Knowledge Weaving: Supporting Effective and Affective Interactions in the Call Centre.

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Abstract. To be able to talk to customers, solve problems and develop relationships, call centre advisors need to be equipped with technologies that will help them understand who the customer is, allow them to speak knowledgeably about a complex and often ever expanding set of products and services and negotiate a minefield of legalities, processes and procedures. Systems to support this knowledge are often separate and distinct from the user's task. However, in a call centre, both advisors and customers require fast accuracy. There is always too much for advisors to remember, yet simply providing knowledge via systems is no guarantee that these systems will be used. This paper considers how knowledge, motivation, affect and problem solving styles need to be weaved into the advisors' daily tasks. It looks at how systems designs need to support efficient and effective interactions as well as encouraging curiosity, active learning and discovery.

1. Call Centres and Knowledge.

One of the main roles of a call centre advisor is to serve as an interpreter between customers and the data held within the company systems. However, customers don't just call for mediated access to databases but for expert and empathic assistance. Advisors respond to these needs through a mixture of their knowledge of the customer, the customer's context, the company's language, process and services and the structure and content of the support systems. As products and services become more complex, call centre advisors cannot know everything and increasingly rely on knowledge systems to support them in their task.

2. The Challenges of Creating Knowledge User Interfaces for Call Centres.

User interfaces for call centre knowledge systems need to present a large amount of complex information whilst also supporting the emerging dialogue with the customer [1]. The process of giving knowledge to the customer is not emotion neutral [2,3]. Call centre problem solving can involve confusion or frustration, as well as joy and satisfaction if the advisor can help the customer. This also involves a number of "memories" [4] including the advisor's head, from databases, intranets or from other sources, e.g. paper notes.

Creating effective systems to support the advisor's task is critical. However, it is often assumed that knowledge, once acquired, will be used willingly, appropriately and efficiently [6]. Advisors, under pressure of call handling times, often use their own (often tacit) knowledge in preference to any of the systems supporting them. In a study by the author, advisors used the tacit knowledge in their heads for 71% of the time and the knowledge management system only 7% of the time. The problem is more about trust, motivation and affect than about simply providing knowledge at the advisors' fingertips.

3. Increasing Technology Acceptance.

The reasons for negligible user uptake of knowledge management systems are often because they are not embedded in the user's task, capture common knowledge rather than tacit knowledge and offer little personal benefit to the user [5]. Making a product more usable does not necessarily ensure that it is used [6]. For the knowledge system to be accepted, advisors needed to be convinced that it was useful and relevant to their task. However, perceptions are also influenced by more emotional factors such as enjoyment, satisfaction and fun [7, 8]. Traditional ways of motivation, such as mandating or incentivising the usage of the system can result in advisors looking at the incentive rather than the reason for it. Motivational psychology notes that recognition by peers (through 'social influence'), rather than financial rewards, can be a primary motivator for use [9].

From the advisors' perspective, knowledge management may be more about *finding* the knowledge rather than about actually committing it to memory [10]. Behavioural decision theory would suggest that the cost/benefit equation for encoding the location of the knowledge is different to that of the knowledge itself. If the perceived cost of retrieval is too high (i.e. it takes too long or is too difficult to find) then advisors are more likely to store a local copy, in the form of paper notes, or rely on sources other than the knowledge system.

4. Implications for User Interface Design.

These factors of effect, affect and motivation were all considered when the author was asked to redesign the UI of an existing call centre knowledge management system. Observation of the advisors found that they have two explicitly different task drivers depending on whether they are *online* with a customer (where they are maintaining a dialogue, solving problems and controlling the call) or conducting *offline* tasks (where they are often browsing through briefings and news or communicating with their team or manager).

In '*Online' or 'Goal' mode*, the emphasis is on effectiveness and efficiency. Low emotional arousal is preferred since any increase is likely to prove detrimental to the advisor's capacity to problem solve. Anything that prevents achievement of these goals will result in frustration and negative affect. The implication for UI design in this mode is simplicity with optimal support for the achievement of tasks. If the system also matches the advisor's problem solving style, then they will be more likely to maintain a positive attitude towards it and usage is likely to increase, with a resulting increase in familiarity and information retention [11]. Trust is often founded on consistency in navigation and clarity in information presentation plus the ability for the user to form a mental map of the presentation space.

Whilst online, the knowledge portal had to address the efficient access of knowledge, reduction of advisor cognitive load and increasing the usability and structure of the knowledge that advisors had to read off the screen. Individual search strategies were based upon training and personal preferences and, since time was a factor when they were on the phone, they were unlikely to explore unfamiliar search mechanisms. The design involved usage of space- semantic relationships to logically group related links together.

In *'Offline' / 'Action' mode* is where effectiveness and efficiency are less important, volatility is a key factor and playfulness and spontaneous action is frequently experienced along with high arousal. If arousal decreases, people are liable to get bored. This implies a more emotional approach to UI design, emphasising playfulness, curiosity, active learning and discovery [12, 13]. Knowledge management is not simply about passively providing information to the user, it is about engaging curiosity and allowing users to learn whilst

responding to their emotional state. Increased ease of use of a system motivates the user to explore the system functionality, which may in turn increase intrinsic motivation, and result in greater enjoyment of the activity. However, during this period of time there is no motivated impetus for learning, i.e. there is no specific problem to be solved.

The 'offline' interface was designed along the lines of the computer game, 'The Sims'. This fosters an atmosphere of discovery and implies that an element of play or exploration is allowed without the user being nervous that they will "break things".

5. Results and Discussion.

The redesigned knowledge system was taken back to the call centre advisors. They were asked to evaluate it both on a general usability level but were also asked to describe their feelings towards the system. Words such as "easy", "friendly", "encouragement", "clarity", "easier", "relaxed" and "fun" appeared frequently in the evaluation. Users asserted that they would want to use the new knowledge interface more than the old one which the advisors described as "boring", "confusing", "intimidating" and "complex".

However, this was under experimental conditions, so the research team returned to complete an ethnographic evaluation of the knowledge system use three months after changes had been implemented to assess whether the system was *actually* being used during calls. This evaluation showed that usage had increased from 7% to 49%. It is difficult to conclude that the design alone was responsible for the changes in usage pattern as there is likely to be influence simply from increased familiarity with the tool. Further study is required to look at the factors contributing to increased technology acceptance in this case.

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