SUPPORTING APPLIED DRAMA AND EPISTEMIC GAMES OVER THE NET

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ABSTRACT
Applied drama and epistemic games are used to train skilled personnel to respond appropriately in real world situations. They do this by requiring players to enact the roles of participants in actual situations. Applied drama in addition uses a director to guide enactments and moves participants between ‘in role’ and ‘out of role’ activities in order to analyze and reflect on the interactions of the actual participants. We identify the requirements to integrate applied drama concepts with epistemic games in an online networked environment and develop a framework to facilitate rapid construction of training scenarios by discipline based personnel.

1. INTRODUCTION

Serious games in the form of simulators are widely used for training purposes in skilled professions, particularly for the development of technical skills. One variety of serious game, the ‘epistemic’ game focuses on developing the attitudes, thought processes, and interactions required of such professionals (Shaffer 2006). The concepts and conventions of applied drama have recently been applied to such games (Cameron and Carroll 2009).

The term applied drama refers to the use of dramatic theory and concepts for a wide range of social and therapeutic purposes, including professional training. Applied drama uses symbols, roles, and improvised theatre to explore the attitudes and thought processes of the roles enacted, and to examine the relationship between knowledge and action for these roles.

In the professional training context, applied drama shares features with epistemic games in that it attempts to teach participants how to think like professionals by placing them in the role of trainee professionals and engages them in solving real world problems within real world communities of practice.

Applied drama and epistemic games emphasize ‘in role’ outcomes to immerse players in a situation and explore the activities, attitudes, thought processes and relationships of actual participants in a real scenario.

Epistemic games have no intrinsic mechanisms that allow participants to connect the in-game activities with the desired educational outcomes or even the desired professional mindset or frame. Such connections must be made externally through instruction on the situation to be learnt, the desired educational goal and pre and post game discussion (Tomte, Ansell, and Hontvedt 2009).

Applied drama enactments explicitly address these issues in that they include reflective episodes where the motives and thought processes of a role can be discussed and examined by participants.

Applied drama differs from conventional games in that applied drama enactments are in general directed or led by a figure referred to as the drama master (or DM). In the professional training context, this coordinating and facilitating role is taken on by the instructor and used to create situations where the enacted roles come under pressure, to introduce props that cause a situation to be reevaluated, and to cause participants to reflect on the mindset of the roles enacted.

In this paper we explore how to use applied drama concepts to create an epistemic game in an online setting and provide an example based on one particular real world application. We identified the following requirements to allow applied drama scenarios to be enacted in online epistemic games:

1. The ability for participants to communicate, including DM communication with players, player-player communication within scenario based in-role dramatic vignettes, and all-player out-of-role discussion.
2. The ability for a DM to manage the applied drama enactment.
3. The ability to specify and construct a scenario, including roles, props, and events.
4. The ability for scenarios to evolve, according to their intrinsic structure, due to player actions, or under DM control.
We have implemented these requirements using an interactive web based application. Features of the implementation include:

1. A chat system that supports DM messaging, role protected player-player interaction during in-role dramatic vignettes, and an out-of-role all-player chat room.
2. DM controlled movement between in-role and out-of-role activities.
3. Abstraction of scenario props into a set of multi-media resources, and an XML based specification of scenario roles, props and events.
4. A trigger system that controls scenario evolution via prop release according to timing, consequence of participant action, or DM decision. Props may be released to individual players, or to selected roles.

The purpose to which our system is applied is training of public relations personnel in crisis communication management. We illustrate support of this purpose with a specific example. This example examines the reaction of public relations personnel employed by a regional council to a natural disaster which calls previous actions of that council into question.

In this paper, we discuss the mapping of applied drama concepts into the software application, and trace the enactment of the scenario through the facilities and control mechanisms of the application.

2. APPLIED DRAMA CONVENTIONS

Applied drama is not a new dramatic form and has evolved many forms and conventions over the last 50 years. Applied drama may be used for therapeutic or analytic purposes where some of the roles enacted and attitudes encountered may be disturbing for participants. Many of the conventions that have evolved relate to enabling participants to encounter and deal with difficult issues. Some of the major conventions are discussed in the next few paragraphs.

