

## What is Greatness??

<b>Workpackage</b>	WP3. Standards			
<b>Task</b>				
<b>Date of delivery</b>	<b>Contractual</b>	Not applicable	<b>Actual</b>	07 21 2004
<b>Code name</b>	What_is_greatness LD - r02p1.doc		<b>Version</b> 0.3	draft <input checked="" type="checkbox"/> final <input type="checkbox"/>
<b>Type of deliverable</b>	Internal document			
<b>Security (distribution level)</b>	Open			
<b>Contributors</b>	OUNL			
<b>Authors (Partner)</b>	Pierre Gorissen (OUNL)			
<b>Contact Person</b>	Peter van Rosmalen Open University of the Netherlands - OTEC Valkenburgerweg 177 6401 DL. Heerlen		Tel: + 31-45 576.2889 Fax: + 31-45 576.2800 Email: peter.vanrosmalen@ou.nl	
<b>WP/Task responsible</b>	OUNL			
<b>Abstract (for dissemination)</b>	<p>This document consists of an example of a Learning Design based on the What is Greatness example originally created by James Dalziel from WebMCQ using LAMS.</p> <p>Note: The example has been created <i>in parallel with</i> the actual development of the AlfaNet system. So no claims can be made that the example actually will work in the final system.</p>			
<b>Keywords List</b>	LD, EML, Standards			
<p>ALFANET Project Coordination at: Software AG España, S.A. Ronda de la Luna, 4 Tel: +34 91 8079411 - fax: +34 91 8079447 - email: carana@softwareag.es Tres Cantos, E-28760 Madrid</p>				

## Executive Summary

### Introduction

This deliverable consists of an example of a learning design based on the What is Greatness example originally created by James Dalziel from WebMCQ using LAMS.

It shows a run of the scenario in the player and explains how code using the IMS Learning Design 1.0 specification is structured.

## Table of Contents

1. INTRODUCTION	4
1.1 About this document	4
1.2 Purpose	4
2. DESIGN	5
2.1 Introduction	5
2.2 Overview narrative	5
2.3 UML Activity diagram	6
3. HOW THE EXAMPLE RUNS IN A PLAYER	7
3.1 Introduction	7
3.2 Overview of the activities in the scenario	7
4. HOW THE RESULTING LD LOOKS	13
4.1 Introduction	13
4.2 Roles	13
4.3 Properties	13
4.4 Activities	14
4.5 Plays and Acts	17
4.6 Environment	18
4.7 Conditions	20
4.8 Metadata	22
4.9 Learning-objectives and Prerequisites	22
4.10 Resources	22
APPENDIX 1 FULL LISTING OF UNIT OF LEARNING	24
APPENDIX 2 SELECTED LISTINGS OF RESOURCE FILES	31
A 2.1 initial-thoughts-form.xml	31
A 2.2 responses-overview.xml	32

## 1. Introduction

### 1.1 About this document

This document describes a simple, artificial educational scenario used to illustrate the combination of an IMS Content Package containing IMS Learning Design 1.0 code (IMS LD). This example was modeled using EML and in a later stage be translated from EML to IMS LD. The example is accompanied by an IMS Content Package containing all required resources. It is based on the “what is greatness??” use-case created by James Dalziel from WebMCQ using LAMS. Details of the use case can be found in the following publications:

- James Dalziel, “Implementing Learning Design: The Learning Activity Management System (LAMS)”, Proceedings of Australasian Society for Computers in Learning in Tertiary Education (ACILITE) 2003, Available on-line at <http://www.ascilite.org.au/conferences/adelaide03/docs/pdf/593.pdf>.
- James Dalziel, “Discussion Paper for Learning Activities and Meta-data”, Discussion paper for ISO/IEC JTC1 SC36 WG4, Available on-line at [http://mdlet.jtc1sc36.org/doc/SC36\\_WG4\\_N0043.pdf](http://mdlet.jtc1sc36.org/doc/SC36_WG4_N0043.pdf).
- James Dalziel, “Introducing LAMS: An EML/LD ‘inspired’ system” Proceedings of the JISC e-learning architectures day Available on-line at [http://www.jisc.ac.uk/uploaded\\_documents/James%20Dalziel%20pres%201.ppt](http://www.jisc.ac.uk/uploaded_documents/James%20Dalziel%20pres%201.ppt)
- James Dalziel, “Inventive Solutions to Perennial Problems”, Proceedings of the TASCAs conference, Available on-line at <http://www.opcet.tas.gov.au/events/tastaconference04/presentations/inventivesolutionstoperennialproblems.ppt>

