Esprit, Long Term Research, Task 4.4

Intelligent Information Interfaces (i3)
Experimental School Environments (i3-ese)

Annex I to Contract

Project Programme, Part 2

Revised Section 2

Project EP 29335 - PUPPET

"The Educational Puppet Theatre of Virtual Worlds"

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Preface

The report of the first year PUPPET review included a series of very constructive recommendations to the consortium:. Below we address each of these 6 recommendations.

(1) Reformulate the Project Plan ….

A new project plan has been developed. It concentrates on just two incarnations of the Virtual Puppet Theatre, VTP-A and VPT-B, and their developments are organised in a much simpler work plan with fewer tasks in a time sequential fashion. Each VPT will be tested in several intermediate prototypes, allowing for a more integrated development work cycle with feedback to system developers. The submission of these prototypes is carefully timed and they function as the important milestones in the project plan.

(2) Effective Management and Co-ordination ….

The new project plan facilitates a simpler management structure, which allows easier monitoring of progress and delays, where the technical contributions have appeared to be the bottleneck. However, the technical efforts of the project have now produced the basic implementation with the fundamental functionalities, which allow operation in the style of its intention. Although development plans anticipate the further improvements and extensions to the VPT, these will be adapted to actual experience from testing and from the technical difficulties encountered. Further improvement from prototype to prototype can be guaranteed, but some of the ambitions may not be achievable within the timeframe allotted. Hence we fix the delivery times and accept flexibility in what may technically be accomplished for a given prototype. This distributes the inherent pressure between partners; the experimental team now will be alert and adapt their testing schemes to what becomes available for experiments.

The new work package on Project management now clearly specifies how preparations for reviews and generation of reports is decentralised to Task Leaders for shared responsibility, and how a time schedule shall ensure timely submission.

(3) Shared Vision

We thought that we had a shared vision, but it appeared that our individual visions had rather different substance and hinged strongly on individual backgrounds. Indeed a shared and well understood vision is a prerequisite for a successful project, and we are working on it. It is not easy, but we are converging.

(4) Risky Software

There are risks associated with developing new customized software in this project as in many others. Above is discussed which strategies have been adopted to cope with unforeseen problems and delays on this account. As to multi-user functionality we are concerned in so far as this assumes individual real time rendering of images per user. Given the range of computing power (and graphics -) available to the project, an approach of distributed VE-models is required. With the real time requirements of this application this is not a trivial matter, and decision on this line of development is postponed to full experience of VPT-A has been obtained, and priorities for VPT-B can be lined up.

(5) Open-ended Story Worlds

"Improvisational plays" is "the name of the game" for VPT-A. This ties up with the very point that autonomous agents and real time operation are features which the new technology can now provide. A change in the course of the project in this respect can clearly be detected in the work plan. The dramaturgs now play a major role in the tasks which develops the specifications for the VPTs.

(6) Presentation of Deliverables

A new scheme for preparation of deliverables has been developed and described in work package C on management. This allows for a decentralised and more iterated and managed editing process.

Timescales

End of January 2000 was an accepted deadline for the new project work plan. The whole project approach has been drastically changed, and the missing deliverables have been mapped into the new work plan. Hence, what was missing does no longer exist in the work plan. Significant deliverables are produced in all tasks between May and July, and these can be submitted to the reviewers if they so wish.

Intoduction

These pages constitute a complete new workplan part of the PUPPET Project Programme. Its production is a requirement of the first year review. The motivation was to allow the consortium to capitalise on the experience gained during the first year by arranging the work of the last two years such as to optimally use the project resources to reach the major goals of the project.

Firstly, the continued work of the consortium is encouraged by the following shared vision:

Our shared vision is that the project will be able to explore how a real time interactive virtual 3D world (VPT) inhabited with life-like autonomous agents can be exploited by children through a dramaturgical framework of improvisational play to externalise their ideas and fulfill their imagination and creative capacity.

This is derived from the visions of the individual partners:

- LIA wants to explore interactive, virtual, inhabited 3-D environments, - how they can be made and how they can be used.
- COGS wants to use agent technology to implement new forms of child-appropriate play, - to investigate how children can understand agents, and use them for the benefit of their cognitive development.
- IDAU wants to develop an outline for an interactive multimedia dramaturgy, and more specifically to develop a dramaturgical vocabulary that provides helpful tools in the construction of a program that allows children to explore story-telling via improvisational, real time interactions with autonomous agents.
- DFKI wants to develop agent architectures with behavioural qualities of e.g. personality, emotions, narrating capabilities.