2.1. Drama Master

Because applied drama may be used for therapeutic, training, or even conflict resolution purposes, a strong central figure capable of leading, counseling or mediating is often required. Applied drama utilizes the concept of a ‘drama master’ who leads participants through ‘in-role’ (ie enacted parts) and ‘out of role’ activities, determines what events occur within a scenario, and places actors together in ‘dramatic vignettes’ to explore the interactions between roles.

2.2. Role Distance

Central to the reflective processes of applied drama is the concept of role distance or role protection. Role distance provides a participant with some psychological separation from the role they enact. This allows them to enact roles they may disagree with or find distasteful, and to maintain some level of objectivity in their appraisal of the role’s motives and thought processes.

Applied drama establishes and preserves role distance by moving participants between in-role and out-of-role activities, and by the use of ‘attitudinal’ roles. ‘Attitudinal’ roles are stereotypic rather than character based which means that participants are required to focus on the thought processes and mindset of a group of people, rather than identifying with the personal issues of an individual character. This abstraction away from the personal imposes a certain distance between the participant and the role they enact.

Far from decreasing a participants ‘immersion’, role distance actually facilitates a participant’s engagement with the enactment by establishing that the role enactment is protected by the ‘magic circle’ of play.

2.3. Internal Audience

Whereas traditional drama may be considered as a pre scripted narrative form that is consumed by an external audience, the narrative of applied drama emerges as result of the enactment, and the theatric experience is both generated and consumed by the participants.

This participatory, group based interactive generation of narrative brings applied drama much closer to game or play like experiences than conventional drama, and once again promotes a participant’s commitment to the enactment.

2.4. Contextual Conventions

Applied drama has conventions for engaging participants with the dramatic pretext of the enactment. These conventions serve to establish environmental and contextual constraints on the enactment. Examples of techniques used to establish context include group mapping activities or a guided tour.

2.5. Narrative Conventions

Narrative conventions serve to focus attention on significant events central to the development of the participatory narrative. These conventions include activities involving group discussions such as ‘hot seating’ where one participant enacts a role while others, not necessarily in role, question them. Other techniques include the introduction of ‘props’ such as ‘overheard conversations’ in which externally role played scenes are brought into the current enactment.

2.6. Role Conventions

Role conventions are used to add depth to an applied drama session and foster emotional commitment to the roles enactment. They move beyond the overt narrative line to consider sub-text and nuance in roles involved in the enactment. They serve to inject fresh or different perspectives on the developing narrative. Once again, these conventions are served by the introduction of external props, often depicting interaction between roles involved in the current enactment.
2.7. Reflective Conventions
Reflective conventions operate outside the naturalistic progression of time flow within an enactment. In reflective activities, time is slowed or stopped to allow actions to be reviewed and commented on. Techniques that support reflection include ‘giving witness’ where one participant may give an in-role account of developments from the role’s viewpoint. Another technique is ‘thought tracking’ where a participant gives an out-of-role account of the thought processes of the role they were enacting.

3. SOFTWARE REQUIREMENTS
The conventions discussed above impose several requirements on any software intended to support applied drama enactments. These requirements are:
1. Any applied drama application must support multiple players and facilitate communication between participants. This requirement stems from the participatory group nature of applied drama.
2. The application must allow the DM to manage the enactment, releasing props, or placing participants in interactive scenes as required to explore the enacted roles relationships to the situation and each other.
3. The application should be rapidly configurable by practitioners in the fields in which it is applied, and should be able to support enactments of many different scenarios, involving many different roles, with differing props.
4. The application is intended to support the enactment of such scenarios in an online environment. Interaction between participants and between participants and DM has to be through the medium of the application and not externally to it.
5. Finally, the application should provide mechanisms to support the applied drama conventions listed above. These are discussed further below.

3.1. Role Distance and Internal Audience
One of the most important features of applied drama is the movement between in-role and out-of-role activities which supports role distance. Many of these activities involve interaction between participants, and observation of those interactions by other participants. The application needs to provide multi-participant communication mechanisms which clearly distinguish between in-role and out-of-role interactions.

The other feature of applied drama that supports maintenance of psychological separation between actor and enacted is the use of attitudinal roles. Multiple participants may be assigned the same role. The application must support the identification and assignment of roles within a scenario.