It is subtitled “the hard way” because this version was built using XML-Spy and not a GUI tool. This version is a very simplified version of the original use-case. The example starts with a use case narrative which is then translated to a UML Activity Diagram. Before showing the XML instance documents in IMS LD a run of the scenario in The player is explained.

### 1.2 Purpose

The purpose of the document is to provide an example of how an unit of learning is constructed and how it runs in a player. It is not intended to provide an example of an excellent learning design.

## 2. Design

### 2.1 Introduction

The narrative gives an overview of the structure of the scenario for which the learning design is being constructed. It describes the type of learning used, the context of the design, the learning objectives, the different roles within the design, the different types of learning content/services/facilities/tools used, the different types of collaborative activities, the learning activity workflow and other specific needs.

### 2.2 Overview narrative

<b>Title</b>	What is greatness? – the hard way
<b>Provided by</b>	Pierre Gorissen
<b>Pedagogy/type of learning</b>	Individual and group based learning;
<b>Description/context</b>	Like many examples, this is a toy example, not really intended for serious use.
<b>Learning objectives</b>	The learner should be able to answer the question “what is greatness?”
<b>Roles</b>	Learner, Tutor
<b>Different types of learning content used:</b>	Online forms to enter thoughts and responses
<b>Different types of learning services/facilities/tools used:</b>	None
<b>Different types of collaborative activities:</b>	Learners comment on each others initial thoughts about “what is greatness?”
<b>Learning activity workflow (how actors/content/services interact):</b>	<ul style="list-style-type: none"> <li>▪ Students individually consider “what is greatness?”;</li> <li>▪ They enter a few sentences of initial thoughts;</li> <li>▪ This process is monitored and ended by the tutor;</li> <li>▪ All learners then see all responses (anonymous);</li> <li>▪ All learners then enter personal reflections on all responses (not made public);</li> <li>▪ The tutor receives all responses and personal reflections once they have been entered;</li> <li>▪ The tutor gives feedback on the responses and reflections and finishes the learning activity on a per learner basis.</li> </ul>
<b>Other needs/Specific requirements:</b>	

## 2.3 UML Activity diagram

The UML activity diagram shows both roles in this scenario: the Learner and the Tutor. Note that the role names have been kept as neutral as possible. The role titles can be changed easily in the design to things like student or coach depending on local preference.