Secondly, the basis of this new workplan comprises the following observations/decisions made at the review and during the first month of the second year:

- Dramaturgy should be more integrated in the project plans and work, with the consortium attempting explicit cross-links between dramaturgical, system and learning perspectives.
- While the consortium first assumed an approach of developing tools based on EL-analysis of childrens play, we now have to refer more explicitly to what the new tools specifically can provide of relevant features for EL and drama.
- We recognise the need for a much closer loop between the EL/drama experts and the tool developers during the technical design and development process. This also enforces all partners to work collaboratively on all aspects of project work, which is a prerequisite to exploit the rich space of interdisciplinarity spanned by the variety of expertise in the project.
- We have learned the lesson that "technology on demand" is too hard a task in this context. Rather, we have to change our strategy for assessing how to realise the potential of the technology for EL and drama purposes. In this regard we shall take a more explicit reverse engineering perspective of understanding the possibilities of agent architectures and VE building and map them onto drama/El desiderata. This will not, however, be simply a ‘standing on the head’ of the previous work plan but an enrichment arising from more substantive interactions between disciplinary, domain and expertise areas.

- The decision has been taken that development effort on deriving new forms of interfaces is premature at this point and should be delayed until the desired levels of functionality are established in the system.
- While endorsing the need for more autonomous, parallel development work we shall ground this within a collaborative system which relies more on the co-ordinator to bring together the technical developments with the theoretical/empirical ones.

The New Work Programme and Deliverables

The new work plan focuses on just two major versions of the VPT, where the first, VPT-A, provides the basic VE with avatar representation and autonomous agents for improvisational plays. This allows for a basic level of play suitable for 4-6 year olds. The second, VPT-B, will be an extension, which also includes authoring facilities and narrative support, i.e. for storytelling and play construction. The facilities allow for scripting, recording, editing, and replay. This is aimed at children of 7-8 years of age, where levels of literacy and cognitive development allow the easier introduction of new tools.

Work Packages

The work packages are organised around the generation and test of the two VPTs, such that each WP concerns just one VPT. Each of these WPs comprises 4 tasks. This simplification is both a response to the review, and a reflection of the new approach to development. A new WP-C on management issues is added. It includes a procedure for preparations for review.

WP-A	VPT-A for Improvisational Plays
WP-B	VPT-B with Authoring Tools and Narrative Support
WP-C	Project Co-ordination

Milestones

Each VPT is developed iteratively such that multiple intermediate prototypes are submitted for test, and experience gained is used to improve the next prototype. Thes prototypes are carefully timed to also act as major milestones for the project. Table 2.4 at the end of this section provides an overview of the scheduled prototypes and final systems.

Deliverables

Each task has at least one external deliverable. They are listed in table 2.1 at the end of this section. Each task also has a number of internal deliverables, which are listed in Tables 2.2a and 2.2b. Internal deliverables may be adapted to the actual development of the project regarding both number and content. Extracts from these may be edited into extra reports for review purposes.
SW-deliverables are eventually integrated at COGS for experimental investigation and use. The plan includes an intensive development phase with three extra prototypes for finalising VPT-A. For VPT-B two extra prototypes are planned for testing as part of the development process.

Work Package A

VPT-A for Improvisational Plays

WP-leader: LIA, Erik Granum

OBJECTIVES
To finalise the conceptual framework, the technical design and implementation, and the final evaluation of the project's first Virtual Puppet Theatre, the VPT-A for Improvisational Plays.

DESRIPTION
This Workpackage takes an outset in the following note on

Improvisation in Virtual Puppet Theatre

Normally when thinking about scripting we use an author, director or playwright as role model. In improvisational theatre scripting is produced by the actors. In this position the child/user is represented in the virtual environment as an avatar, who interacts directly with autonomous agents. Thus, we provide a possibility of run-time scripting.

In order to provide a good improvisational platform we need to frame a situation, which allows the child/avatar to experience significant dramaturgical structures. This is achieved by creating a coherent virtual universe inhabited by intelligent autonomous agents, and by setting up context sensitive rules for possible actions.

As the child is interactivly involved in creating significance we provide potentials in different areas of early learning:
- various scenario-dependent thematics (learning related to subject matter)
- assimilating knowledge of the importance of form. By being part of the fictional universe the child gains access to a silent knowledge about how form creates meaning. This tacit knowledge may later be verbalised
- changes of perspective (empathy), decentering.

This way of positioning the child/user as a participant in the dramatization capitalizes the special potential of navigating in real time, 3D virtual universes.

The WP is broken down into four tasks:

Task A-1: Functional Specification and Development of VPT-A
Task A-2: Technical Design and Implementation of VPT-A
Task A-3: High Level Behaviour Module for VPT-A
Task A-4: Experimental Evaluation of VPT-A

PERIOD: JAN 2000 – OCT 2000

Task A-1: Functional Specification and Development of VPT-A

Task-leader: IDAU, Janek Szatkowski
Contributors: IDAU, COGS, LIA, DFKI

OBJECTIVES:
1) To investigate how the available technology in terms of the implementation of the VPT prototypes can be best exploited for EL and drama purposes.
2) To define possible EL and drama goals for VPT-A insofar as the system allows
3) To develop a structure and agent behaviours that facilitates children's use of the VPT-A design for improvisational play.

