

Kiosks in retailing: the quiet revolution

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Kiosks in Retailing: the Quiet Revolution

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Kiosks in Retailing: the Quiet Revolution

Abstract

Kiosks have the potential to be a significant application of IT in retailing, information provision and service delivery. This article discusses and analyses the application of kiosks as a channel for in-store service delivery. For these kiosks a taxonomy that characterises kiosks by their function: inform, interact, transact and relate is proposed. Eight case study examples of in store kiosks are analysed in using a framework that includes environment, task, audience, and technology. Included are: kiosks used by Halifax, Daewoo, Argos, Ikea, Debenhams, GNER, Sainsbury's. and Boots. Both the taxonomy and the framework provide a basis for further analysis of the role of kiosks in service delivery, by allowing analysis and discussion of individual kiosks to be contextualised within a wider framework.

Keywords: Kiosks; Service Delivery; Retailing

Introduction

Information kiosks are computer workstations that are located in public concourses, and designed to provide public access to digital information and e-transactions. Kiosk technology supports these public access applications with a highly visible housing for the workstation, and interfaces that are easy to use and often based on touch screens. In retailing and other business environments such as travel, entertainment, advertising, property marketing and building, information kiosks, sometimes described as multimedia kiosks or public access kiosks, are being used to provide information and services directly to customers. Kiosks supplement the other growing application of information technology in customer communication and service, the Internet. The Internet typically is used to reach remote customers, often located in homes and offices. Kiosks, on the other hand, are typically located in a store, or in a shopping centre or mall, or in other public environments such as railway stations, motorway service stations and airports. Yet, whilst web-based e-business has been the subject of much media and academic attention, kiosks are an unobtrusive addition to the landscape of traditional retail outlets. Even the most optimistic forecasts of the

growth of retailing acknowledge that in most sectors conventional retailing will remain the main environment for consumer shopping and buying. Accordingly, kiosks, strategically placed in shopping malls, stores, airports and other public concourses, if appropriately designed, situated and promoted can provide a point of interaction with members of the significant conventional shopping community. In such applications, kiosks represent an innovation in in-store promotion. They bring text-based information to life with animation, video, stills, graphics, diagrams, audio and text. They can provide customers with a richness of product information, including, for instance:

- related products
- stock levels and availability
- recipes
- special offers, and
- personalised product design.

More sophisticated kiosks can be used as the basis for interaction with customers, part of a loyalty programme, and may offer other opportunities for community building, such as those associated with customer-to-customer communication.

Literature Review

'yet very little is known about their use, and impact, despite the fact that kiosks represent a very different retrieval platform from the personal computer or the WAP mobile phone... Nicholas et al (2001), p.61.

Rowley (1995) describes multi-media kiosks as a significant advance in in-store promotion which have, until recently relied upon paper based product catalogues and promotional leaflets, with all of their attendant problems. Norris (1994) claims that the multi-media kiosk is the marketing organisation's opportunity to regain control over the ultimate stage in the marketing cycle: the point-of-purchase decision. Accordingly, most early applications of kiosks in retailing were concerned with information provision. For example, Argos have used kiosks that provide access to an electronic catalogue to reduce queuing; Marks & Spencer's have tested a recipe kiosk, and Threshers' kiosk supports customers in their selection of wine. Paradi and Ghazarian-Rock (1998) describe the evaluation of a video banking kiosk. Kiosks can be viewed as a medium through which it is possible to train, educate, inform, communicate, persuade, and relate. But, as with other public access systems, it is

important that the kiosk is designed to support the task, the user profile and the environment in which the task is to be performed. Much of the literature of human computer interaction has focused on the interface, and the way in which that interface supports the user in completing their task. A useful recent article in the context of public access kiosks, which reveals this bias is Maguire's (1999) review of user interface design guidelines for public information kiosks. Rowley and Slack (1998) argue that there are four components of public access systems that need to be considered: user characteristics, environment, task and technology, and they point to the limited attention that has been paid to environment or context. In 1994, Hewitt recognised the need to translate an interesting toy into a genuine marketing tool. This new application may offer the opportunity for such an advance. The kiosk has the potential to be embedded in the relationship between the customer and the retailer.

The kiosk is normally a computer located in a stylish box with a screen fixed at a level which is convenient for users who stand by the machine. The computer needs either local memory support any database to which access is needed in order to respond to customer's queries, or links to Web pages or organisational databases.. Typically interaction is through a touch screen interface. The user touches 'buttons' on the screen and selects specified transactions. Some kiosks also have:

1. card readers, possibly to support payment,
2. keyboards, for more complex data entry involving say alphabetic strings; keyboards sometimes also incorporate a mouse, and
3. printers, to print, say, coupons or extracts from a database that represent the response to a query (such as sections from a wedding list).