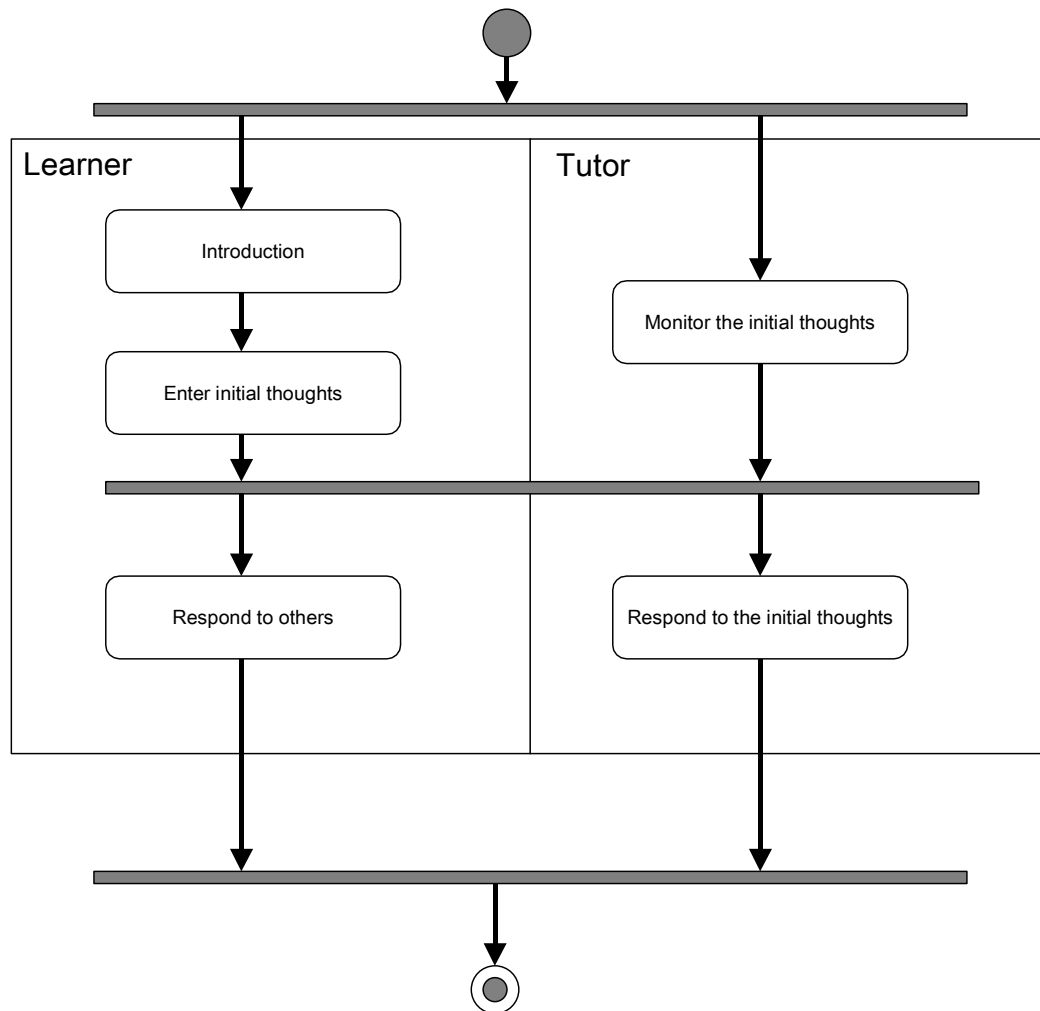


Figure 1 UML Activity Diagram

## 3. How the example runs in a player

### 3.1 Introduction

It is important to remember that the way the learning design is being rendered in the player is only partially dictated by the IMS LD specification. The implementation requirements in those specifications only state requirements about the availability of certain options, not the way they are organized on the screen or how they are rendered. The interface of the Edubox player contains three main areas: the *To Do* area which contains the activities; the *Tools & Resources* area which contains the environments and finally the largest part of the screen shows the actual content. See Figure 3 for a screenshot of the interface.

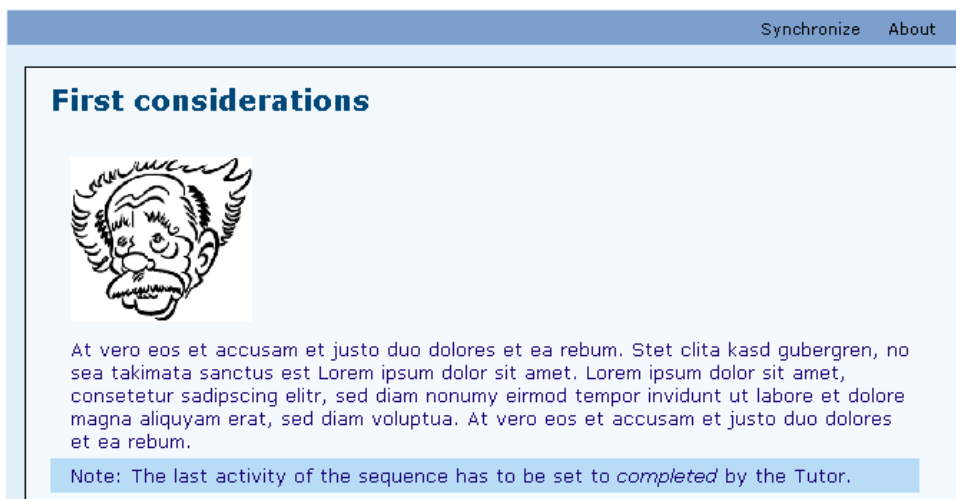
### 3.2 Overview of the activities in the scenario