DESCRIPTION:
- Use the results from the usability evaluations with the implementation of VPT-FEB-2000 and successive iterations (from Task A-4) to describe the types of improvisational play and learning which can be supported by the VPT-A.
- Suggest how additional behaviours of AAs, play control functions etc. may help to explore these play models and the potential of the VPT.
- Insofar as the technological possibilities allow, suggest priorities of various functional and aesthetic improvements.
- Contextualise the above with respect to EL and drama goals, providing a rationale for any departures from the previously developed conceptual model.
- Repeat the above with successive iterations, dependent on resources available under A-4.
- Develop learning indices and influence the design t o allow for arrangements and observations of children's play with the VPT so as to facilitate test evaluation of its impact on Early Learning.

PERIOD: JAN – MAY 2000

DELIVERABLES:

Int.	FEB 2000	Structure for Improvisational plays in VPT-A (IDAU)
Int.	MAR 2000	Findings on the use of VPT-A v0.3 (COGS, IDAU)
Int.	APR 2000	Improvisational Plays in an EL Perspective (COGS)
Int.	APR 2000	Draft Specs for VPT-A (COGS, IDAU)
Ext.	MAY 2000	Final Specification and Use of VPT-A, Motivation and Description (COGS, IDAU)

Task A-2: Technical Design and Implementation of VPT-A

Task-leader: LIA, Claus B. Madsen
Contributors: LIA, COGS
Participants: DFKI, IDAU

OBJECTIVES:
To complete the development of the technical platform VPT-A, designed for improvisational plays, in line with existing specifications, so as to support the required functionalities concerning
- autonomous agents,
- the avatar function,
- their interactions in the virtual environment, and
- the user interface.

DESCRIPTION:
The fundamental responsibility of this task is to iteratively improve and finalize the VPT-A platform through a series of prototypes towards the final VPT-A in MAY 2000. Specifically, the task has the following responsibilities:
- to complete the first prototype version featuring proof-of-concept examples of the functionalities and interactions required for VPT-A, and to distribute this prototype to all partners
- to finalise the synchronization and communication between high-level behaviour module (DFKI) and motion and animation control module (LIA)
- to finalize the design of a recording and playback functionality, and to implement this functionality
- in collaboration with Task A-1 to iterate on the technical platform in terms of providing technical support for any easy-to-add additional functionalities, that might surface during Task A-4 interim tests at COGS
- in collaboration with Tasks A-1 and A-3 to further the development of the dramaturgical aspects of the platform (primarily improving agent behaviours), in the case where this development requires additional or improved technical features on the part of the platform.
- in collaboration with all partners, and in response to TASK A-4 interim tests at COGS, to finalize the esthetical appearance of VPT-A in terms of object and character models, animations, and sounds
- in collaboration with Task A-1 to make improvements to the user interface, primarily concerning the navigation in the 3D virtual environment, so as to best support the target age group and their motor skills

PERIOD: JAN - JUN 2000

DELIVERABLES:

Int.	xxx 2000	VPT-A prototypes in FEB v0.2, MAR v0.3, APR v0.4 (LIA,COGS)
Int.	xxx 2000	Descriptions of the above Prototypes (LIA,COGS)
Ext.	MAY 2000	Final VPT-A Virtual Environment Platform (LIA,COGS)
Ext.	MAY 2000	Description of the VPT-A Virtual Environment Platform (LIA,COGS)
Ext.	JUN 2000	Yet another VE-Platform, - and Why! (LIA)

Task A-3: High Level Behaviour Module for VPT-A

Task-leader: DFKI, Elisabeth Andre
Contributors: DFKI
Participants: IDAU, LIA, COGS

OBJECTIVES:
Design and implementation of a high -level behaviour module and a basic repertoire of behaviours that allow for improvisational play

DESCRIPTION:
The high-level behaviour module is responsible for determining the behaviour of so -called intentional agents whose behaviour may be interpreted in terms of their goals. To determine the behaviour of these agents, we use a plan -based approach. That is each agent has a certain set of (possibly) conflicting goals that it tries to accomplish by selecting and instanti ating planoperators. Dramaturgical requirements will be considered by treating them as additional constraints during this process. In VPT -A, we focus on an improvisational virtual theatre. That is the agents start from a given improvisational set -up and ha ve to exhibit a behaviour, which is in line with this set -up. Consequently, one of our main tasks will be the specification and formalization of the improvisational set-up which will overwrite the agents self-behaviour.