3.2. Applied Drama Conventions
The application must support the establishment of the dramatic pretext of the enactment. The application should also support the controlled introduction of props which serve to support contextual, narrative, and role conventions. The application should also provide mechanisms to support the reflective conventions of applied drama.

The DM should be able to take on any role that potentially could be enacted within a scenario to conduct interactions with participants, or to cause participants to engage in interactions in support of narrative conventions.

4. APPLICATION DESIGN
The software requirements center around six central functions:
1. Provision and control of communication between participants.
2. Establishment and maintenance of the dramatic pretext.
3. Controlled introduction of props.
4. Facilitation of reflective activities
5. Flexible and accessible scenario construction.
6. Online delivery of the enactment.

4.1. Communication
There are two modes of communication within an applied drama application; in-role and out-of-role communications. Out-of-role communication must be direct and can be supported by a relatively straightforward chat system. In-role communication is less straightforward.

In-role communication has to be framed in a way that supports the dramatic pretext. In our particular application, we use the notion of a ‘device’. Devices are used to represent communication devices and media that would be present in the real-world situation the enactment is designed to represent and explore.

Devices themselves are categorized as either ‘synchronous’ or ‘asynchronous’ media. Synchronous devices represent real-time communication media such as telephones, or physical meetings. Asynchronous devices represent messaging systems such as email, faxes, or directional media such as broadcast television, radio or newspapers. Devices are considered to have ‘type’, and may only communicate with other devices of similar type. Hence, email devices may only communicate with other email devices, while faxes may only fax other faxes. Devices are also categorized as public or private. While private devices are specific to individual participants, public devices are shared by either all participants allocated to a particular role, or by all participants.

Synchronous communication devices are essentially specialized chat systems, and are used to facilitate in-role interactions between participants. In order to meet the applied drama notions of internal audience and support narrative conventions, such interactions can be made observable by other
participants of the enactment, and can be explicitly initiated by the DM. In our particular implementation, synchronous communication is restricted to text based messaging, but this could be extended to voice and video in later developments.

Asynchronous communication devices are used to introduce props to the enactment. These props can be created prior to the enactment and introduced by the DM, or generated as part of the in-role activities of the participants and introduced as participant generated content during the enactment. Such props may consist of any media type that can be displayed by the application. Currently supported media types include text, image, audio, and video. Other media types such as specialized document formats can be included in the scenario but require download and out-of-application viewing.

4.2. Dramatic Pretext
In our application, the dramatic pretext of an enactment is supported explicitly through a scenario pre-text briefing. The roles enacted in a scenario are represented by the notion of a ‘persona’. A persona defines a particular role and is also associated with an explicit pre-text tailored to that role.

A persona also defines the range of devices a participant has access to when enacting that persona. The range and type of these virtual devices mirror the actual devices that the persona would have access to in the real world and allow a participant to interact with others in-role as they would in the real world.

The props introduced into the scenario by means of these devices can include performance based props such as audio tracks and video clips, as well as static media such as imagery. These props help establish and maintain the dramatic pretext or support narrative and role conventions. Other props such as specialized documents are used to represent documents a persona might encounter in real life, once again supporting the dramatic pretext.

4.3. Controlled Introduction of Props
Props can be introduced to the scenario in a variety of ways. They can be introduced at the discretion of the DM, introduced as a consequence of participants’ actions, or introduced on a time based schedule.

Introduction of props into the scenario is controlled by a ‘trigger’ system. The trigger system uses a set of condition-action ‘tuples’. A condition may be a selectable action taken by the DM or a participant, an event generated indirectly by a participant accessing some prop, or an event generated internally by a scenario timer.

There are two modes in which props can be introduced. In ‘narrative’ mode, introduction of the prop takes over the participants screen, enforcing notice of, and response to the new prop. Such a mode supports applied drama narrative conventions. In the alternate mode, props are made available to participants, but they must discover them on one of their available devices for themselves. Such release is more suitable for supporting contextual and role conventions.

4.4. Reflective Activities
Reflective activities form a core part of applied drama practice, and serve to tie the process of enactment together with the desired educational outcomes.

Our application supports reflective activities in several ways. First, the out-of-role chat facility is designed to support group discussions. Next, the DM has the ability to slow or pause the scenario to allow such discussions to take place outside of the pressure of developing events.

