CO-SITUE Representation and Analysis of Shared Material for AMODEUS II Modelling: RAVE and Portholes

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Summary: The paper presents a simulation, using the CO-SITUE frame notation, of the design space commitments which led to the design of the RAVE system at Xerox EuroPARC. An additional CO-SITUE frame represents two versions of Portholes, also developed at Xerox EuroPARC, considered as extensions of RAVE. Comments based on CO-SITUE are made on these systems as well as on a third version of Portholes.

1. Introduction

The first three CO-SITUE frames below represent a *simulation* of the RAVE design process based on available material. CO-SITUE has not been used during the design process and we have not had occasion to follow this proces. It has therefore been simulated in a series of three CO-SITUE frames with no guarantee whatsoever that their respective contents reflect the actual design process development. However, the third CO-SITUE frame can be claimed to faithfully reflect the artifact as it has been documented in [1]. It may be noted that, in contrast to the presentation of CO-SITUE in [2], the CO-SITUE representation now includes an experimental user model which has been developed recently (see [3]). The model has a *generic* part which is an empty frame of types of user characteristics relevant to the justification of commitments in the design space, and a *specific* part which is a representation of user characteristics which have been found relevant to the artifact under development. Thus, the specific part of the user model explicitly represents how the intended users and types of users have been conceived of during the design process. The user characteristics in the Specific User Model (or the specific user profile established there) serve to justify specific design commitments in the design space. Thus, in the CO-SITUE frame notation, design commitments have suffixed a pointer to the user characteristics which serve to justify them. Design commitments may obviously be justified from considerations other than user characteristics. Where applicable, this has been indicated.

It should also be noted that an important clarification of emphasis has taken place in the present conception of CO-SITUE as compared with the presentation in [2]. CO-SITUE is now being explicitly conceived as a usability engineering support tool. The implication is that CO-SITUE frame representations only represent such aspects of design spaces as are relevant to usability engineering purposes (see [4]).

The three frames just mentioned are followed by comments on the developed artifact, i.e., RAVE based on its CO-SITUE representation. The fourth CO-SITUE frame includes the Portholes system (current version and expanded version). Subsequent comments relate these artifacts to RAVE and propose solutions to the design issues raised in [1]. The design reasoning behind the solutions proposed has been represented, whenever relevant, as explicit trade-offs between design criteria using a 'lightweight' version of the Design Rationale approach to design space analysis using Questions, Options and Criteria the development of which forms part of AMODEUS II (see [5]). Finally, comments are made on a third version of Portholes (new version), i.e., on its relations to RAVE and the design issues raised in [1].

Apart from addressing the specific design issues raised in [1], CO-SITUE appears to make it relatively straightforward to comment on the overall direction of the design process, i.e., whether and to what extent the overall design goal has been faithfully interpreted with respect to the design space. Through maintaining a standard of naturalness over and above mere usability, the CO-SITUE framework makes it an obvious task to compare natural work place awareness and collaboration between colleagues with what the developed artifacts offer, leading to scenarios of collaboration and organisation which are then tested against artifact functionality. Re-use of CO-SITUE design criteria from a different but related design context raises issues to be tested through hands-on experience with the described artifacts.

CO-SITUE frames make heavy reading when presented outside of the particular design process which they represent. This is due to their succinctness which, however, does not seem to pose any problems when the frame notation is being used regularly as part of ongoing design processes. A real problem concerning the legibility of the present paper is that it has not been possible to include the graphical presentations of the RAVE and Portholes interfaces from [1]. The reader is referred to this document. In general, CO-SITUE frames can be expected to be accompanied by relevant material from the design process.

2. General description of the RAVE audio-video infrastructure
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CO-SITUE No. (1)

A. General constraints and criteria

Overall design goal (**ODG**):
- *A ubiquitous computing environment which can support focused collaboration and general awareness in an office environment;*

Type of design process (**TDP**):
- *Exploratory systems design;*

General feasibility constraints (**GC**):
- *Not known;*

Scientific and technological feasibility constraints (**STC**):
- *Only possible to connect to one user at a time?*

Designer preferences (**DP**):
- *Not known;*

Realism criteria (**RC**):
- *The artifact should meet real and/or known user needs;*
- *The artifact should be preferable to current technological alternatives;*

Usability criteria (**UC**):
- *Make sure that the artifact* can do *the tasks it intended to do;*

Naturalness criteria (**NC**):
- *Maximize the naturalness of user-interaction with the system;*
- *Maximise between-user interaction through the system;*

