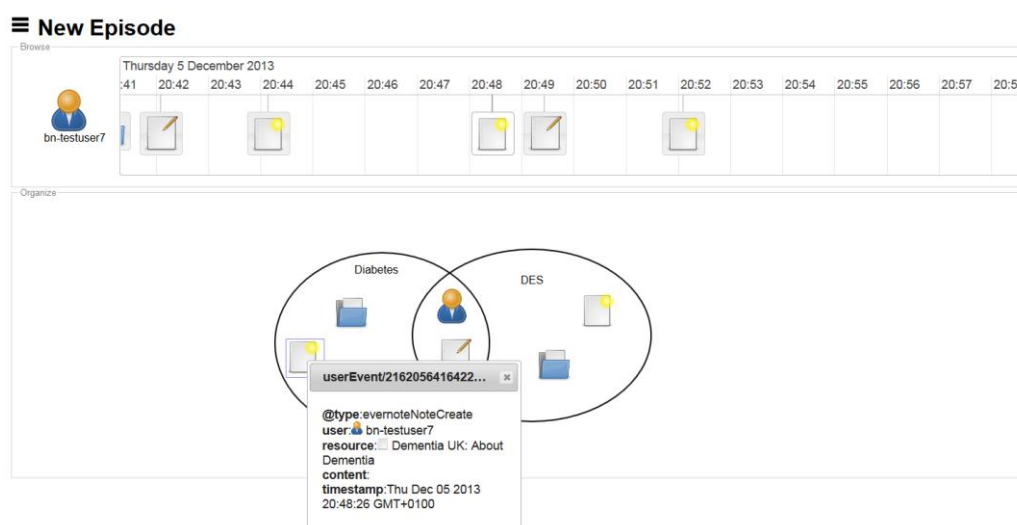


# Learning Layers

## Bits & Pieces Tool

Bits and Pieces prototype aims to augment the processes of collecting, remembering, sensemaking and documentation of experiences at work to support informal learning when under time pressure. Time pressures currently mean that workers do not find it easy to take note of learning experiences that happen at work nor to then review and reflect on these later in a way that leads to improvements in working practice. That is, in busy working times informal learning experiences need to be quickly captured by collecting traces of bits and pieces, whereas they need to be remembered and made sense out of during more flexible working times, when time permits it again.

The Bits and Pieces tool currently works with Evernote as a collection service to allow users to efficiently and easily take notes about important experiences at work (by making notes, forwarding emails, adding a photo), but will extend on other services in the future to adapt to the individual preferences. Building upon the collected traces, the tool then provides the workers with a visual interface to support their retrieval (remembering), reviewing and making sense out of the corresponding informal learning experiences. From a theoretical point of view this tackles the problem of remembering the informal learning experiences via traces from the episodic memory and making sense out of them via an interactive user interface to visually group them. This endeavor transforms the experiences from the episodic into the semantic memory using the process of mental categorization.



**Image.** B&P interface with the timeline view (upper pane) and the organizing view (lower pane) including an sensemaking example about dementia enhancement services (DES) and a bit's information pop up

As the image shows, Bits and Pieces has two viewing panes: the top is the Timeline view in which the user can view all the experiences traced as bits of information they have collected. Currently this is shown as a timeline view, but other views onto the material (tag clouds, maps) are also under development. After users have remembered the informal learning experiences via time-based cues, they can pull the corresponding bits of information from this top pane down into the lower pane (the Organise view) creating a meaningful subset, which can be organized in a way that makes sense to them. Currently the Organise pane

allows users to interactively group the bits, add comments to them and share them with others. Currently the visual support given to organising is through using circles to group material, but other organisational views are also being considered (mapping and hierarchies).

The Bits and Pieces tool could be used for example by a general practitioner (GP) who has been given the task of reviewing a new medication and considering whether the GP Practice should move patients onto this new drug. As part of their research they will over time gather many different informal experiences traced in bits of information (e.g., links to reports on the new medication, information sheets, notes from discussions with colleagues, notes from their review of the practice's experience with the current medication). Bits and Pieces will support them in pulling together all of relevant learning experiences captured in bits of information, reviewing and making sense out of them in a way that helps to inform their recommendation to the GP Practice. The sensemaking outcome can then be used in many ways - to guide their decision-making, to share with colleagues or to export so that it can be included as evidence of their informal learning as part of their appraisal or revalidation process.

See video: [http://youtu.be/emPt\\_fFJZPg](http://youtu.be/emPt_fFJZPg)

## Help Seeking tool

The Help Seeking tool main aim is to support people in *moving beyond local trusted networks into wider professional networks* so that the exchange of opinions and discussions has the potential to be shared more widely. In this sense, the Help Seeking tool is based on a low-barrier approach that collects Questions & Answers (Q/A) typically asked in practice. Q/A can be discussed peer to peer in public or private groups of discussion. The main aim is to support *seeking support* among professionals in Personal Learning Networks and ensures that question and answers provided are easily accessible. Besides, tagging features will be provided to enrich and personalize the available learning resources (i.e. discussions) and colleagues' profiles. Social semantic analysis techniques will be applied to build patterns connecting people with people, people and data and data with data. This semantic analyzed data will be used to recommend more capable peers, or similar solved questions related to the problem sought by the user. The connection between different people with similar topics of interest will potentially allow the user to find *new trusted colleagues* and groups of discussion, supporting the building, maintenance and activation of new connections. These recommendations mechanisms seems to be a key issue to aggregating trust among healthcare professionals (i.e. Practice Managers, Nurses, GPs...), and scaffold help seeking learning in a networked workplace context through the exchange of questions and answers. So the Help Seeking Tool in combination with the Social Semantic Server will be therefore scaffolding a collaborative 'temporal context for development' based on the original idea of Zone of Proximal Development proposed by Vygotsky, L. S. (1930/1980). In particular, nurses and healthcare assistants mainly rely on face to face support and help seeking, meaning that they are restricted in terms of who they can ask especially as opportunities for taking time away from the clinic to attend cross-organisational training or networking events are limited. Ideally the Nurses and HCAs would like the opportunity to seek and develop opinion and information from and compare practices with a wider set of people.

