is.”

Van Sales Person, small-scale ML, Firm G

Small-scale firms are, then, often highly sensitive to shifts in demand for their products and may pride themselves on the speed and care with which they respond to customer requests. However, this typically occurs on an opportunistic and *ad hoc* basis. Van drivers may ensure they carry the favourite sandwich of a particular customer or feedback to managers their experience of selling through particular shops and retail outlets. However, this does not constitute a regular review of the overall product range of the company and the likely direction of market trends. There is no routine cycle of renewal, or process of seasonal launch, of a menu of new or amended products. Rather, changes are short-term and episodic. Thus, small-scale firms in the ML productive system do not commonly undertake systematic, regular and strategic new product development.

“If [van drivers] do come back with any ideas, then we could do that ... We’ve got a board out there for orders ... It doesn’t always work ‘cos obviously sometimes we haven’t got the ingredients or whatever ... it’s the same people that [van drivers] see, and if one of their customers say: ‘Oh I would like something’, then we’ll do that. No, we don’t expect them to go out and say: ‘Right, new fillings!’”

Owner/Manager, small-scale ML, Firm J

Small-scale ML firms rarely have dedicated NPD departments or employ NPD specialists. Furthermore, most of the sandwiches sold by small-scale ML producers fall into a highly predictable range of familiar favourites. Changes to product runs are normally within these parameters and reflect contingent circumstances. Small-scale ML producers are market sensitive, then, but do not engage in NPD. The source of competitive advantage for small-scale ML manufacturers lies not in NPD but in employing alert, personable and able sales personnel.

“Oh you’ve got to be able to get on with the people haven’t you, definitely. ... ‘Cos they buy off you, don’t they, as opposed to the company. So true.”

Owner/Manager, small-scale ML, Firm J

“... basically you’ve got to have someone who can smile, someone who can actually say: ‘You alright? What are you up to at the weekend?’”

Owner/Manager, small-scale ML, Firm K

For these reasons, our analysis of NPD within commercial sandwich production excludes small-scale ML firms and concentrates, instead, on RL and medium- to large-scale ML firms.

Large ML Manufacturers

In contrast to the RL productive system, many larger ML manufacturers perceive profit maximization strategies to include the creation of unusual ‘new to the market’ products at the premium end of the price range. It is true that cheaper and more predictable sandwiches also appear in the portfolio of ML firms and are a stable aspect of their offer. However, ‘new to market’ products are projected by ML manufacturers as a mark of the quality, added-value and versatility of their products. Such sandwiches enliven and enrich the menus offered to retailers at periodic sales pitches. Even when not

sold in large numbers, they are perceived as conveying to retailers a strong and valued image. They also enable manufacturers to aim their menus at lucrative niche markets, such vegetarians and consumers of 'ethnic' sandwiches.

“We have our core range on our regulars and our premiums ... when you go with your sample set, it's always lovely to go and see a client and show them something they haven't seen before. ... it is definitely a USP of ours, you know, that we do innovate and we do try new things.”

NPD/Marketing Manager, large ML, Firm L

“We've got a range of probably about four hundred products, something like that. So, we can afford to have a few which tell nice stories, are interesting. So when you see the buyers you can show them a sandwich and say: 'well that's got broccoli shoots in it, no-one else is using broccoli shoots.’”

Senior NPD Manager, large ML, Firm A

Since unusual new items on the menu are seen as a valuable asset to profitability of ML firms, NPD personnel enjoy scope to develop a wide range of products, encompassing not only the old faithfuls but also variations on standard sandwiches and some items that incorporate unexpected ingredients and taste sensations. As a result, ML producers tend to have a broader range of products on offer than RL firms, even though they produce some of them in relatively small numbers. They are also likely to have a higher proportion of their product range at the premium end of the market. Consumers of premium products are more interested in unusual fillings and more willing to pay higher prices. This approach to innovation is facilitated by the labour intensive modes of production often found within medium and large-size ML firms. Handcrafted production favours short runs of speciality sandwiches.