- We don't have any clear notion of what naturalness is with respect to user interaction with a graphical interface. However, we do have rather clear notions about natural awareness of colleagues in a local workplace, and we do have rather clear notions about natural local human-human interaction in collaborative work,

B. Application of constraints and criteria to the artifact within the design space

C = *Support awareness of and interaction between geographically separate colleagues;* **(CN)**

Only possible to connect to one user at a time; **(STC?)**
Control over what information to project and to whom; **(CN)**

O = *Protection of privacy via control over accessibility: users control who can connect to them and what kind of connections can be made;* **(CN)**
Automate procedures for communication and information retrieval; **(CN)**

S = *Combine different types of communication channels: audio-video infrastructure with loudspeakers, microphones, tv-monitors,*
cameras, workstation and mixer and foot pedal for audio control; **(GN)**

I = *Loudspeaker, tv-monitor and workstation;*

T(S) = *Allow different types of audio and video connections between users;*
Provide feedback on when and what information is being captured and to whom the information is being made available; **(GN)**

T(U) = *Select type of connection to colleagues;*

U:
CPA =
BK&I =
CK&E =
IS =
GN = *(1) need for close approximations to natural human-human communication (naturalness);*
(2) need for feedback on what information is being captured and to whom the information is made available (self-explanatoriness);
CN = *(1) need for awareness of and interaction between colleagues;*
(2) need for efficient communication and information retrieval;
(3) need to control accessibility;
(4) need to protect one's privacy;
(5) need to control what information to project and to whom;
E = *Novices,*
Intermediates;
Experts.

C. Hypothetical issues:
D. Conventions:
C = Collaborative aspects.
O = Organisational aspects.
S = System aspects.
I = Interface (or more generally: system image) aspects.
T(S) = System Task aspects including task domain aspects.
T(U) = User Task aspects including task domain aspects.
U = User aspects.
E = User experience aspects.
CO-SITUE No. ( ) indicates the number of the current CO-SITUE specification.
"Null" means that the artifact does not embody a certain aspect of CO-SITUE.
Italics indicate new elements in CO-SITUE (n) as compared to CO-SITUE (n-1).

User model:

U = [CPA; BK&I; CK&E; IS; GN; CN] [NOV; INT; EXP]

CPA = Cognitive Process Architecture.

BK&I = Relevant Background Knowledge and Inferences based thereupon.

CK&E = Contextual Knowledge and Expectations (derived from observed system behaviour).

IS = Interactive Skills (vis-à-vis the system).

GN = General Needs (naturalness, consistency of system behaviour, non-ambiguity, self-explanatoriness, no superfluous interaction).

CN = Contextual Needs (concerning the task domain of the artifact).

NOV = Novice.

INT = Intermediate.

EXP = Expert.

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3. The RAVE AV Connection Service Selection Interface

RAVE is an AV connection control panel which offers some basic media space services. AV connection services are provided by GODARD through the RAVE interface.

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CO-SITUE No. (2)

A. General constraints and criteria

Overall design goal (**ODG**):
- A ubiquitous computing environment which can support focused collaboration and general awareness in an office environment;

Type of design process (**TDP**):
- Exploratory systems design;

General feasibility constraints (**GC**):
- Not known;

Scientific and technological feasibility constraints (**STC**):
- Only possible to connect to one user at a time?

Designer preferences (**DP**):
- Not known;

Realism criteria (**RC**):
- The artifact should meet real and/or known user needs;
- The artifact should be preferable to current technological alternatives;

Usability criteria (**UC**):
- Make sure that the artifact *can do* the tasks it intended to do;

Naturalness criteria (**NC**):
- Maximize the naturalness of user-interaction with the system;
- Maximise between-user interaction through the system;
- We don't have any clear notion of what naturalness is with respect to user interaction with a graphical interface. However, we do have rather clear notions about natural awareness of colleagues in a local workplace, and we do have rather clear notions about natural local human-human interaction in collaborative work,

B. Application of constraints and criteria to the artifact within the design space

C = Support awareness of and interaction between geographically separate colleagues; **(CN)**

Only possible to connect to one user at a time; **(STC?)**

O = Automate procedures for communication and information retrieval; **(CN)**

S = Combine different types of communication channels: audio-video infrastructure with loudspeakers, microphones, tv-monitors, cameras, workstation and mixer and foot pedal for audio control; **(GN)**

Property list database defining a set of parameters for each service: who is allowed to make a given kind of service connection; what kind of reject message is broadcast; what kind of notification the user gets on a given type of connection; etc.