In the following sections the five activities this scenario is composed of are being described, screenshots of a run of the scenario in the Edubox player are shown and some specifics of the underlying XML structures are being explained. The IMS LD code implementing the scenario is covered in more detail in the next chapter.

#### 3.2.1 First considerations (learner)

At the start of the scenario, the learner is presented with an activity-structure and an environment that contains general resources which will be made available throughout the whole scenario. The structure-type of the activity-structure is *sequence*. This means that the activities within the structure are being displayed in sequence and the learner has to complete an activity before being able to proceed to the next one.

When the learner clicks on the title of the activity-structure, the information for that activity-structure is shown. This information is not part of the actual activities within the activity-structure. In this case it explains that the second activity in the sequence can't be set to completed by the student, but is being set to completed by the tutor.



**Figure 2 activity-structure information (learner view)**

As you can see in Figure 2 a lot of very dummy text has been used in this unit of learning.

### 3.2.2 Introduction (learner)

The first learning-activity is an introduction on “what is greatness?”. Though rendered as one single page, the resources are collected from three separate XHTML files. The metadata for the learning-activity is available under the about link for the learning-activity. The headers *What*, *Why* and *When* are part of the LD structure and are not part of the XHTML files themselves.

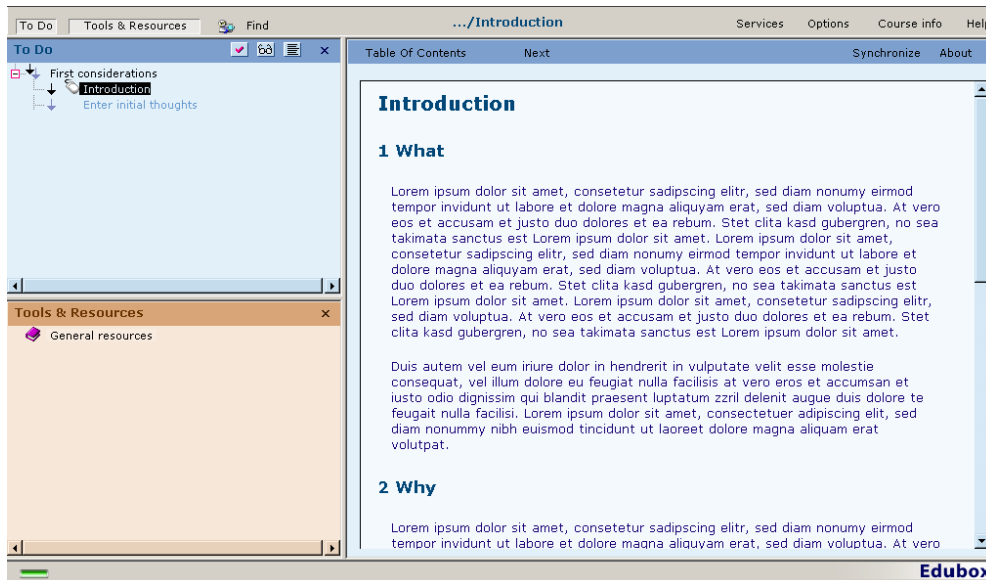


Figure 3 Learning-activity “Introduction” (learner view)

The learning design offers a couple of general resources, available during all activities. The learners can open those resources by clicking on the *General resources* environment link (in the left bottom box titled *Tools & Resources*). This first activity can be completed by selecting the checkbox. The checkbox and button have been rendered, in the correct language depending on the user-interface setting, by the player based on the <complete-activity> information. No additional code in the resource is needed for that.

