Researching local architect preferences of mode of CPD learning

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Curriculum development of a new learning/training package [1] to encourage greater use of computers to architects in NorthWest England will be founded on research to identify what is needed and the most effective way to deliver and disseminate the learning material. Employing the research technique of 'Focus Groups' local architects (the consumers) will identify the way they prefer to learn. This approach, emergent background to local CAAD usage and attitudes and early indications of learning mode preference is presented here.

Computers' promised Aid from CAAD—for Architectural Design

The word Aid embedded in CAAD, suggests that either the Architectural Design process, or the resultant Design itself, will be improved in some manner. Many local architects began early by accepting the **promise** from early promotions by AutoDesk. Did they however introduce this Aid to all their processes and did all members of the organisation adopt the new technology?

Earlier interview case studies including NorthWest architects [2]

was not intended as a comprehensive or sampled study, but is indicative. It shows some local architects who have been able to adapt their processes, to advantage themselves significantly from the special opportunities which CAAD **promises**—using sketching, fast or extensive 3D modelling and editing, visualisation, data control, detailing and animation, but the London based architects appear more developed—using the computer as a design medium in a totally different way, some producing forms otherwise impossible to conceive.

Unfortunately, in **reality** there remain architects, who cannot, (or choose not to) use CAAD, (particularly 3D modelling), disinterested in how its **promise** might be fulfilled. In some practices, CAAD activity is almost restricted to the technical draughtspersons, or younger architects interpreting the designs of the managing partners into 2D CAD versions of traditional paper drawings.

Failure to realise the transforming Aid promised from computers

Why is this? Much of the **promised** Aid from electronic designing cannot be achieved by emulating

all the old working practices and processes and simply learning to use CAAD menus and tools to mirror these same processes to reproduce the same kind of 2D drawing representation, electronically. An analogy might be found in learning foreign languages. A person moving to a new country to live and work needs to understand the way in which the local people structure their words and thoughts differently, in order to communicate successfully with their new countrymen. It is impossible to realise successful communication by merely taking a dictionary and translating word for word.

Why is this so serious a problem? Architectural practice partners will not be able to plan and manage so effectively. 3D modelling software now facilitates data integration to coordinate the processes of the professional, technical and practical building team. (See [3] reviewing key successful key players in the construction process). This may avoid serious design and implementation mistakes. It is perceived as best practice by professional and governmental bodies. It serves the client more fully.

Consultation and prescription

Before devising new learning materials, this research considers what content, delivery medium and format the learners (qualified architects in practice) want. To this end research has been initiated to consult architects at different levels of CAAD usage—to establish, what were the barriers they faced (or now face), in striving to progress to various stages of Designing with Computer Aid. They will be encouraged to reflect on which were the most successful means, by which they learnt to surmount these learning peaks, or thresholds.

Avoiding old restrictive research methods
A questionnaire could be distributed asking for example:

Do you use CAAD at all? design and then draw the design up in 2D? in 3D? design using a 3D model? At what stage of the process do you introduce your use of CAAD? Do you prefer to learn from manuals, CD demo movies, sample exercises, formal training weeks, learning whilst producing a project, picking up tips from exhibitions, from colleagues, or from technical support? etc. What barriers have you (had) to each learning step? Were they influenced by lack of time? confidence? skill? adequate explanations/instructions? your superior ability in using traditional methods? poor equipment? costly software? clients with restrictive budgets? lack of early IT skill development? /hardware? This process could however limit the understanding to restrictive optional answers (developed by the questionnaire designer) and may not encourage the respondent to reflect more deeply on underlying causes and preferences. Informal interviews could extend and improve the opportunity to extract relevant and useful information to inform the design of new learning materials.

Focus Groups
However to appeal to the cohesive nature of the architect peer group and to allow a more developmental discussion of the issues, the relatively new "Focus Group" research technique is being used to lead to a successful prescriptive solution. This methodology requires the selection of representatives from the target group. These representatives are invited to engage in discussion, to define the present state of play, identify problems and issues and seek through discussion, ways to resolve the problems. Consultations will be organised for groups from within individual practices and from groups sampled across the region. (The focus groups should include a cross section of non users and users).

Early emergent results

The earlier paragraph on the disadvantages of using a questionnaire is already justified, since all of these issues have been raised in Focus Groups, with the advantage of the group context for open discussion, where the reasons and justifications can be explored by all and even contested, to search for deeper influences and opinions.

Two age-influenced phenomena
1) Older staff

Managing practice partners have little time free for training and their time is costly. Lower paid older staff have little financial improvement to gain before retirement.

2) increasing predominance of younger staff

with CAAD skills, but poor drawingboard skills. Older partners and CAAD managers consider this destructive to the design process, pronouncing the necessity of hand drawing to the design process. The Focus Group methodology will facilitate the development of this argument. It may be a totally justifiable claim, or alternatively, solely a function of the disparate parties, at present being unable to communicate through each others' uniquely understood medium.

Replicating traditional practices with 2D CAAD

In one practice, of the 30 architectural staff, 75% are now computer orientated. Sketch designs are usually by hand. Electronic surveys are usually overlayed by hand and returned to the electronic environment after designing. Only two staff do have 3D model rendering skill. All staff have some experience of CAD, yet 25% are described as non computer orientated architects. It will be useful to probe for reasons.

Trying but hand sketching

In another practice everyone uses CAD 3D modelling but old hardware slows everything down and it is difficult to finance upgrading. They do hold sessions with the client at the computer sometimes, but the practice owner, believes sketching freehand with clients, facilitates a better more free way of communication. It is more vague and conceptual.This was reiterated by another group.

Preferred on line or in situ mentors

In a third practice a method of learning was established 12 years ago for learning to use Microstation. An expert user works nearby. The learner is encouraged to try out various tools and menus on a trial and error basis and to ask for help when necessary. This method of supporting learning persists today and is still valued against software company training weeks and even "follow me as I show you" student workshops at JMU. Manuals were considered only useful for graphics programs, but not sufficient for learning to use 3D CAD software.

Reference was made to an experiment remotely using file sharing technology with **Video-Conferencing**, [4] as a means to providing one to one support for numerous architects.

Preferred learning from examples

One difference of view from ex-JMU students on placement was that they do like to have **an example to build with instructions**. The value of this over the former preference seemed to be subsequently accepted.

Conclusion

The Focus Groups are still at the exploratory stage. Developments should be reported in the conference presentation and subsequent papers, reporting outcomes from the focus groups' interaction and development of ways forward for successful

processes and materials to support learning by reluctant architects. Initial responses have welcomed and accepted the necessity for this initiative in NorthWest England. Architects valued the opportunity to comment on and direct appropriate and useful means of learning, rather than our wasting time producing learning materials and processes, which they might not value, or follow effectively or readily.

A number of practitioners considered there was a serious need for national government and the RIBA to fund opportunities for learning development and application of furtherance of computer use locally. Many feel that neither they nor the client can at present afford to fund the use of 3DCAAD modelling, rendering, or animation, particularly as this medium naturally extends the potential of the dialogue with the client and hence involves more time and cost in design response to the issues so prompted.

Acknowledgement and References

1 As a new partner to the AVOCAAD-multi project—a Leonardo da Vinci pilot project of the European Commission under grant B:96/2/0539/PI/II.1.1.c/ CONT.

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