It would certainly be wrong to suggest that NPD personnel in the ML firms do not consult and liaise with retailers. ML firms typically monitor patterns of demand from retailers, seek retailers' advice before introducing new products and maintain close contacts through occasions such as product tasting and marketing events. Sales roles are

often undertaken by national or regional accounts managers who keep close relationships with retailers. Nevertheless, in the ML productive system the initiative for new product development appears to be more firmly rooted in manufacturing firms themselves, rather than in retailers. Retailers expect manufacturers to take the lead in devising new sandwiches and launching new products on the market. This is reflected in a greater sense of independence and autonomy among NPD personnel in ML firms, compared to RL organizations. Contact with retailers is confined to a limited range of activities that are specific to marketing. Extended partnership relations between retailers and manufacturers, widespread in the RL productive system, covering a broad range of employment policies and practices, are not typical of the ML productive system. Thus, NPD personnel in ML firms engage in more specialised and focused relationships with retailers than do those in RL. Whereas NPD specialists in RL work across boundaries with retailers, those in ML confine their relationships with retailers to narrower channels. Thus, for example, intensive category management is rarely actively undertaken by ML firms. The decision to launch a new product is typically signed off internally within the manufacturing organization at the discretion of the firm. The involvement of retailers within the NPD process itself is confined to consultation on market trends and invitations to tasting sessions. ML manufacturers, then, have greater autonomy and discretion in developing new products.

“[A ML firm] would go out, choose how they’re going to do it and then just go and present it to the retailer. Whereas when you’re working with the retailer, you’ve got to get their involvement with it.”

Senior Financial Manager, RL, Firm B

“[A ML firm will] decide whether it’s right or wrong and go with it or not. ... If you’re dealing with a [name of national supermarket chain] or a [name of national supermarket chain] or anything like that ... then it goes up and down the line to technical people and management and then more senior management. It’s some way up the line before you ever get a ‘yes’ decision. It’s very long winded.”

Owner/NPD Manager, Supplier, Firm M

Indeed, retailers within the RL productive system, such as supermarket chains, may even perceive ML manufacturers as potentially ‘difficult’, precisely because they are committed to acting independently.

“[ML firms] would look after their brand and would be more prescriptive about what they want to doThe branded people have quite a bit of power in terms of what they want to do ... [ML] brands can be quite difficult ‘cos they just want to do it how they roughly want to do it ... won’t do much category management. They’ll do some but they won’t do much.”

Senior NPD Manager, National Supermarket Chain

While large-scale ML firms frequently employ specialist NPD personnel, our research suggests that their NPD departments are often smaller, less specialised and less stratified than in RL firms. Within ML firms, the NPD department may consist of just one or two individuals, often with experience across the business. As a result, NPD personnel within ML firms are more able to roam across all aspects of the product development process. They are also more likely to work informally with colleagues in other parts of the business, since the NPD process is less often divided into a series of fixed, discrete and bounded steps or stages. Thus, for example, NPD managers are more likely to be responsible for taking the product right through the development and launch phases until it reaches the market. They are also likely to carry high levels of responsibility for all aspects of NPD within flattened organizational hierarchies, dealing directly in cross-functional communications with senior managers in other parts of the business that require rapid responses.

“We don’t have massive tiers of management ... Just go straight to the top really, you get the best results that way.”

National account Manager, large ML, Firm A

Wide ranging professional roles and a lack of specialization mean that NPD personnel in ML firms are likely to develop work process knowledge that is specific to the firm and engage in opportunities to participate in multiple roles within the firm (Boreham *et al.*, 2002). Their learning environments cross boundaries within the firm.

Although NPD within ML firms may take the form of matching products of other manufacturers, leading to ‘new to the firm’ innovations, for successful ML firms ‘new to the market’ products play a large part in determining their market share and market profile.

“We innovate at both ends of the spectrum ... there is more innovation at the top end ... people aren’t worried about spending more on sandwiches now. So you can do a lot more at that end. Having said that, at the cheaper end it’s just as important to actually, sort of, change things. ... I’d say there’s less innovation at that end ... There are price points people want and there’s limits to what they’ll pay. ... There’s only so much you can actually take out ingredient-wise, or put in ingredient-wise, to produce a 60p sandwich.”

Senior NPD Manager, large ML, Firm A

A focus on ‘new to the market’ NPD allows ML firms to differentiate their wares from core or standard products that dominate supermarket shelves. Unusual ‘new to the market’ products may not always sell in high numbers but serve to establish a perception of the firm as a high quality market leader.