In summary, Task A-3 includes:
- Provide a basic repertoire of high-level behaviours for all intentional agents
- Formal representation of the improvisational set-up based on IDAUs specification
- Integrate the resulting improvisational frame, e.g. the given improvisational rules, into the existing behaviour planning module

PERIOD: JAN - MAY 2000

DELIVERABLES

Int.	xxx 2000	High-Level Behaviour Module for the VPT-A prototypes in FEB v0.2, MAR v0.3, APR v0.4 (DFKI)
Int.	xxx 2000	Descriptions of the above Prototype Modules (DFKI)
Ext.	MAY 2000	Final High-Level Behaviour Module for the VPT-A (DFKI)
Ext.	MAY 2000	Description of the High-Level Behaviour Module for the VPT-A (DFKI)

Task A-4: Experimental Evaluation of VPT-A

Task-leader: COGS, Mike Scaife
Contributors: COGS
Participants: IDAU, LIA, DFKI

OBJECTIVES:
The aims of this Task are:
1. To carry out empirical and observational studies to investigate the value of VPT-A in supporting new forms of play in virtual environments.
2. To analyse children's interactions with constructive and expressive tools and to assess their contribution to the development of symbolic activity in the use of objects, roles and collaborative activity (cognitive goals) and in developing early drama skills (drama goals). These aims to be tailored to the degree of functionality available in VPT-A.
3. To assess the capability of young children to navigate in, interact with and understand virtual environments.
4. To feedback data from early prototypes to the development team in order to improve and refine the final product.

DESCRIPTION:
Perform field tests in the lab and in schools on the emerging prototypes of VPT -A, using appropriate indices of learning and dramatic play, to look for evidence of the use of the VPT meeting the above objectives. These data will be evaluated in their own right but will also be cross-referenced to observations on existing forms of spontaneous dramatic play and play construction in a school setting.

The evaluation component of this task will utilise indices of play and learning derived in Task A1. These indices have themselves have been partially derived from involvement of teachers and parents but we will also seek active involvement of the community in evaluation.

PERIOD: FEB - OCT 2000

DELIVERABLES:

Int.	JUL 2000	Preliminary results of VPT-A Evaluation (COGS) (Including other forms of data visualisation, such as video clips, communicating descriptions of test schemes and analysis of test results)
Ext.	OCT 2000	Evaluation of VPT-A (COGS) (Organised with respect to the first 3 objectives)

Work Package B

VPT-B with Authoring Tools and Narrative Support

WP-leader: LIA, Erik Granum

OBJECTIVES
To develop the conceptual framework, the technical design and implementation, and the final evaluation of the project's second Virtual Puppet Theatre, the VPT-B with Narrative Support.

DESRIPTION

<Note on the explorative nature of the project, and hence the expected need for adjustments and updates to WP-B on the basis of experience from VPT-A/WP-A>

The WP is broken down into four tasks:

Task B-1: Functional Specification and Development of VPT-B
Task B-2: Technical Design and Implementation of VPT-B
Task B-3: High-Level Behaviour Module for VPT-B
Task B-4: Experimental Evaluation of VPT-B

PERIOD: MAR 2000 – OCT 2001

Task B-1: Functional Specification and Development of VPT-B

Task-leader: IDAU, Janek Szatkowski
Contributors: IDAU, COGS, LIA, DFKI

OBJECTIVES

To develop an over-arching model for improvisational play in the virtual environment, that derives its concepts and logics from theories of early learning, dramaturgy and development of systems of virtual environment and autonomous agents. This includes a conceptual framework for the consistent combination of autonomy and authoring via scripting.

DESCRIPTION

The two main dramaturgical considerations are:

- one concerned with moving in and out of the acting-out mode. This will imply the need to establish pre-planning and post-editing facilities and to discriminate between scripting by preplanning, by acting as avatar and by editing.
- VPT-A will be a platform for the improvisational virtual theatre concerned with

situations. Now we want to investigate the possibilities in providing platforms for improvisation within a narrative structure. Ideally we would like to experiment with a storyline that produces necessities of producing stories (a Szcherazade-like plot), possibly recycling the farmyard scenario and developing one new scenario with an improvisational platform.

The role of the model of improvisational play is to:
- Promote a lingua franca for the different disciplines in the project
- Link the EL and drama goals for the storytelling VPT-B
- Rationalise the basis for derivation of scenarios and typical plots for VPT-B
- Allow the specification of combinations of improvisation, scripting, and editing for storytelling.
- Be used as the basis for operationalising key concepts such as the nature of improvisation and narrative for derivation of indices of prototype effectiveness
- To provide a specification for VPT-B, with a breakdown relating to at least two preliminary VPT-B prototypes for test and experimentation as part of the implementation process.

The team at IDAU, Aarhus, will guide the consortium through the following main tasks:
- developing new and improving old scenarios in order to allow for a narrative structure that creates appropriate links to agent architectures and early learning.
- identifying the parameters that the child can change in a preplanning session without interfering with dramaturgical significance in the improvisational set-up.
- identifying central editing mechanisms that enable the child to improve the quality of the acted-out narratives (as far as implementable).