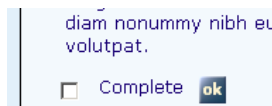


Figure 4 Complete-activity / User-Choice rendering

### 3.2.3 Enter initial thoughts (learner)

After completing the first activity, the second activity in the sequence is made available to the learner. Here, the learners can enter their initial thoughts in a text area on a page. Unlike the previous activity, there is no option for the learners to set the status of the activity to completed. That has to be done by the tutor. In LD the completion of the activity has been made dependent on a property value which can only be set by the tutor.

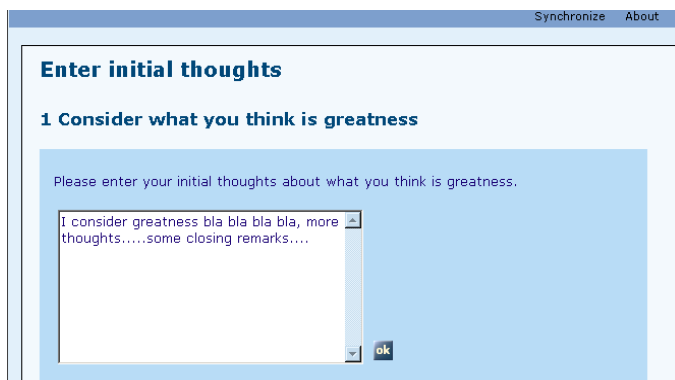


Figure 5 Learning-activity “Enter initial thoughts” (learner view)

The resource file for this learning activity only contains an LD <set-property> element, not a HTML form or any additional mark-up. This is not needed because the player “knows” that the <set-property> element for a property with datatype “text” (which is set when the property is defined) has to be rendered this way and handles the generating of the needed code. The listing of the XHTML resource used for this is included on page 31 of this report.

### 3.2.4 Monitor the initial thoughts (tutor)

While the learners start with the first two learning-activities (as described in 3.2.2 and 3.2.3) the tutor monitors this process and decides when to end the second activity. Figure 7 shows a screenshot of the tutors initial situation.

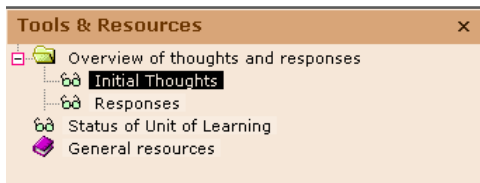


Figure 6 Resources available to the tutor

The service *Initial Thoughts* which is part of the *Overview of thoughts and responses* (Figure 8) shows a list of usernames and the entries for the second activity enabling the tutor to monitor the progress of the learners.