In addition, the application supports a web form based mode of interaction which allows a scenario builder to construct and deliver an interactive questionnaire to participants. Participants can complete such forms and submit them for drama-master review within the application.

4.5. Flexible and Accessible Scenario Construction
It is important that an instructor in the discipline area of interest should be able to envision and construct scenarios without requiring extensive computer programming skills. For this reason, the types of prop chosen as deliverable through the application are those that can be produced easily and are widely accessible. A scenario can be produced with a collection of media files and a text editor.

A scenario is defined to the application with an XML file. The XML file defines a base URL from which all props can be located. It then goes on to define the personas, the devices, and the set of props that will be incorporated in the scenario.

The XML file also defines the set of actions that are available to the DM and the participants at any stage of the scenario. Props can be added or removed throughout the scenario.

The XML file provides the foundation of a scenario, based on which the DM can guide development of the constructed narrative which is the outcome of applied drama.

4.6. Online Delivery of Enactment
A major purpose of the application is to facilitate online delivery of applied drama enactments for professional training purposes.

In our particular application we have chosen a web-based client-server architecture. Such an architecture utilizes ubiquitous browser technology and minimizes any dependencies on the participants front-end machine. However, we have found that the real-time communication requirement, and the requirement for a high level of DM control over the delivery of props has required a socket based continuously connected style of communication architecture rather than the stateless, communication style used by standard web applications.
5. EXAMPLE SCENARIO

The example scenario utilized is described elsewhere in these proceedings as The Flood scenario (Bossomaier, Tulip, Carroll, & Cameron 2010). This paper traces the enactment of the scenario through the facilities described in this paper. The Flood scenario is intended as a training exercise for a Public Relations officer associated with a regional council in rural Australia.

The scenario is initiated when the DM logs in and selects The Flood scenario as the basis for the current enactment. The XML file defining the scenario is parsed. This provides links to the scenario pretext, defines personas and the range of devices available to the persona. In the case of the Flood, there is a single persona available to participants – that of a PR officer.

Several device types are defined for this persona:
- An ‘incoming telephone’ associated with prerecorded audio,
- A ‘local radio’ also associated with prerecorded audio,
- A ‘local TV’ associated with prerecorded video,
- A ‘local newspaper’ associated with images of newspaper pages,
- A ‘templates’ device associated with downloadable document templates,
- An ‘instructions’ device associated with text based instructions for exercises associated with the enactment,
- A ‘narrative’ device which can contain a variety of media types introduced during the enactment,
- An ‘upload’ device which allows participants to submit external documents for review by the DM.

Participants gain access to a text based scenario pretext when they login to the application. They also have access to the out-of-role chat system and can engage in discussion with other participants and the DM. The DM can also use the out-of-role chat system to explain the objectives of the enactment. The DM allocates all participants to the single persona defined in the Flood scenario, and triggers the second stage of scenario initiation. At this point participants gain access to a persona pretext which provides them with role oriented contextual information. After viewing the persona pretext participants enter the enactment proper.

A range of props are made available to participants at the start of the enactment. These are in the form of press clippings from local newspapers commenting on construction and expected benefits of the new raised dam wall. These help establish the context of the enactment.

As part of the initial prop release, instructions to prepare a press release for the council’s Head of Environmental Services are released in ‘narrative mode’. This is in order to orient participants to a real world task associated with their role. Also as part of the initial prop release, a newspaper article recording the initial filling of the expanded dam due to recent and ongoing rain is released in narrative mode. This prop is another element supporting contextual convention.

As a final aspect of the initial prop release, a global action is made available to the DM, and a timer is made active. Both the action and the timer can act as conditions causing the next narrative event in the scenario to occur.

As a result of DM action or expiry of the timer, an audio prop is released in narrative mode to the ‘incoming telephone’ device. This is the council general manager requesting the participant to prepare press releases in regard to council’s response to minor flooding downstream of the dam. Release of this prop acts to support role convention, introducing the alternate viewpoint that the dam filling may have negative as well as positive effects. The audio clip is supported by release of text based instructions to the instruction device.

The release of the audio clip initiates another timer, the expiry of which triggers release of another incoming phone call. This second phone call is from the city engineer in regard to some concerns which have become apparent over the safety of the dam wall. This phone call is the first prop that develops the main narrative of the enactment.