As the image below shows, the current version of the Help Seeking tool is developed by following a responsive design in WordPress allowing the possibility of understanding the different uses in multiple devices. This is a work in progress, implemented collaboratively through a set of co-design activities with the Healthcare staff and the Learning Layers researchers and developers.

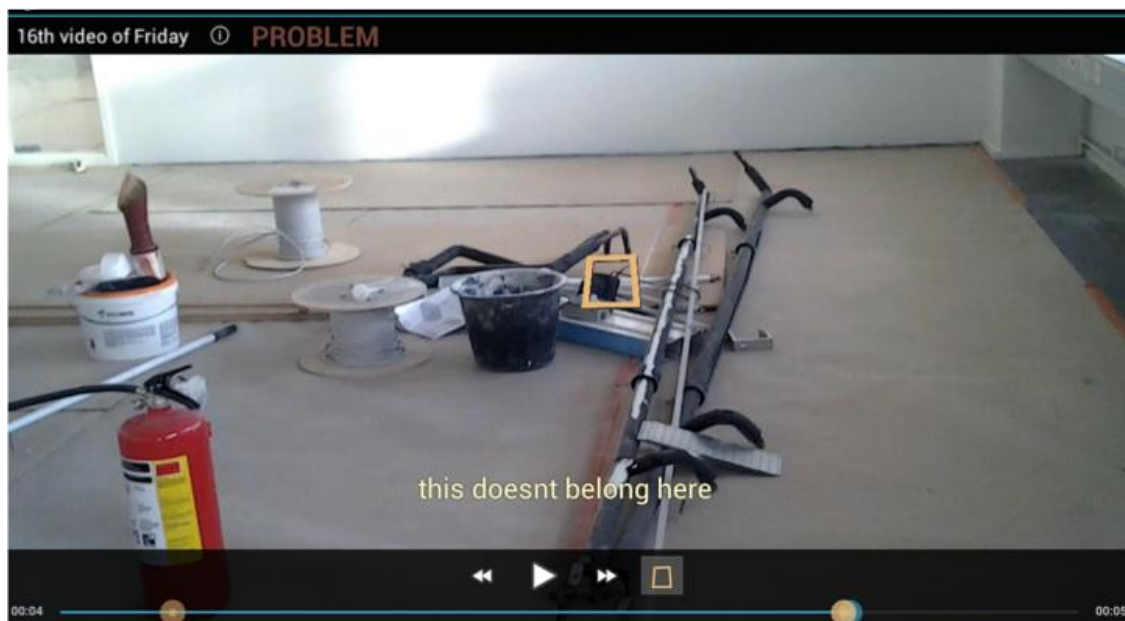


Image. Help Seeking Beta 1 version Main Interface

## Ach So!

**Ach So!** is an app for Android devices and aims to support *rapid recording of situations arising in the workplace*. Short video clips can be taken and divided into genres of 'problem', 'problem solved', 'tricks of trade' and 'site overview'. In a second step, the clips can be annotated *by pointing and adding textual notes* on the aspects that viewer should pay *attention to*. The videos can be *linked to any existing QR- or barcodes* to permanently connect clips with artefacts or locations.

The **Ach So!** prototype uses the idea about mobile and wearable recording of situations and experiences, underlying the importance of short moment and inting into the things in these moments (see the image below). The annotated clips are the basis for sharing experiences: they are easy to use so that the app can embed itself into work practices smoothly. The annotations and other metadata situating the video to place, time and professional roles is used to build domain knowledge and to help finding relevant clips. Within the LL project, AchSo! will be used as tool to support the acquisition of new abilities (e.g. to gain feedback on one's performance), as tool for knowledge management in a network (making visible who knows what and what is known by who) and as part of an exhibition for sustainable building materials (something that a visitor can also re-view at home).



**Image.** A short video clip displaying the first annotation

One future usage scenario could be that a Construction worker meets an obstacle: she has a problem of specific kind of usage of a particular complex tool. Neither colleagues nor the tool guidelines have an answer to this, so she searches help though mobile by posting a question (or the system already has recommended videos for her based on her role, previous tasks, location and current task). Finally, she finds a clip which is good and provides her help. After assuring that the answer was indeed useful, the worker thinks that the clip could be even more telling with two additional annotations. She makes those annotations, saves the clip and then uploads the video to the QR tag that is available on the tool. In other words, the worker updates the information that is available in the tool's use guidelines. Some months later, a colleague tells her that this was really useful.

See video: <http://vimeo.com/84383004>

Ach so! links into the **SeViAnno cloud services** running in the **i5Cloud**. Videos are stored in i5Cloud and semantic annotation data is handled by SeViAnno. We are currently improving the 'hands free' recording feature by integrating the app with wearable cameras and by adding peer production features. **SeViAnno is a video annotation tool** for peer production that runs both on Android and on Web browsers. It enables collaborative video annotation for disambiguation of videos through semantic annotations and runs on top of the Learning Layers infrastructure, which includes the i5Cloud, a hybrid cloud platform offering scalable services such as transcoding, streaming, storage, etc. Further plans involve integration activities with other Layers systems such as the metadata platform Learning Layers Social Semantic Server.

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