As is evident from this literature review there has been very little research conducted on kiosks, and their applications and use. Some authors have focussed on metrics for the evaluation of information kiosks, and the analysis of kiosk logs of transactions (e.g. Nicholas, et al (2001), Jones et all (1990) and Williams et al, 2000), but the health information kiosks studied in these projects are only one type of kiosk. This article focuses specifically on kiosks that are located in-store, and which are used as part of the consumption process within the retail experience. Rowley and Slack (2001) have recently reported on 'kiosks in context'. These are also kiosks with commercial intent that are designed to support the activities of the 'customer in

context' Context is concerned with the way in which the kiosk experience is integrated into, or interfaces with the wider travel, leisure or shopping experience. Typically such kiosks are located in shopping malls, airports, railway stations, and other locations in which the customer is on the move. They differ from the kiosks that are the focus of this article in that they support multiple transactions. In addition, they are more likely to replace or supplement human service agent assistance, whereas the in-store kiosk is an optional channel that can be used to substitute for service delivery through a human service agent.

Methodology and Proposed Taxonomy

Detailed observation of a number of in-store kiosks was used as a basis for the grounded theory development of a taxonomy of kiosks and a framework for the analysis of kiosks (Strauss and Corbin, 1998; Silverman, 2000). These are used in the section below to structure the description and analysis of the kiosks observed in this study.

Kiosks were selected for inclusion as case studies in this article on the basis of the taxonomy, and taking into account the following criteria:

- Diversity of environment, application and context.
- Level of integration with other transactions or marketing communication
- Capacity to illustrate the categorisation in the taxonomy.

For each kiosk notes were made of the environment, and details of the dialogue. The dialogue demonstrates how interactions, transactions, or relationships are embedded in kiosk based service delivery.

Case studies include:

- A kiosk used by Halifax for personal loans and mortgage information
- A kiosk used by Daewoo to provide information about cars and linked financial services products
- A kiosk used by Ikea to allow customers to view the sofa of their choice covered in the various fabrics available in that range.
- A kiosk used by Debenhams as an integral component in a wedding list service.

- A kiosk used by Argos to allow people to order catalogue products.
- A kiosk used by GNER to allow travellers to buy rail tickets.
- A kiosk linked to a loyalty scheme used by Sainsbury's
- A kiosk offered as a service in by Boot's the chemists to holders of the Advantage loyalty card.

The proposed taxonomy is summarised in Figure 1. Tung and Tan (1998) propose four categories of kiosk usage:

- Type I: Low transaction/low information;
- Type II: High transaction;
- Type III: Pure information dissemination
- Type IV: High transaction/high information.

Whilst this classification is useful, it operates at a task-based level, and does not acknowledge the wider context. Borrowing inspiration from models of the development of e-business (e.g. Rowley, 2000) the proposed taxonomy recognises two additional relationship oriented stages: interact, and relate.

The first type of kiosk is one that focuses on information provision, or, promotion. The user selects the information that they require, and may then use the information to inform purchase and other decisions. Businesses are selective in the information that they make available, and are seeking to promote products or brands.

Interact kiosks support information exchange between the user and the kiosk. The customer provides some information about themselves, or their preferences, and the system makes recommendations, or provides additional information on the basis of this input.

Transact kiosks are concerned with selling. Where the outcome of the purchase transaction is a ticket or an invoice, the transaction can be completed at the kiosk. In other applications, delivery is separate. Examples of organisations that are using such kiosks that have been described in the literature include Calendar Club, Avon Products, Tupperware, and McDonald's (Stores,1999, Ginsburg, 1999).

Relate kiosks involve features that draw people into a community or a relationship with a retailer. They are often linked to a loyalty scheme and feature encouragement to enhance relationships with and commitment to a retailer such as special offers, service enhancements, and other added value features

Higher level kiosks often feature the functions of kiosks at a lower level in this hierarchy. Thus, some information provision is necessary as the basis for transactions, and transactions may also be embedded in Relate kiosks. Kiosks of all kinds can be integrated into service delivery in a variety of different ways. Whilst some models for the future of retailing (e.g. Summers 1996) propose kiosks as the ultimate mobile shop which is used by customers to order grocery items for direct delivery or subsequent collection, hybrid environments in which kiosks perform limited service delivery functions, that are supplemented by human service agents who perform the other functions are a more realistic and interesting scenario.