Immediately following the phone call, another set of instructions is released requesting the production of a holding statement in regard to dam safety. Along with the instructions, a document template for production of the holding statement is made available through the ‘templates’ device.

Participants are required to download the holding statement template and develop the holding statement using their normal desktop environment. They then use the upload device to submit the completed document to the DM. The DM can review these documents and provide feedback either through the general out-of-role chat system, or by initiating a private chat session with an individual participant.

Release of the second phone call makes another action available to the DM and initiates another timer. While participants are engaged in developing the holding statement, expiry of the timer, or DM action can trigger release of an audio clip to the ‘local radio’ device in narrative mode. This audio clip features a local reporter claiming that the new dam wall is unsound and that a disaster is imminent.

Release of the radio report initiates another timer, the expiry of which causes another incoming phone call to be released in narrative mode. This is the council general manager again, this time requesting preparation of a public affairs guidance (PAG) document and a hot issues brief (HIB). At the same time, text instructions supporting the verbal instructions delivered by the audio clip are released to the instruction device, and templates for the PAG and HIB are made available on the templates device.

As a result of the development of the scenario as represented by the release of a few simple media props,
participants are now involved in a high pressure situation with multiple competing tasks ongoing. At this point, the DM may choose to pause the scenario and engage participants in a reflective discussion utilizing the out-of-role chat system.

Release of the previous phone call and instruction props also causes another DM action/timer pair to be released. These events cause yet another phone call to be released in narrative mode. This time it’s the general manager asking for the finished PAG/HIB and informing the participant of a media conference scheduled by the mayor in the near future. A media alert, a media release, and a set of talking points for the mayor are requested. Text instructions backing up the phone call and the appropriate templates are made available.

Release of the previous props causes another DM action to become active. Once participants have prepared the media release and talking points, another audio clip is released to the local radio device in narrative mode.

The latest local radio audio clip features a talkback radio caller claiming that there were irregularities in the tendering and construction process for the new dam wall. This release initiates a timer, the expiry of which causes another audio clip to be released to the local radio device, this time portraying an interview with the mayor’s brother, on the point of leaving town, denying any irregularities in the awarding of the construction contract to his company. The scenario time is now close to the scheduled media conference.

At this point the DM may again pause the scenario, and through the out-of-role chat system offer participants a choice of whether to update the prepared talking points or not. This might also be accomplished by presenting participants with an interactive form and submitting the results to the DM. The DM is presented with a choice between two actions in regard to each participant which reflect the consequences of the participant’s decision.

Following participants making their choice, several props are released into the scenario in narrative mode. These include a video clip showing a reporter speculating on worst case scenarios released to the local television device, radio interviews with fearful residents released to the local radio device, a text based engineer’s report confirming the safety of the dam wall released into the narrative device, and another text document detailing police and emergency services plans for evacuation in the event of major flooding also released into the narrative device. These props serve the role convention adding conflicting perspectives and anxiety to an already pressured situation.

Depending on the participants choice to update the mayor’s talking points or not, the DM selects an appropriate action. Selection of one action clears the availability of the alternative. If the participant chose to update the mayor’s talking points, a video clip showing the mayor answering questions about the alleged irregularities with prepared answers is released. If the participant chose not to update the talking points an alternative video clip is played.

Finally, once again depending on whether the talking points were updated or not, alternate audio clips detailing the mayor’s feedback on the supplied briefing documents are released to the incoming phone call device of each participant. At this point, an ‘end scenario’ action is made available to the DM.

On selecting the ‘end game’ action, participants are presented with a post-scenario discussion screen in which once again they have access to the out-of-role chat system in order to reflect on the completed enactment.

6. DISCUSSION
This paper has described a new online architecture to integrate the essential features of applied drama in an online epistemic game. These include the function of drama master, facilitating communication between participants, movement between in-role and out-of-role activities, reflective conventions, and the introduction of props to support contextual, narrative, and role convention. Several key abstractions were described along with the integration of disparate media resources. XML scenario configuration files make it possible to reuse the software framework for different scenarios. However, the production of the XML specification is not a particularly easy task and methods of facilitating this process are under development.

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