I = Loudspeaker, tv-monitor and workstation;

The connection services are displayed as buttons across the top of the selection window;

The connection sources (public, media services and personal) are displayed as buttons in the main part of the window;

A text area is displayed in the window below the buttons part: a scrollable local connections and GODARD status history is displayed;

Answer buttons are permanently grey, except when an attempted vphone is being made, right mouse-key click to pull-down and select either Accept or Reject;

Public areas are accessible via Background and Glance;

Personal nodes are accessible via Glance, Vphone and Office-Share.

Media services are accessible via Background, Glance and Watch;

Possible connection overlays: when connections are not possible they are grey;

T(S) = Allow different types of audio and video connections between users:

<u>*Background*</u>: *one-way video-only connection to a public area;*

<u>*Glance*</u>: *one-way video-only connection lasting a few seconds;*

<u>*Vphone*</u>: *two-way AV connection between two users; the vphoned user is alerted by a ring and can accept or reject the call; a text message in the RAVE window tells who is making the call;*

<u>*Office-share*</u>: *two-way AV connection between two users; indefinite duration of connection;*

<u>*Watch*</u>: *only for devices such as a TV receiver or a video player;*

Provide feedback on when and what information is being captured and to whom the information is being made available; **(GN)**

Notify users of device conflicts and inappropriate connection attempts;

T(U) = Select type of connection to colleagues;

Either party to a two-way connection can send a disconnect signal;

To select and execute a connection the user selects a source by clicking a button and then clicks on a connection button:;

U:
CPA =
BK&I =
CK&E =
IS =
GN = (1) need for close approximations to natural human-human communication (naturalness);

(2) need for feedback on what information is being captured and to whom the information is made available (self-explanatoriness);

CN = (1) need for awareness of and interaction between colleagues;

(2) need for efficient communication and information retrieval;

(3) need to control accessibility;

(4) need to protect one's privacy;

(5) need to control what information to project and to whom;

E = Novices,

Intermediates;

Experts.

C. Hypothetical issues:
D. Conventions:

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4. RAVE including the Xgprops control window for selecting who can make what kind of connection and what notification will be given

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CO-SITUE No. (3)

A. General constraints and criteria

Overall design goal **(ODG)**:
- A ubiquitous computing environment which can support focused collaboration and general awareness
   in an office environment;

Type of design process **(TDP)**:
- Exploratory systems design;

General feasibility constraints **(GC)**:
- Not known;

Scientific and technological feasibility constraints **(STC)**:
- Only possible to connect to one user at a time?

Designer preferences **(DP)**:
- Not known;

Realism criteria **(RC)**:
- The artifact should meet real and/or known user needs;
- The artifact should be preferable to current technological alternatives;

Usability criteria **(UC)**:
- Make sure that the artifact *can do* the tasks it intended to do;

Naturalness criteria **(NC)**:
- Maximize the naturalness of user-interaction with the system;
- Maximise between-user interaction through the system;
- We don't have any clear notion of what naturalness is with respect to user interaction with a graphical
   interface. However, we do have rather clear notions about natural awareness of colleagues in a
   local workplace, and we do have rather clear notions about natural local human-human
   interaction in collaborative work,

B. Application of constraints and criteria to the artifact within the design space

C =   Support awareness of and interaction between geographically   separate   colleagues;
(CN)

         Only possible to connect to one user at a time; **(STC?)**
         Control over what information to project and to whom; **(CN)**

O =   *Protection of privacy via control over accessibility: users control who   can connect to
them and what kind of connections can be made;* **(CN)**
         Automate procedures for communication and information retrieval;   **(CN)**

S =   Combine different types of communication channels: audio-video   infrastructure   with
loudspeakers, microphones, tv-monitors,   cameras, workstation and mixer and foot pedal for audio
control; **(GN)**

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Property list database defining a set of parameters for each service: who is allowed to make a given kind of service connection; what kind of reject message is broadcast; what kind of notification the user gets on a given type of connection; etc.