Figure 1: A Taxonomy for In-store Kiosks

Type of Kiosk	Case Study Examples	Characteristics
Information	Halifax, Daewoo	Provides information about products and services
Interact	Debenham's, Ikea	Two way dialogue, with exchange of information
Transact	Argos, GNER	Supports purchase transactions
Relate	Sainsbury's, Boots Advantage	Offers relationship and communication functions

The categories for the analysis of the case studies are based on the proposal by Rowley and Slack (1998) that the four key dimensions that should be considered in the design of public access systems are: environment, users, task and technology. The framework used in this article includes: environment, task, audience, technology (kiosk design, and interface design).

Descriptions of Case Study Kiosks

Personal Loans and Mortgage Case Study- Halifax

Environment In the locations observed two kiosks were positioned adjacent to each other in a Halifax service outlet without a 'shop front' in a large indoor shopping centre. This location invited experimentation and was uncluttered; displays or other products that offer distractions and conflicting messages in many kiosk locations were absent. Additional printed information on the products described by the kiosks was available in a tray underneath the kiosk. Human service agents were not much in evidence.

Task: Halifax have two different types of touch screen kiosks relating, respectively, to personal loans and mortgages. Both offer information and have an embedded calculator that performs calculations of repayments based on appropriate parameters. Figure 2 summarises the tasks that can be performed through these kiosks.

Figure 2 : Halifax Personal Loans

Options on main screen

Personal loan calculator

Benefits of personal loan

Special discounts

How much can I borrow

What can I use the money for

Personal loan insurance

Important information

Audience The potential audience for this kiosk is people looking to take out a mortgage or a loan, and who need to calculate the cost of such loans, at different interest rates and over different repayment periods. These customers are involved in a non-routine purchase decision with a significant commitment in which they need to collect information and evaluate their options.

Technology Kiosks were designed to be operated when standing. The housing was in the corporate colours, but there was little else that was remarkable about the kiosk. Interfaces in both of the kiosks were very simple. The main menu for each offered access to a number of options including a calculator and a number of options, which provided additional information. Options were selected by touching buttons adjacent to them on the screen. For the information options, touching a button caused an additional screen to be displayed.

The calculator screen allowed the user to select an amount to borrow and a repayment term. Modifying these parameters caused the Monthly Repayment to be displayed in a box in the top left hand corner of the screen to be adjusted. In addition users could select or deselect a number of options relating to their purchase of related products. Customers using other Halifax products were offered a lower rate of interest. A similar calculator was available on the mortgage kiosk. In this case the user was invited to select the price of the property, the loan amount, the term of the mortgage in years, and the type of mortgage. On the basis of this information the monthly repayment for both Repayment mortgages and interest only mortgages were displayed. Each of the variables has a set number of values and limits to their range. For example, mortgage amounts go up in increments of £100, and repayment periods for mortgages were set at a maximum of 25 years.

Car purchase Case Study – Daewoo

Environment The kiosk is located in Daewoo showrooms, typically in a corner where the customer can browse, and maybe next to other relaxation facilities such as a coffee machine. An I on top of the kiosk attracts attention to the kiosk. The kiosk is inset into a desk like arrangement with space for documentation and coffee cups. The desk and kiosks are at desk height, and chairs are placed by the kiosks so that the customer can browse at their leisure. Typically in the showroom there will only be a few people. Sales staff are on hand to support the use of the kiosk or to provide additional information. Some of the information available through the kiosk is also available in printed brochures, but other information is not.

Task The kiosk is essentially brochure ware. The kiosks provides information about the current Daewoo models, used cars, and finance relating to insurance and purchase.

Audience The potential audience is people in the car showroom. This may include those who have elected to visit the showroom to choose a new car; they may use the kiosk alongside viewing cars, collecting brochures and talking with the salesman. Other users are customers how have an enforced wait in the showroom whilst their car is being serviced, or enquiries are being resolved. Very little use seemed to be made of the kiosk, but maybe its presence lends a high tec image to the showroom, which might be translated onto customers' perceptions of the cars on sale.

Technology In idle mode the kiosk displays a series of marketing messages. When the screen is touched the 'Welcome to Daewoo Cars' home screen is displayed and the kiosk starts to talk, or emit audio messages. The second screen shows pictures of Daewoo's models, and displays a number of icons as buttons. These cover the Daewoo promise, new cars, used cars, and finance. Other options are: discovering the Daewoo range, your specification, and finish. When the screen is touched the audio dialogue jumps forward to the dialogue associated with the next screen. One option shows video clips of customers talking about their positive experiences with Daewoo cars. Finance details can be printed, but when the researcher was testing this, selecting the print option locked up the screen. Overall the kiosk offered only a very low level of interactivity, with simple paths through a limited number of screens.