The team at COGS will also perform a series of studies using an off-the-shelf virtual environment, the DIVE environment developed under EU auspices at SICS. The rationale for this is to get valuable initial data, relevant to VPT-B, on:
- studies of forms of children's interactivity with virtual worlds – how do they manage?
- studies of children doing improvisational play in the above
- derivation and application of indices of improvisational play from the observations.
- where practicable, an investigation of forms/arrangements of collaboration around VEs, e.g. 2 children, single-user interface; 2 children collaborating through VE. These arrangements to be structured according to the first three issues.

We are aware that DIVE is rather different from the VPT. DIVE is a distributed multi-user/avatar system (relatively slow) with hardly any autonomous agent technology

PERIOD: MAR 2000 - MAR 2001

DELIVERABLES:

Int.	MAY 2000	Scenario(s) for VPT-B (IDAU, COGS, LIA, DFKI)
Int.	MAY 2000	Interactivity experiments with DIVE (COGS)
Int.	JUN 2000	Play models for VPT-B (IDAU, DFKI, COGS)
Int.	JUN 2000	Concepts and preliminary specs for VPT-B (IDAU, COGS)
Int.	JUL 2000	Indices of interactivity – from drama & cognitive perspective (COGS, IDAU)
Ext.	MAR 2001	Final/updated specs for VPT-B (COGS, IDAU)

Task B-2: Technical Design and Implementation of VPT-B

Task-leader: LIA, Claus B. Madsen
Contributors: LIA, COGS
Participants: DFKI, IDAU

OBJECTIVES:
To augment the platform developed for VPT-A with functionalities and technical support for a VPT-B, based on a narrative play-model including authoring facilities and play construction.

DESCRIPTION:
The premise for this task is that the basic functionalities of VPT-A concerning agent and avatar functions and interactions, and the presentation thereof to the user, will be retained and re-used with minor modifications/updates for VPT-B. I.e., VPT-B will be the core simulated Virtual Environment of VPT-A, augmented with functionalities designed for supporting play construction and authoring. Thus, this task is tightly coupled to Task B-1. It is foreseen that design and implementation of the following functionalities may be required:

- Tools allowing the user to stage scenarios in terms of placing objects in a scenario, selecting characters and assigning roles to them
- Tools for letting the user construct smaller segments of story material based on interactions, of varying levels of improvisation (ranging from open-ended to more linear narrative-based scenarios)
- Recording facilities for logging the story segments at varying levels of abstraction (ranging from the movements of objects to the mental state of the autonomous agents). The recording facilities will be matched by appropriate playback facilities, to let the user construct story segments iteratively
- Facilities for editing the story segments into a coherent story structure, coupled with other kinds of interaction with the recorded material, for example controlling the camera position
- A new scenario with new object models, animations, sounds etc. as determined by Task B1 and the results from Task A4.

If Task B-1 results in a desire to employ a collaborative concept, with multiple simultaneous users, this task will involve implementation of a distributed virtual environment. This is to facilitate multiple, simultaneous real time visualizations and interactions within the virtual environment. Such functionality involves alterations to the basic platform, and is thus associated with a sizeable workload.

PERIOD: JUN 2000 - MAY 2001

DELIVERABLES

Int.	NOV 2000	VPT-B prototype v0.1 (LIA,COGS)
Int.	NOV 2000	Description of the above Prototype (LIA,COGS)
Int.	FEB 2001	VPT-B prototype v0.2 (LIA,COGS)
Int.	FEB 2001	Description of the above Prototype (LIA,COGS)
Ext.	APR 2001	Final VPT-B Virtual Environment Platform (LIA,COGS)
Ext.	MAY 2001	Description of the VPT-B Virtual Environment Platform (LIA,COGS)

Task B-3: High-Level Behaviour Module for VPT-B

Task-leader: DFKI, Elisabeth Andre
Contributors: DFKI
Participants: IDAU, LIA, COGS

OBJECTIVES
To extend the existing high-level behaviour module from VPTA with further developments and implementations, in such a way that it supports experiments with different improvisational set-ups.

DESCRIPTION
Unlike the VPT-A agents, the VPT-B agents will have to cope with different improvisational set-ups. As a first step, we will implement a set of dramaturgically sound variations of the improvisational set-up investigated in VPT-A. In particular, we will have to refine the behaviour repertoire in such a way that different parameter settings (*e.g.* dog as a helper of the protagonist versus dog as a helper of the antagonist) will be conveyed to children in a clear and intuitive way. Additionally, we provide a representation formalism for improvisational set-ups with a narrative structure and integrate it into the high-level behaviour module.

Based on experience with VPT-A, the implementation methods may have to be re-considered if the number of "affordable" and simultaneous agents is too limited.