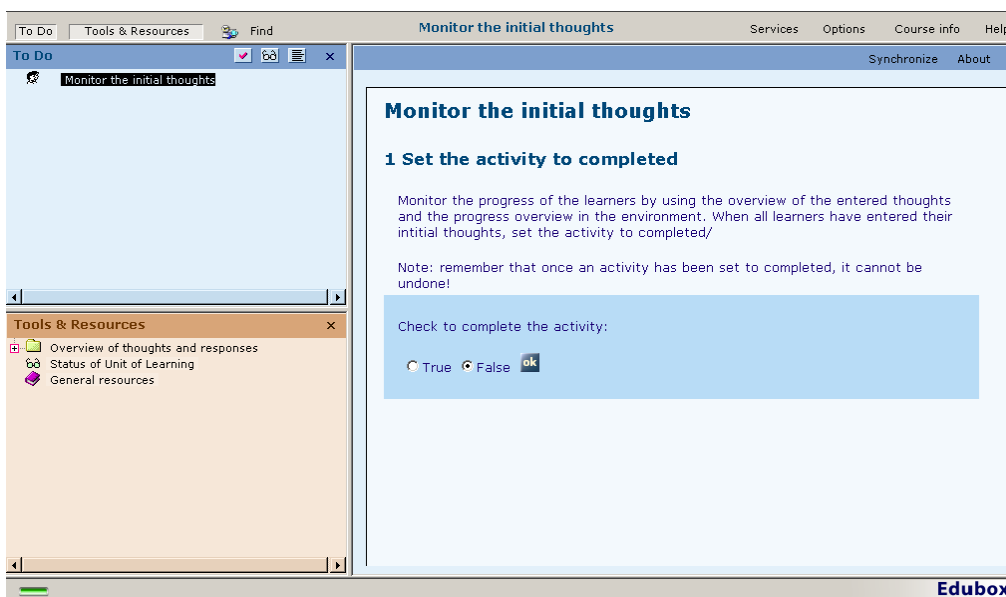


Figure 7 Support-activity “Monitor the initial thoughts” (tutor view)

Overview of initial thoughts	
Learner	Overview of the initial thoughts
Gorissen, Pierre	I consider greatness bla bla bla bla, more thoughts.....some closing remarks....
Es, Rene van (student)	And some thoughts by Rene

Figure 8 Service “Overview of initial thoughts” (tutor-view)

When the tutor decides to set the activity to completed, the next activity-structure (*What do others think?*) is displayed to the learner (Figure 9), the tutor sees his next support-activity (Figure 13 on page 11) and finally the select boxes for the tutor (Figure 10) and the text area for the initial thoughts of the students (Figure 11) are being set to read-only.

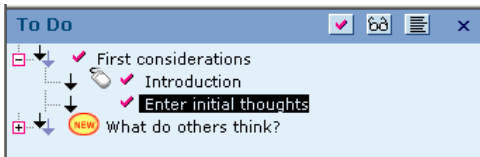


Figure 9 New activity-structure has been made available (learner view)

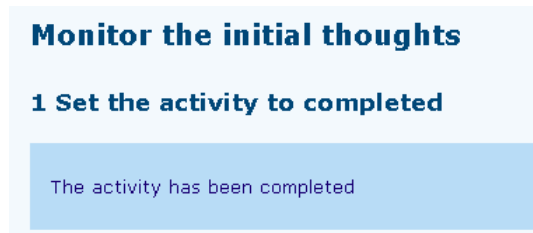


Figure 10 Support-activity “Monitor the initial thoughts” after completion (tutor view)

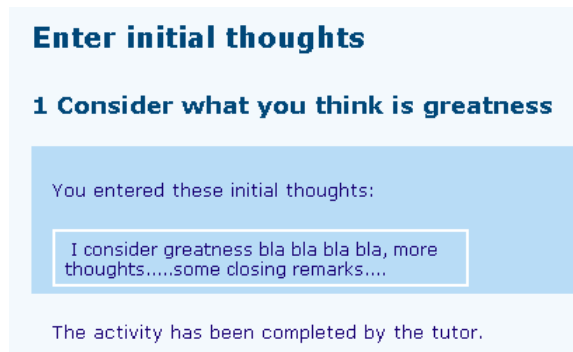


Figure 11 Learning-activity “Enter initial thoughts” after completion (learner view)

### 3.2.5 What do others think? (learner)

As described in the previous section, a number of changes take place when the tutor decided to complete the second learning-activity. A new activity-structure (*What do others think?*) is being made available to the learners Together with the new learning-activity an environment resource listing all entered initial thoughts (without names) is made available to the learner. He/she is asked to enter a general response to the initial thoughts (see Figure 12 on page 11 for a screenshot). Like with the previous activity, the learner can't set this activity to completed. That is being done by the tutor on a per-user bases. The environment resource with the feedback by the tutor initially isn't visible. It will be made visible by the player once the tutor has entered a feedback for this specific learner based on the conditions in de LD code regulating this.