Sofa Design Case Study —Ikea

Environment The kiosk is located in the Ikea store adjacent to some examples of three piece suites and similar furniture. Staff on the floor can operate the kiosk, and are sometimes able to provide information on the combination of different colours and designs, but can not create the range of on screen displays that are available through the kiosk, and may or may not be able to provide the delivery and other information available through the kiosk.

Task The Swedish furniture store Ikea offers customers the opportunity to view and (in due course) order a sofa through a touch screen public access terminal. At the time

of writing this is an experimental system and is available in only one of Ikea's UK stores. The service is linked to a catalogue of Ikea's sofa range and displays not only the style of sofa, but also the furnishing fabric available for each style. By touching one of the buttons displaying the various designs and colours of fabric, the customer can see how the sofa might look when covered in the fabric of the customer's choice. The service is linked to sales information and will also inform customers of the delivery time on the sofa they choose. However, as an experimental system, it also displays discontinued items. Staff on the floor report that the service is not yet as fully compatible as they would wish. On a number of occasions that one of the authors has visited the store, the service has not been available. This has happened three times out of the last five visits — a period of about four months.

Audience The audience is IKEA customers who are considering the purchase of a three piece suite. This is a further example of a non-routine purchase decision, but of a more modest scale than a commitment to a mortgage or a loan, or to the purchase of a car. Design and colour are important choice factors. Children are attracted to the kiosk by the colourful graphic screen — they then draw their parents to look at the system, and to start to use it. Shopping will often be in family groups, and the design of Ikea stores is such as to encourage shoppers to view the visit as a pleasant family leisure experience.

Technology The facilities available for customer selection through this service include:

1. Choice of sofa
2. Samples of fabric
3. Cost
4. Delivery time
5. Product order information
6. Confirmation of order.

Choice of sofa

On approaching the terminal, the customer sees a screen displaying one of Ikea's range of sofa. A choice of buttons on the left allow the customer to select a type of sofa; for example, a three-seater, a two-seater, an armchair, a corner arrangement or a

sofa bed. Once the type has been selected, the range of styles is displayed as a column of buttons down the centre of the screen. The customer touches the chosen style and another screen is then displayed. This gives details of the style selected, its name and catalogue number, type of construction and dimensions. If the product selected is a sofa bed the screen indicates the construction and dimensions of the bed, as well as the sofa. For each style of sofa the screen also displays matching items in the product range; for example, if a two-seater sofa is chosen, buttons in the bottom left hand quarter of the screen will show that there is also a three-seater sofa and an armchair available in that style. The customer can then display these other items by touching the appropriate buttons.

Samples of fabric

The screen shows chosen style of sofa in the top right hand quarter, with buttons showing the choices of furnishing fabrics in the top left hand quarter. By touching one of the fabric choices, the customer can see how the sofa would look with a particular covering. In styles where the range of fabrics is too great to display on one screen, a spectrum is displayed alongside the fabric sample buttons. By touching the spectrum in the appropriate place the customer can select red fabrics, or green fabrics, or any shade between. Leather fabric is indicated by the recognised logo. There is also a special selection for styles of sofa offered in the leather furniture range.

The display of the sofa can be enlarged to fill the entire screen, allowing the fabric to be viewed in more detail. This is a useful feature because the fabric sample buttons are not always large enough to show the full pattern of the fabric. So, what may appear to be a pleasant chintzy fabric on the sample is revealed to be covered in huge flowers when displayed in full on the sofa!

Cost

The cost of each style of sofa is shown on the main display screen. In styles where there are separate components, the cost of each component is given. For example, some sofas are available with loose covers and the cost is given for the base unit and the covers separately.

Delivery time

By touching the appropriate button the customer can see the delivery time for their chosen sofa. This indicates how long it will take from the processed order until the sofa is delivered directly to the customer. At the time of viewing the system items which had a long lead time were indicated as being 'not available'.

Product order information

The next screen, once the sofa had been selected for order, would display the product order information. This screen was not available at the time of viewing the system. It is intended that, in due course, customers with Ikea store cards will be able to use the card slot on the kiosk to order their chosen products directly. It is not known when this facility will be made available.