“Well, we’re definitely kind of top tier sandwiches, that’s what we market it as. ... And the client base that we have almost demand a kind of more exciting sandwich. ... We have to keep our image fresh ... You retain your customers by showing that you’re continually evolving.”

Operations Manager, large ML, Firm L

“The wow factor ... people add it onto their order just to have a look at it, so it just gets people talking, you know, it gets people talking.”

NPD/Marketing Manager, large ML, Firm L

“A sort of all singing all dancing sandwich... it’s a bit too wacky, so it’s de-listed this year but we weren’t really expecting it to be a top seller. It was there to be on the menu, to be interesting and to show.”

Senior NPD Manager, large ML, Firm A

Less specialization, fewer hierarchies, more attenuated relationships with retailers and less differentiated stages in the NPD process mean that product development and launch can take place quickly in the ML productive system.

“We can make a decision in the morning and ... by the afternoon it’s well on its way. Which is great for product development and things like that.”

NPD/Marketing Manager, large ML, Firm L

In summary, then, new product development within the ML productive system is heavily influenced by profit maximising strategies that prioritise ‘new to the market’ innovations at the premium, or top end, of the product range. There is a greater willingness to create market trends, rather simply follow them with ‘me too’ or ‘new to the firm’ products. A focus on premium sandwiches, and less capital intensive production methods typical of ML firms, afford NPD personnel greater scope to create unusual, pioneering and imaginative products. Whilst consulting and liaising with retailers, NPD personnel enjoy a greater degree of autonomy, independence and initiative in devising and developing new products. The NPD function within ML manufacturers tends to be less specialised, differentiated and stratified. The NPD process is often less formalised. Hence, the learning environments of NPD personnel are less likely to overlap and meld with those of retailers, but may be more likely to offer opportunities to work fluidly and flexibly with colleagues inside the employing firm.

CONCLUSION

In conclusion, then, we can detect different elements of expansiveness and restrictiveness in the occupational roles and learning territories of NPD personnel in RL and ML firms. NPD specialists in RL firms cross boundaries between their firm and the monopsony retailer. However, they are limited in their opportunities to cross boundaries within their employing firm by functional specialisations, managerial hierarchies and procedural protocols. Their creative energies are also channelled toward 'new to the firm' products as a result of the dependence of RL firms on high volume, highly automated production runs. In contrast, NPD personnel in the ML productive system are in close contact with many more retailers but have more specialised and narrowly-focused relationships with them. They know less about a greater number of retailers. Moreover, the character of their contacts with retailers gives ML firms relatively greater autonomy in developing internal company policies and innovating in new products. The role of NPD personnel in devising and launching 'new to the market' products is central to the establishment of credibility with customers and profitability in the marketplace. Furthermore, within ML firms, the organization of NPD work is more informal and less specialized than in RL firms.

Differences in the combination of expansive and restrictive elements in the learning environments of NPD specialists are a reflection of the overall structure, or configuration, of the network of relationships that characterize each productive system. NPD specialists in RL manufacturers have rich and complex relationships with dedicated retailers that span a wide range of professional activities and employment processes. They are engaged in partnership relationships which, in professional terms, are all

embracing. The balance of power within the productive system, which heavily favours large retailers, makes the assiduous cultivation of such relationships a necessary and primary task. Processes such as category management, product development, site inspections and NPD pitches provide important venues where engagement with retailers takes place. However, the number of retailer organizations with which NPD specialists conduct such relationships are few; indeed, usually they are usually confined to just one organization. Furthermore, secrecy surrounds aspects of this relationship, as a result of competition with other manufacturers.

We may, then, characterize the social networks of NPD specialists in RL firms as involving in-depth relationships with a small number of specific outside bodies. In colloquial terms, their networks relationships, and learning affordances, are fat but few.