I = Loudspeaker, tv-monitor and workstation;
 The connection services are displayed as buttons across the top of the selection window;
 The connection sources (public, media services and personal) are displayed as buttons in the main part of the window;
 A text area is displayed in the window below the buttons part: a scrollable local connections and GODARD status history is displayed;
 Answer buttons are permanently grey, except when an attempted vphone is being made, right mouse-key click to pull-down and select either Accept or Reject;
 Public areas are accessible via Background and Glance;
 Personal nodes are accessible via Glance, Vphone and Office-Share.
 Media services are accessible via Background, Glance and Watch;
 When connections are not possible they are grey;

T(S) = Allow different types of audio and video connections between users:
 Background: one-way video-only connection to a public area;
 Glance: one-way video-only connection lasting a few seconds;
 Vphone: two-way AV connection between two users; the vphoned user is alerted by a ring and can accept or reject the call; a text message in the RAVE window tells who is making the call;
 Office-share: two-way AV connection between two users; indefinite duration of connection;
 Watch: only for devices such as a TV receiver or a video player;

 Provide feedback on when and what information is being captured and to whom the information is being made available; **(GN)**
 Notify users of device conflicts and inappropriate connection attempts;

T(U) = Select type of connection to colleagues:
 Either party to a two-way connection can send a disconnect signal;
 To select and execute a connection the user selects a source by clicking a button and then clicks on a connection button;
 Select the kind of feed-back wanted from a Glance connection, whether to be informed about who has made a connection, and how to address others who try and fail to connect;
 Select type of reject message;
 Edit a list of RAVE users to give permission to different types of AV-connections, select feedback and reject message;

U:
CPA =
BK&I =
CK&E =
IS =
GN = (1) need for close approximations to natural human-human communication (naturalness);
 (2) need for feedback on what information is being captured and to whom the information is made available (self-explanatoriness);
CN = (1) need for awareness of and interaction between colleagues;
 (2) need for efficient communication and information retrieval;
 (3) need to control accessibility;
 (4) need to protect one's privacy;
 (5) need to control what information to project and to whom;
E = Novices,
 Intermediates;
 Experts.

C. Hypothetical issues:
D. Conventions:

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5. Comments on RAVE based on the CO-SITUE representation

5.1. Impact on collaboration

It is not clear to what extent RAVE achieves the overall design goal of supporting focused collaboration at a distance.

a. Human-human collaboration in an office environment has many more aspects to it than those supported by the RAVE system. It involves, for instance, collaboration during meetings between more than two people. In RAVE, it is only possible to connect to one colleague at a time. This is a strong limitation on the achievement of the overall design goal.

b. Two or more people collaborating may need to work with common paper, blackboard or picture material. It is not clear that RAVE supports this.

c. One may be working with several individuals during some period of time. The Office-Share facility may even have negative effects on such a pattern given that one can only have Office-Share with one person at a time. The colleagues which were left out might not appreciate this.

d. Working with secretaries may not be as important an issue in a research environment as it is in 'real' offices, but it is not clear how this type of collaboration fits into what RAVE offers. Nor is it clear to what extent Office-Share represents a user need outside of a number of rather specialised work contexts or professions.

The above four issues were identified through considering scenarios developed from comparing natural collaborative work practices with what is offered by RAVE.

5.2. Impact on the organisation

RAVE clearly appears to achieve the overall design goal of improving awareness in an office environment.

Given that improved awareness leads to tighter relations in an organisation, this implies that selectively improved awareness may lead to tighter 'clique' relations in the organisation, where different 'cliques' tend to become less aware of each other. The optimal functioning of RAVE, in other words, may presuppose a strong social pressure towards preserving open connections to almost anybody else in the organisation. This, again, implies that strong measures have to be taken to protect users' privacy.

It is not clear to what extent RAVE may lead to changes in management control of the organisation.

5.3. Design goal development

Feasibility constraints and possible designer preferences are not (fully) known.

No clear logic leads from the overall design goal to the RAVE system. RAVE emphasises the improvement of awareness in an office environment much more than focused collaboration at a distance. Altogether, the system seems to constitute a somewhat arbitrary, but clearly interesting and useful, subset of the functionalities which are feasible and/or desirable within the scope of the overall design goal.

Control, privacy protection, feedback and how to use the system appear to have been taken appropriately care of. It would be useful to have hands-on experience with the system to get a real feel for whether this is actually the case.