Confirmation of order

This screen is also unavailable, as yet. However, the button is present on the system, perhaps to alert customers to the fact that, at some time in the future, they will be able to order their sofa directly from the kiosk.

It is important to ensure that the sofa ordering service is fully secure, for customers and for the store, before making card payment directly available to users. The products available through the service cost hundreds of pounds. Therefore Ikea must guard against any fraudulent or inappropriate use of store or credit cards in the system. The reliability of the service must be without question, in order for customers to feel comfortable in using the kiosk. Users must be able to trust the service, especially if they wish to risk purchasing expensive items of furniture without, apparently, a human intermediary. The integration of the sofa ordering service with up-to-date stock information is essential for the optimal operation of the system.

Wedding gift service Case Study — Debenhams

Environment. Kiosks are generally located in the household goods part of the Debenham's store, which is reasonably quiet and where through traffic is limited. The only onlookers may be one or two other customers waiting to use the kiosk. Human assistance was available at the till. These personnel could assist with the use of the

kiosk, but could not replace the wedding list information that could be extracted from the kiosk.

Task A public access kiosk is an integral component in the wedding gift service operated by Debenhams. This service allows wedding guest and others to enter a Debenhams store anywhere in the United Kingdom and to print a copy of the wedding list that has been created by the couple who are to be married. Typically the couple reviews the product range at their closest Debenhams store and identifies items for the wedding list. This data is entered onto a database together with other details of their wedding, such as their names, and the date. The database can then be accessed from any kiosk in other Debenhams stores.

Another important aspect of the operation of the service is that as guests purchase items these are removed from the list, so that at any duplication of purchases is removed. Guests are requested only to use a list that they printed on the day of purchase. Purchases can also be made by telephone. Finally, guests must show their print out of the list at the till when they make a purchase so that the items that they have purchased can be removed from the list. This is achieved by scanning the bar code on the list into the till at the time of the purchase transaction.

This service is likely to encourage wedding guests to make most of their purchases in Debenhams, which has to make good, if not spectacular, business sense! From the perspective of the bride and groom, they can be sure that gifts are items that they have selected and further, that where appropriate, items will co-ordinate. As far as the guests are concerned this approach removes much of the uncertainty and trauma of shopping for wedding gifts and they can be sure that their gift will be appreciated.

In addition, this wedding gift service is an integral component of the wider wedding service offered by Debenhams. Five per cent of the total expenditure on gifts is presented in the form of gift vouchers to the happy couple. Debenhams also operate a wedding stationery service and other additional facilities.

The stages in the selection of a wedding gift using this service are:

1. Enquiry at the kiosk, resulting in a printed list of suggested items.
2. Browsing store, and selecting gift

3. Purchasing gift and updating gift list.

Some of the limitations of this kiosk application are:

- The absence of any list of products on screen, or any images of the products
- The absence of any product information available through the kiosk.
- The absence of stock levels information, in a specific store, or across Debenhams stores in the region.
- The absence of an opportunity to order items through the kiosk

The kiosk collects valuable reference group data through the friend and family networks associated with a wedding. Some customers will also tender payment details as they make their payments by Switch or Debenhams store card, which would allow Debenhams to further investigate the status of customers using the service.

Audience Customers will be shoppers seeking to purchase. In addition, it is likely that customers will have created some time to undertake what is a non-routine purchase and absence of time pressure may mean that they are relatively relaxed. They may shop alone or with one or two family members or friends.

Technology The dialogue at the kiosk is summarised in Figure 3. This is a simple dialogue, with little scope for customers needing to deviate from the defined script. If a customer is slow to respond a screen which asks whether they need more time is displayed. If at any point the customer needs to re-enter data or correct something, there is a 'Back' button on most screens.

Figure 3: Text of Screens for Debenhams Wedding Gift Service.

1. Which service do you require?
2. How do you want to find the wedding?
3. How does the Groom's surname start?
4. (An on screen keyboard supports the typing in of a name that appears in a data entry box).
5. Please Wait (whilst the wedding list is retrieved)
6. Touch the correct wedding from the list below (A number of weddings which match the query are displayed).

7. Is this the correct wedding? (Wedding details are displayed)
8. What is your name? (An on screen keyboard supports the typing in of a name that appears in a data entry box).
9. Do you have a price range in mind?
10. Please wait while your selection is being printed.
11. Collect your print out

Catalogue Case Study – Argos

Environment The kiosk was located in Argos stores. Argos is a catalogue retailer. Customers normally select an item in a printed catalogue, complete a paper slip and report to the payment desk to make payment and check availability, before proceeding to the service desk from which they collect their chosen item. The kiosk located in the catalogue area allowed customers to make their own check on availability, thus avoiding queuing for items that were unavailable. Children also enjoyed playing with the kiosk.