In summary, Task B-3 includes:
- Representation of parameters settings which enable dramaturgically sound variations within the same improvisational set-up
- Refinement of the behaviour repertoire to convey different parameter settings in a clear and intuitive way to the children
- Representation and integration of improvisational set-ups with narrative structures into the high-level behaviour module
- Specification of a behaviour repertoire for a new scenario (or a variation of the farmyard scenario) with a narrative structure

PERIOD: JUN 2000 - MAY 2001

DELIVERABLES

Int.	NOV 2000	High-Level Behaviour Module for the VPT-B prototype v0.1 (DFKI)
Int.	NOV 2000	Descriptions of the above Prototype Module (DFKI)
Int.	FEB 2001	High-Level Behaviour Module for the VPT-B prototype v0.2 (DFKI)
Int.	FEB 2001	Descriptions of the above Prototype Module (DFKI)
Ext.	APR 2001	Final High-Level Behaviour Module for the VPT-B (DFKI)
Ext.	MAY 2001	Description of the High-Level Behaviour Module for the VPT-B (DFKI)

Task B-4: Experimental Evaluation of VPT-B

Task-leader: COGS, Mike Scaife
Contributors: COGS
Participants: IDAU, LIA, DFKI

OBJECTIVES
- To carry out a range of empirical and observational studies to investigate the value of VPT-B in supporting new forms of play, particularly improvisational drama.
- To analyse children's interactions with constructive and expressive tools and to assess their contribution to the development of symbolic activity in the use of objects, roles and collaborative activity (cognitive goals) and in developing dramatic skills (drama goals).
- To feedback data from early prototypes to the development team in order to improve and refine the final product.

DESCRIPTION:
Perform field tests in the lab and in schools on the prototype VPT-B using appropriate indices of learning and dramatic play, to look for evidence of the use of theVPT meeting the above objectives. These data will be evaluated in their own right but will also be cross-referenced to observations on existing forms of spontaneous dramatic play and play construction in a school setting.

The evaluation component of this task will utilise indices of play and learning derived in Task B1. These indices will themselves have been partially derived from involvement of teachers and parents but we will also seek active involvement of the community in evaluation.

PERIOD: NOV 2000 - OCT 2001

DELIVERABLES

Int.	JUL 2001	Preliminary results of VPT-B Evaluation (COGS) (Including other forms of data visualisation, such as video clips, communicating descriptions of test schemes and analysis of test results)
Ext.	OCT 2001	Evaluation of VPT-B (COGS) (Organised with respect to the first 2 objectives)

Work Package C

Project Co-ordination

WP-leader: LIA, Erik Granum

PARTNERS

1. LIA, Aalborg University, Laboratory of Image Analysis
Team Leader Erik Granum (*PUPPET Project Co-ordinator*)
Deputy Claus B. Madsen

2. COGS, University of Sussex, School of Cognitive and Computing Science
Team Leader Mike Scaife
Deputy Yvonne Rogers

3. IDAU, Århus University, Institute of Dramaturgy
Team Leader Janek Szatkowski
Deputy Torunn Kjølner

4. DFKI, Deutsches Forschungszentrum für Künstliche Intelligenz, Saarbrücken, Intelligent User Interfaces
Team Leader Dr. Elizabeth Andre
Deputy Dr. Thomas Rist

OBJECTIVES

To support project management and execution,

To facilitate co-ordination of work and generation of deliverables, and

To monitor that all project commitments are met.

DESCRIPTION

Formal procedures for project management and distribution of deliverables are described in section 3.

This WP describes the actions and timing of project co-ordination.

MEETINGS

The project Managerial Board (MB, Section 3) will have 4 meetings during the last 2 years (see Meeting Calendar).

At MBM meetings the status, progress and interaction of interdependent project activities are carefully ana lysed, and detailed plans are made for all project activity and necessary interaction of the following half year.

Responsibilities and managerial framework are described in Section 3.

MEETING Calendar:

Year 2000

MAR 1-3	i3 Spring Days
MAR	Puppet Workshop and MBM (VPT experience, Specs for VPT-A, Concepts for VPT-B)
AUG	Puppet Workshop and MBM (Prep. for Review, Results VPT-A, Specs for VPT-B)
SEP 13-15	i3AC/Review (?)

Year 2001

MAR ?	i3 Spring Days
JAN/MAR	Puppet Workshop and MBM (VPT experience, Update Specs for VPT-B)
SEP	Puppet Workshop and MBM (Prep. for Review, Results VPT-B)
OCT ?	i3AC/Review (?)

PREPARATIONS FOR REVIEW

To ensure a timely and collaborative production of reporting material for reviews, a detailed plan time schedule will be prepared prior to each review. The following is a reference template.

Plan and time schedule (WBR = weeks before review)

7 WBR The Co-ordinator circulates reminder about preparations of reporting and produce a detailed plan for who does what and when.