5.4. We would have liked to test the system as to its fulfillment of the following constraints. They appear potentially relevant and derive from the analysis of user problems in the DIALOGUE system (see [3]):

S = *Take users' relevant background knowledge into account.* **(BK&I)**
   Take into account possible (and possibly erroneous) user inferences by analogy from related task domains. **(BK&I)**
   Separate whenever possible between the general needs of novice and expert users. **(CK&E)**
   Intelligible, practicable and principled limitations on natural system performance; **(GN)**
   Avoid superflous or redundant interactions with users (relative to their contextual needs). **(CN)**

I = *Provide clear and sufficient instructions to users on how to interact with the system.* **(CK&E)**
   Clear and comprehensible communication of what the system can and cannot do; **(GN)**

T(S) = *Be fully explicit in communicating to users the commitments they have made.* **(GN)**

6. Awareness and AV Connections 1: Portholes

CO-SITUE No. (4)

A. General constraints and criteria

Overall design goal **(ODG)**:
- A ubiquitous computing environment which can support focused collaboration and general awareness in an office environment;

Type of design process **(TDP)**:
- Exploratory systems design;

General feasibility constraints **(GC)**:
- Not known;

Scientific and technological feasibility constraints **(STC)**:
- Only possible to connect to one user at a time?

Designer preferences **(DP)**:
- Not known;

Realism criteria **(RC)**:
- The artifact should meet real and/or known user needs;
- The artifact should be preferable to current technological alternatives;

Usability criteria **(UC)**:

- Make sure that the artifact *can do* the tasks it intended to do;

Naturalness criteria (**NC**):
- Maximize the naturalness of user-interaction with the system;
- Maximise between-user interaction through the system;
- We don't have any clear notion of what naturalness is with respect to user interaction with a graphical
    interface. However, we do have rather clear notions about natural awareness of colleagues in a
    local workplace, and we do have rather clear notions about natural local human-human
    interaction in collaborative work,

B. Application of constraints and criteria to the artifact within the design space

C =   Support awareness of and interaction between geographically   separate   colleagues;
(**CN**)

         Only possible to connect to one user at a time; (**STC?**)
         Control over what information to project and to whom; (**CN**)

O =   Protection of privacy via control over accessibility: users control who can connect to them and
what kind of connections can be made; (**CN**)
         Automate procedures for communication and information retrieval;   (**CN**)

S =   Combine different types of communication channels: audio-video   infrastructure   with
loudspeakers, microphones, tv-monitors,   cameras, workstation and mixer and foot pedal for audio
control; (**GN**)
         Property list database defining a set of parameters for each service: who is allowed to make
a given kind of service connection; what kind   of reject message is broadcast; what kind of
notification the user gets on a given type of connection; etc.

I =   Loudspeaker, tv-monitor and workstation;
         The connection services are displayed as buttons across the top of the selection window;
         The connection sources (public, media services and personal) are   displayed as buttons in
the main part of the window;
         A text area is displayed in the window below the buttons part: a   scrollable   local
connections and GODARD status history is displayed;
         Answer buttons are permanently grey, except when an attempted   vphone is being made,
right mouse-key click to pull-down and select   either Accept or Reject;
         Public areas are accessible via Background and Glance;
         Personal nodes are accessible via Glance, Vphone and Office-Share.
         Media services are accessible via Background, Glance and Watch;
         When connections are not possible they are grey;

T(S) =   Allow different types of audio and video connections between users:
         Background: one-way video-only connection to a public area;
         Glance: one-way video-only connection lasting a few seconds;
         Vphone: two-way AV connection between two users; the vphoned user   is alerted by a
ring and can accept or reject the call; a text message in   the RAVE window tells who is making
the call;
         Office-share: two-way AV connection between two users; indefinite duration of connection;
         Watch: only for devices such as a TV receiver or a video player;
         Porthole: Addendum to the RAVE system;
         Displays selected and regularly updated video image snapshots of   offices;
         Display is done in a special window containing Select, Refresh and   Quit buttons (see Figure
in [1]);
         Access is from users' background menu;
         Current version of Portholes allows email connection;
         Portholes expanded version allows in addition Glance and Vphone;

         Provide feedback on when and what information is being captured   and   to   whom   the
information is being made available; (**GN**)
         Notify users of device conflicts and inappropriate connection   attempts;

T(U) = Select type of connection to colleagues:

        Either party to a two-way connection can send a disconnect signal;

        To select and execute a connection the user selects a source by   clicking a button and then clicks on a connection button;

        Select the kind of feed-back wanted from a Glance connection,   whether to be informed about who has made a connection, and how to   address others who try and fail to connect;

        Select type of reject message;

U:

CPA =

BK&I =

CK&E =

IS =

GN = (1) need for close approximations to natural human-human communication (naturalness);

        (2) need for feedback on what information is being captured and to whom the information is made available (self-explanatoriness);

CN = (1) need for awareness of and interaction between colleagues;

        (2) need for efficient communication and information retrieval;

        (3) need to control accessibility;

        (4) need to protect one's privacy;

        (5) need to control what information to project and to whom;

E = Novices,

        Intermediates;

        Experts.