Task Argos, the catalogue store, developed an experimental public access kiosk in the mid-1990s. This kiosk allowed customers to identify items for purchase by viewing an on-screen catalogue, locate any associated items, such as batteries, check the availability of items, and make payment for those items.

Audience The potential audience is the customer base of Argos stores. Shoppers will often be in small family or social groups. The range of products that can be purchased through Argos is wide, and some might be regarded as relatively significant purchases, whereas others are of less value and less significance.

Technology Searching was carried out either through the catalogue number or name of the item entered on a touch screen key pad. The display provided a photograph of the item, a description, the catalogue number and the price. The display also included useful information such as the quantity and type of batteries required for battery operated items.

Customers could then order the selected items and pay for them at the kiosk, by introducing their credit card into a slot provided. A printout confirmed the order and provided a collection slip for the customer to receive the ordered goods at the collection counter.

Whilst this was quite a successful kiosk in terms of allowing customers to view the catalogue in an interesting and innovative way, the method of payment caused problems. The kiosk was withdrawn for security reasons and is not now available in Argos stores.

Rail Ticket Case Study — GNER

Environment Fastticket kiosks are an innovation by Great North Eastern Railway, where the kiosk is an alternative way to purchase a ticket. The kiosks inspected were encountered at Newcastle-upon-Tyne railway station. One was located just outside the ticket office, and the other was inside the ticket office. Other ticket machines that identified a range of local destinations were also available in other parts of the concourse, but these were of a more traditional design based on a series of buttons. Human service agents were another alternative.

Task As discussed below the task to be completed by this kiosk is the purchase of a rail ticket. Only selected tickets can be purchased from the kiosk. Payment is made with a credit card.

Audience Potential users of the kiosk are intending rail travellers. These will vary considerably in their reasons for travel, their familiarity with any given rail station and their experience in the use of any kiosks, and specifically a Fastticket kiosk.

Technology The kiosks were a streamline black, and the animated screen display was designed to catch the attention of the passing customer. This comprised a diagrammatic map of the destinations for which tickets could be purchased through the kiosks that moved up the screen, on a background of hills and countryside. The movement and the diagram is informative, but also identifies with the railway metaphor. At intervals in this displays animated pictures of credit cards dropped down

the side of the screen; these were the credit cards that the kiosk would recognise, but they also served to communicate the expected method of payment. Responding to the invitation to 'Touch the screen' initiated a dialogue, which included the following screens:

- 'Welcome to Fastticket'; 'Touch the button to select destination'. Destinations are listed with touch buttons beside each destination.
- The next screen displays the same destinations, but with the selected destination ticked in its corresponding button. Customers are invited to 'Press confirm when you have selected a destination'.
- 'Select your fare type by touching the buttons as required'. A range of different fare types, such as First Class Open Return, Standard Single, and Super Saver Return, are displayed, each with adjacent buttons.
- 'Select your number of passengers'. The screen displays ticket types as on the previous screen, but with a tick on the ticket type. Boxes at the bottom of the screen support the selection of number of passengers. Depending on the choice of fare type, the display may allow selection of Adult passengers only, or Adults and Children. Any information about the restrictions on the ticket type chosen is also displayed on this screen.
- The next screen confirms the transaction, by specifying the departure and destination stations, fare type, number of passengers, and the total fare.
- 'Please insert your credit card in slot below'. Provided that the credit card is recognised, the ticket(s) will be printed and delivered.

This dialogue takes the customer step by step through the selection of a ticket. The menu system is relatively slow, but does provide more information on the options and restrictions than might normally be exchanged during a ticket purchase. On the other hand, the kiosks only sell tickets for a limited number of destinations. In addition, no information is provided on the components of the 'Total Fare' such as the price of individual tickets in a family group. Further, the kiosk has a cash limit (although this is not pre-specified to the customer), and if the tickets selected exceed this limit the following message will be displayed: 'Your transaction is over the limit for this machine please buy tickets at ticket office'. If at any point the customer withdraws from the dialogue, the screen goes back to the beginning. There is no 'Back' button available during the dialogue to allow customers to reset one of the parameters.