In contrast, NPD specialists in ML firms have more narrowly defined and circumscribed relationships with retailers. Whilst they consult and liaise with retail outlets, gleaning market information and advice, they do not form relationships that span a wide range of professional activities and employment processes. They are not required to coordinate their employment policies with retailers, seek approval for NPD initiatives and decision-making from retailers, or source their ingredients from suppliers nominated by retailers. ML manufacturers rarely pursue category management and do not dedicate their plant to a few customers. They typically seek to avoid dependence on a few monopsony retailers. Instead, they try to maintain a large number of customers, prevent one purchaser from becoming the dominant source of their business and keep a balance between different types of retail outlets. NPD becomes critical in differentiating the products of ML firms from one another and in creating a reputation for quality and high

standards. NPD personnel in ML firms are engaged in relationships with retailers that are intense but narrowly focused on specific business issues.

We may, then, characterize the social networks of NPD specialists in ML firms as comprising relatively narrowly-defined relationships with a relatively large number of external organizations. In colloquial terms, their networks relationships, and learning affordances, are thin but many.

This analysis allows us to cast further light on the concept of expansive and restrictive learning environments and the expansive/restrictive continuum. In its classic sense, expansiveness embraces both the ‘many’ and ‘fat’ dimensions of learning affordances. It involves both crossing multiple boundaries and acquiring rich in-depth knowledge, skills and practices. In contrast, restrictiveness is a product of both ‘few’ and ‘thin’ learning environments. It entails lack of access to a broad range of learning experiences and a shallowness of engagement. The two types of NPD specialists in sandwich making who are the focus of this paper do not conform to either of these categorizations. They are not located at either of the extreme poles of the expansive/restrictive continuum. Rather, they occupy intermediary positions. However, their learning environments are not identical. Their contrasting *combinations* of expansive and restrictive elements – fat and few, thin and many – generate different types of innovation and patterns of learning.

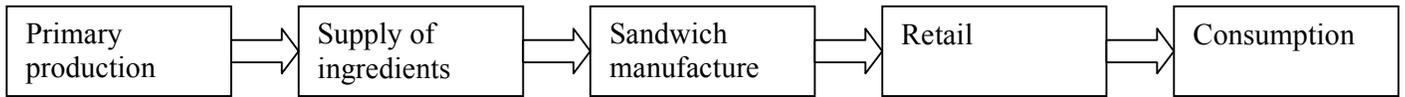


Figure 1: Horizontal Axis of the Productive System of Commercial Sandwich Manufacture

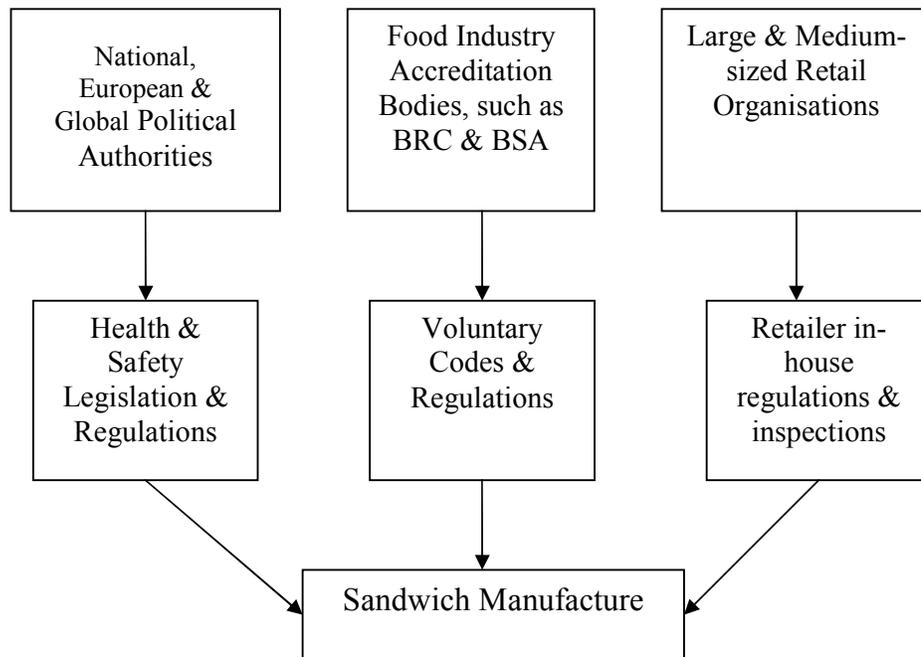


Figure 2: Vertical Axis of the Productive System of Commercial Sandwich Manufacture as it impinges on Manufacturers

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