6 WBR Task-Leaders submit technical Task reports (draft) to Co-ordinator (Circulation to all partners) and suggest a plan for all the technical deliverables to be submitted for the task, which include:

- Task report
- External deliverables (to be checked and edited to a coherent form)
- Selected internal reports and or parts of them which should be edited together to a presentable form which complements the external deliverables in describing the work and the results of the task
- Publications and manuscripts of the partners and with relations to the task

5 WBR Task-Leaders select internal reports and papers for enclosures to the PPR, edit them for this purpose, and submit them to Co-ordinator (Circulation to all partners)

5 WBR Task-Leaders edit external deliverables to a coherent form and submit them and the final task report to the Co-ordinator (Circulation to all partners)

4 WBR Team Leaders submit administrative reports to the Co-ordinator

3 WBR Co-ordinator compiles the final PPR from the material ofall partners

2 WBR Co-ordinator sends PPR and enclosures to reviewers

DELIVERABLES, MANAGEMENT REPORTS

PPR-2	Month 24	Periodic Progress Report, Year 2
PPR-3	Month 36	Periodic Progress Report, Year 3
FR	Month 37	Final Report

Table 2.1: Schedule of *external* deliverables, Year 2 and 3

Project: EP 29335 Acronym: PUPPET

Types of deliverables	Description of the deliverable (Title)	Availability C - R - P (1)	Workpackage reference	Responsible * / involved partner	Project month
VPT-A (YEAR 2)					
Report	Final Spec. and Use of VPT-A, Motivation and Description	R	A1	COGS*, IDAU	19
Prototype	Final VPT-A Vir. Env. Platform	R	A2.1	LIA*, COGS	19
Report	Desc. of the VPT-A Vir.Env.Platf.	R	A2.2	LIA*, COGS	19
Prototype	Fin.High-Lev.Beh.Mod. for VPT-A	R	A3.1	DFKI*	19
Report	Desc. of High-Lev.Beh.Mod. for VPT-A	R	A3.2	DFKI*	19
Report	Yet another VE-Platform – and Why!	R	A2.3	LIA*	20
Report	Evaluation of VPT-A	R	A4	COGS*	24
Report	Periodic Progress Report, Year	P	PPR-2	LIA*, All	24
VPT-B (YEAR 3)					
Report	Final/updated specs for VPT-B	R	B1	COGS*, IDAU	29
Prototype	Fin. VPT-B Vir.Env. Platform	R	B2.1	LIA*,COGS	30
Prototype	Fin. High-Lev.Beh.Mod. for the VPT-B	R	B3.1	DFKI*	30
Report	Desc. of the VPT-B Vir.Env.Platf.	R	B2.2	LIA*,COGS	31
Report	Desc. of the High-Level Beh. Module for the VPT-B	R	B3.2	DFKI*	31
Report	Evaluation of VPT-B	R	B4	COGS*	36
Report	Periodic Progress Report, Year 3	P	PPR-3	LIA*, All	36
Report	Final Report	P	FR	LIA*, All	37

(1) Availability: C = confidential, R = restricted, P = public

Table 2.2a: Schedule of *internal* reports and prototypes for WP-A (VPT-A)

Types of deliverables	Description of the deliverable (Title)	Availability C – R – P	Workpackage reference	Responsible and involved partner(s)	Project month
Report	Struct. for Imp. plays in VPT-A	R	A1/*	IDAU	16
Prototype	VPT-A prototypes in FEB v0.2	R	A2/*	LIA, COGS	16
Report	Descriptions of above Prototypes	R	A2/*	LIA, COGS	16
Prototype	High-Lev.Beh.Mod. for the VPT-A Prototypes in FEB v0.2	R	A3/*	DFKI	16
Report	Desc. of the above prototype Mod.	R	A3/*	DFKI	16
Report	Findings on the use of VPT-A v0.3	R	A1/*	COGS, IDAU	17
Prototype	VPT-A prototypes in MAR v0.3	R	A2/*	LIA, COGS	17
Report	Descriptions of above prototypes	R	A2/*	LIA, COGS	17
Prototype	High-Lev.Beh.Mod. for the VPT-A Prototypes in MAR v0.3	R	A3/*	DFKI	17
Report	Desc. of the above prototype Mod.	R	A3/*	DFKI	17
Report	Improv. Plays in an EL Persp.	R	A1/*	COGS	18
Report	Draft Specs for VPT-A	R	A1/*	COGS, IDAU	18
Prototype	VPT-A prototypes in APR v0.4	R	A2/*	LIA, COGS	18
Report	Descriptions of above Prototypes	R	A2/*	LIA, COGS	18
Prototype	High-Lev.Beh.Mod. for the VPT-A Prototypes in APR v0.4	R	A3/*	DFKI	18
Report	Desc. of the above prototype Mod.	R	A3/*	DFKI	18
Report	Preliminary results of VPT-A Eval.	R	A4/*	COGS	21

Table 2.2b: Schedule of *internal* reports and prototypes for WP-B (VPT-B)