Loyalty Scheme Case Study - Sainsbury's

Environment For the use of the kiosk to be effective, since most of the offers are valid for the day only, shoppers need to perform the kiosk transaction prior to starting their shopping. This will delay them for a couple of minutes. It is therefore extremely important that this delay is minimised. Queues at kiosks, complex screens, which involve a lot of reading, and complex menu structures with screens that are slow to load, are not acceptable. In short, the environment in which this public access system is used is likely to be rich in distractions, such as children, trolleys and general traffic. At busy times a considerable group of trolleys and people can gather in the vicinity of the kiosks. The kiosk needs to be located in the entrance to the store, but adequate space is needed to avoid congestion either at the kiosk, or in the entrance to the store. The application in Sainsbury's at Handforth, Greater Manchester, has four kiosks. Coupons extracted from the kiosk can be tendered at the till to claim discounts. There appeared not to be any mechanisms for checking whether the customer has purchased the goods to which the coupon relates, other than the assistant inquiring of the customer. In an integrated system the discount should be made more automatically. In addition, the link between stock levels and special offer coupons needs to be managed. Customers become frustrated with coupons that relate to items that are not in stock.

Although there are staff on the shop floor there is no obvious support available in the use of the kiosk, and coupons.

Audience Shoppers are undertaking their weekly shop. In this context they do not seek information on routine items, but may seek special offers and inspiration on alternative purchases and recipes. Most of these shoppers will shop regularly in the same shop, and it can therefore be expected that the kiosks will have a number of regular users.

Task Sainsbury's have experimented with public access kiosks in an application that ties in their use with the store's loyalty cards (Grocer, 1998). In this application, customers access the kiosk after swiping their loyalty card through the card slot; this

provides the customer who is a loyalty card holder with access to special offers and coupons.

The use of Sainsbury's public access kiosks involves the following stages:

- Swiping a reward card through in order to validate entry
- Viewing the options available on the screen
- Choosing offers and options and printing coupons and other information
- Tendering coupons at the till.

Technology The use of the kiosk commences with the swiping of a reward card; this means that the kiosk needs a card reader.

The first screen instructs the user to swipe the card; a picture shows the orientation of the card during the swiping action. This is followed by a welcome screen, which clocks up the potential savings. A total in the region of £40 to £70 is shown. In practice, the range of special offers and constraints such as the need to spend £2 before saving 50p, mean that realistically a customer might expect to save £2 to £4 on a shop of say £100.

The screens are then displayed in a sequence; the screens are changed at regular intervals, but a typical sequence might be:

- 1 screen with an offer on magazines
- 2 screen with a coupon offer on fresh meat and poultry
- 3 screens each showing about 6 offers on general groceries
- 4 screen showing offers on drinks
- 5 screen through which specific screens on wines, spirits, beers, and videos can be accessed. These mainly contain offers, but the video screen contain information on video titles available
- 6 screen showing 4 recipes that are on offer, and can be printed.

Pictures of goods are used extensively throughout the display and coupons or information can be printed by touching pictures on the screen. The picture for a coupon shows the product, the potential saving, and the maximum number of coupons that can be printed in respect of that specific offer. On the right hand side of the screen there is a clear statement of the total value of the coupons selected on that one

occasion and two buttons which support navigation: Previous screen, and Next screen. Essentially customers need only navigate a simple menu system, but in the 2 minutes that they might be prepared to spare at the beginning of a shopping trip there is a real challenge in minimising the number of screens that the customer needs to view and the amount of text that they need to read.

The recipes and the special offers can be printed by touching the appropriate option on the screen. The most important of these options is the special offers. When the customer selects a special offer a coupon is printed. One, two or three copies of the coupons may be offered. Coupons indicate the saving, the product on which the saving can be made, the date that the coupon is valid, the branch in which the coupon is valid, a product description, and bar code, and the customer's reward card number. Other options that would be useful might be associated with the customer's loyalty account. Information on the status of the account, the issue of reward tokens and other transactions associated with the loyalty scheme would be useful. Ultimately it is also important that the options offered to customers are personalised. This would have the effect of encouraging customers to feel that they are special. Also, on a more pragmatic note, it would reduce the number of options on the screen, so that it would be easier for a customer to select the options that are useful to them on a particular visit.

Loyalty Scheme Case Study – Boots Advantage

Environment Three kiosks are located in the entrance to a medium-sized town centre boots store. These are clearly marked and visible but to one side of the customer traffic flow. Nevertheless, the kiosks were popular with customer and many customers used the kiosks on entry to the store.

Audience The audience is the customers of Boots the chemists. This is a primarily females audience, but encompassed all ages. Kiosk users were women on their own, with a friend, or for teenagers a group of three to four young women.