C. Hypothetical issues:

- should connections to people in Portholes be established through a new 'notice'window or through the still video image window of Portholes?

D. Conventions:

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7. Comments on Portholes based on the CO-SITUE representation

1. The introduction of Portholes raises questions of consistency and compatibility with the RAVE system. An obvious question is why Portholes have not been integrated into RAVE.

2. Portholes (current version) contains only an email functionality which RAVE does not have. Portholes (expanded version) contains a subset of RAVE functionality plus email, which is quite puzzling.

3. Why does Portholes (expanded version) contain Glance when portholes itself has Refresh?

4. Why are both Glance and Portholes needed as part of the same system?

5. Apparently Portholes (current and expanded versions) should be seen as fledling alternatives to RAVE, which have not yet reached maturity.

6. The handling of control, privacy protection and feedback, which seem to have been done well in RAVE, is not clear from the presentation of Portholes in [1].

7. Suggestions on the hypothetical issue(s) in [1]:

- information of availability of people should be given directly in the video image displaying them, for instance as borders of different colours or shades. Goal formation is done on these images so they should permanently mark whether the goal(s) can be achieved or not. A small inventory of different types of image border, each associated with a particular user goal, could do that. The price is that users will have to learn the image border conventions. If this solution can be achieved given feasibility constraints, the user simply clicks on the image, which is a natural and direct feature, and then selects a communication mode known to be feasible at the moment (see below). The positive criterion used is:

> +*Avoid superflous or redundant interactions with users (relative to their contextual needs).*
> **(CN)**

The problem to be solved well then is:

> -*Provide clear and sufficient instructions to users on how to interact with the system.*
> **(CK&E)**

- the main reason for introducing a second 'notice' window for selecting communication mode seems to be limited screen space. Given that a second window should be avoided if possible (it is cumbersome to deal with, cf. the above criterion on superfluous interaction), one option is the following: When one person is selected for contact, the other still video images on the screen disappear and the free screen space displays information on the person, connection modalities, buttons for connection termination, etc. The picture of the selected person might even become enlarged and there is no reason to look at others while the communication lasts. If the image border idea mentioned above is not feasible, information on availability of different connections should be provided through the various connection buttons which appear when a user has clicked on an image. In this case, the positive criterion used is:

> +*Provide clear and sufficient instructions to users on how to interact with the system.*
> **(CK&E)**

That is, users have less conventions to learn. The negative side is:

> -*Avoid superflous or redundant interactions with users (relative to their contextual needs).*
> **(CN)**

If no connections are open at the moment to the desired person, the user has made two superfluous interactions with the system (since the person may want to return to the video image window).

- the alternative main option is to keep only one window and press the needed functionalities into it. Information on availability of different connections could be provided through the various connection buttons. If feasible, this solution would score positively on both criteria above:

> +*Provide clear and sufficient instructions to users on how to interact with the system.*
> **(CK&E)**

+Avoid superflous or redundant interactions with users (relative to their contextual needs). **(CN)**

The price may be a negative score on the following intuitive (due to the term 'cluttered') ergonomic criterion:

- Avoid a cluttered screen;

However, the main problem in deciding on the alternative options described above is that Portholes do not seem to have been fully developed. A final solution to the need for screen space will have to await the full development of the system.

8. Comments on Awareness and AV Connections 2: Portholes new version

1. Portholes has now become more mature as a clear contender with RAVE. It includes several functionalities which RAVE did not have, i.e., Info, email, Confer and Shdr. (see Figure in [1]).

2. Confer seems to allow 4-person videophone conferences, which goes some way towards meeting the objection to RAVE above that only two persons could connect. Also, we now have a shared drawing tool (Shdr). In summary, Portholes now offer some additional opportunities for shared collaboration. The arguments (1a) and (1b) under CO-SITUE (3) above are being addressed, albeit in a fashion which does not seem to be based on quite clear principles.

3. Most of the design issues raised in [1] concerning Portholes (new version) have been addressed above. An extra dialogue box would still be a nuisance and an alternative with two variants has been proposed. For the feedback issues, one might re-use the principles from RAVE which seemed sound. The same is true for Vphone acceptance. The issue on customising the Portholes window is interesting. Ideally, users might want to customise their window through moving still video images around as independent objects by mouse clicking.

References

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