Types of deliverables	Description of the deliverable (Title)	Availability C – R – P	Workpackage reference	Responsible and involved partner(s)	Project month
Report	Scenario(s) for VPT-B	R	B1/*	IDAU, COGS, LIA, DFKI	19
Report	Interactivity exp. with DIVE	R	B1/*	COGS	19
Report	Play models for VPT-B	R	B1/*	IDAU, DFKI, COGS	20
Report	Conc. and prelim. specs for VPT-B	R	B1/*	IDAU, COGS	20
Report	Indices of interact.– from drama & cognitive perspective	R	B1/*	COGS, IDAU	21
Prototype	VPT-B prototype v0.1	R	B2/*	LIA, COGS	25
Report	Description of above prototype	R	B2/*	LIA, COGS	25
Prototype	High-Level Behaviour Module for the VPT-B prototype v0.1	R	B3/*	DFKI	25
Report	Desc. of the above Prototype Modul	R	B3/*	DFKI	25
Prototype	VPT-B prototype v0.2	R	B2/*	LIA, COGS	28
Report	Description of the above Prototype	R	B2/*	LIA, COGS	28
Prototype	High-Level Behaviour Module for the VPT-B prototype v0.2	R	B3/*	DFKI	28
Report	Desc. of the above Prototype Modul	R	B3/*	DFKI	28
Report	Preliminary results of VPT-B Eval.	R	B4/*	COGS	33

Table 2.3 Resources allocated to Participants per Workpackage and per Task Year 2 and Year 3

Project: EP 29335 Acronym: PUPPET

WP/Task	Participants / man month per task				Effort man month
	LIA	COGS	IDAU	DFKI	
T A.1 Functional Specification	2	8	6*	0.5	**16.5**
T A.2 Techn. Design & Impl.	14*	6	0	0	**20**
T.A.3 High Level Behaviours	0	0	0	7*	**7**
T A.4 Experimental Evaluation	0	7*	0	0	**7**
WP-A VPT-A for Improvisational Plays	**16***	**21**	**6**	**7.5**	**50.5**
T B.1 Functional Specification	2	8	6*	1	**17**
T B.2 Techn. Design & Impl.	13*	6	0	0	**19**
T B.3 High Level Behaviours	0	0	0	8*	**8**
T B.4 Experimental Evaluation	0	7*	0	0	**7**
WP-B VPT-B with Authoring Tools and Narrative Support	**15***	**21**	**6**	**9**	**51**
WP-C Management	**4***	**2**	**0.5**	**0.5**	**7**
Total	**35***	**44**	**12.5**	**17**	**108.5**

(1) Role: Workpackage/Task coordinator =*****

The figures of man month (MM) in table 2.3 are estimated on the basis of first year's spending of resources and on the following reallocation of I/F work:

LIA - First year spending balances closely with budget
- 5 month I/F is integrated in tasks A2 & B2
  $\Rightarrow$ 35 man months for plan Y2 + Y3

COGS - First year under-spending about 10 MM is kept in a pool
- 14 months of I/F are distributed over tasks A1, A2, B1, B2 and 6 MM in a pool
  $\Rightarrow$ 44 man months for plan Y2 + Y3

IDAU - First year under-spending of about 5 man months is transferred to Y2 and Y3
  $\Rightarrow$ 12.5 man months for plan Y2 + Y3

DFKI - First year under-spending of about 5 MM is kept in a pool
- 9 months of I/F work is transferred to tasks A3 and B3 as agent behaviours have got stronger emphasis
  $\Rightarrow$ 17 man months for plan Y2 + Y3

Total = 108.5 man months for plan Y2 + Y3.

The pool of about 20 MM will be allocated at a MBM, when updating plans for VPT-B. For the sake of these figures, tasks A1, 2, and 3 are here considered starting Oct. 15, 1999.

Table 2.4 Time Schedule for Workpackages A and B

A symbol indicates one month of project activity.

A month with output is indicated as follows:

I Internal Deliverable Report
X External Deliverable Report
P Prototype (SW)
F Final SW System

Task	Task	Year 2000												Year 2001									
No.	Name	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O
A.1	Func. Spec. VPT-A	O	I	I	I	X																	
A.2	Implement. VPT-A	O	P	P	P	F	X																
A.3	Behaviours VPT-A	O	P	P	P	F																	
A.4	Evaluation of VPT-A		O	O	O	O	O	I	O	O	X												
B.1	Func. Spec. VPT-B			O	O	I	I	I	O	O	O	O	O	O	O	X							
B.2	Implement. VPT-B						O	O	O	O	O	P	O	O	P	O	F	X					
B.3	Behaviours VPT-B						O	O	O	O	O	P	O	O	P	O	F	X					
B.4	Evaluation of VPT-B											O	O	O	O	O	O	O	O	I	O	O	X