Task In order to activate a kiosk the customer has to swipe a card through the kiosk. The first screen shows the points on the individual Advantage (loyalty) card, and their equivalent in money value. Points are collected with each purchase as the card is

tendered at the till. At the bottom of each screen is a button giving the option to move to the next screen. The next several screen show the offers available in the store. Whilst some of these are Buy 1, get one free, and 3 for 2 offers that are open to all customers, the majority are additional advantage points that are only available to customers with an Advantage card. If the customer is interested in a specific offers they touch the screen on the picture of the offer and a coupon is printed. This coupon must then be tendered at the till with the item and the Advantage card, and additional points will be credited to the card. The screens are displayed in a linear sequence, one after another, with no branching or menu options. The final screens remind customers about the Directions magazine, and Blood Donor Registration. The dialogue is ultra simple, and takes just a couple of minutes to complete. In that time, the customer has checked their balance, collected coupons, and been subjected to a range of marketing messages.

Technology The kiosk is housed in a white housing with Boots corporate branding. Above the kiosk the notice 'Advantage point' is displayed. The kiosks have a touch screen, a loyalty card slot, and a printer slot for the printing of coupons.

Conclusion

The case studies presented above demonstrate the wide range of different contexts in which kiosks can be used in service delivery. They illustrate each of the four functions of the proposed taxonomy for retail in-store kiosks. Figure 4 summarises the technology typically associated with the different categories in this taxonomy. It is also useful to note that information and interact kiosks, both of which focus on information provision are typically concerned with high involvement purchase decision making situations, whilst transact and relate kiosks are more often associated with more routine purchases. An analysis of these case studies shows that there are a number of potential advantages of the use of kiosks. These include:

- Kiosks manage the random demand for service efficiently, and an idle kiosk does not incur any costs. Since kiosks are often used alongside human service agents, if queues develop, customers have the opportunity to default to the human service agent.

- Delivery of the customer service is less constrained by location, particularly when the transaction is entirely information based, as with financial transactions and bookings. Kiosks may be located at a variety of alternative sites.
- Both customer and service agent are better informed about the product or service on offer. The kiosk reduces the dependence on human memory, by providing standard sets of information to all customers and employees.
- The transaction, such as the selection and purchase of a product, can be structured by the kiosk so that the customer benefits from support in their interaction with the retail outlet. However, for transact and relate kiosks appropriate security measures must be built into the system to protect both customer and service provider.
- Kiosks can be used as the sole service agent or may be supported by personal agents. Where a service agent is used as a backup the service agent is likely to deal with less routine transactions and, therefore, needs to be more highly skilled.
- The customer needs to learn how to use the system, and will benefit from simple and carefully designed interfaces.

The case studies covered in this article include stand alone applications where the customer interacts with a limited local database, as in the personal loans calculator, but most applications that might have a superficial appearance of separateness, need to be integrated into service delivery in the retail environment. The Loyalty Kiosk, the wedding gift kiosk, and the Ikea kiosk case studies all indicate this need for integration. They also demonstrate that the nature of this integration varies between applications.

Figure 4: Task Based In-store Kiosk Taxonomy, showing Typical Technology

<i>Kiosk Type</i>	<i>Technology</i>
Inform	Touch screen Print out slot Simple screen design

Interact	<p>Linear or nearly linear information architecture.</p> <p>Can be stand alone, depending on the volatility of the information displayed and the size of databases</p> <p>May use multi media, such as audio, video clips and other means to convey information</p> <p>Touch screen</p> <p>Print out slot</p> <p>More complex screen design that may need text entry through on screen keyboard</p> <p>More complex information architecture which affords the user much more choice in the screens that are viewed.</p> <p>Often provides access to a large product database.</p> <p>Level of integration with other aspects of service delivery, and networking depends on nature of the information.</p>
Transact	<p>Touch screen or keyboard</p> <p>Credit card slot</p> <p>May need print out or ticket slot</p> <p>Simple information architecture, often with a nearly linear dialogue that allows the customer to consider options and move stepwise to a transaction.</p> <p>Back button essential, so that previous stages in dialogue can be revisited.</p> <p>Product information and availability information are essential.</p> <p>Security is an issue</p>
Relate	<p>Touch screen</p> <p>Loyalty card slot</p> <p>Print out slot necessary for coupons and information</p> <p>Relatively simple information architecture</p> <p>Usually limited database size, with access to product details only for those items on special offer.</p> <p>Need back button</p> <p>Needs integration with other information systems to optimised effectiveness of transactions, and value of customer information collected through the kiosk.</p>

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