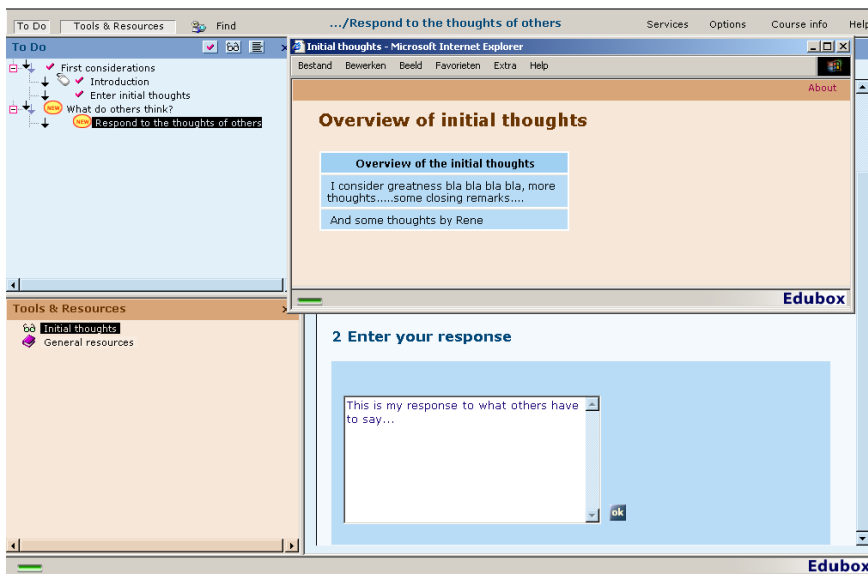


Figure 12 “Respond-to-others” and “Overview of initial thoughts” (learner view)

### 3.2.6 Respond to initial thoughts (tutor)

The completion of the second learning-activity (see 3.2.4) has also triggered the display of a new support-activity (*Respond to initial thoughts*) for the tutor. The tutor still has the environment resource like displayed in Figure 6 available to monitor the progress of the learners. The second support activity enables him to enter individual feedback for each user and set the activity to completed on a per-user basis.

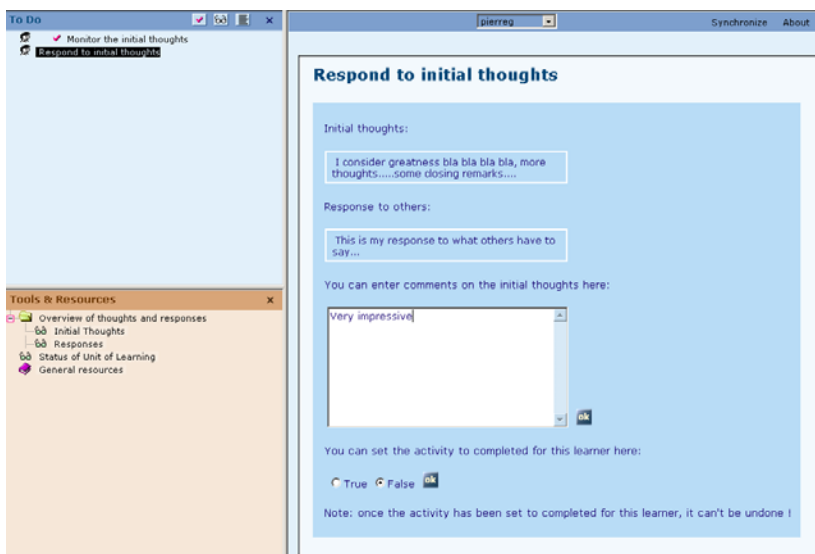


Figure 13 Support-activity Respond to initial thoughts (tutor-view)

Only when the tutor has entered feedback for a learner, the additional environment displaying the feedback is made visible for that learner (see Figure 14)

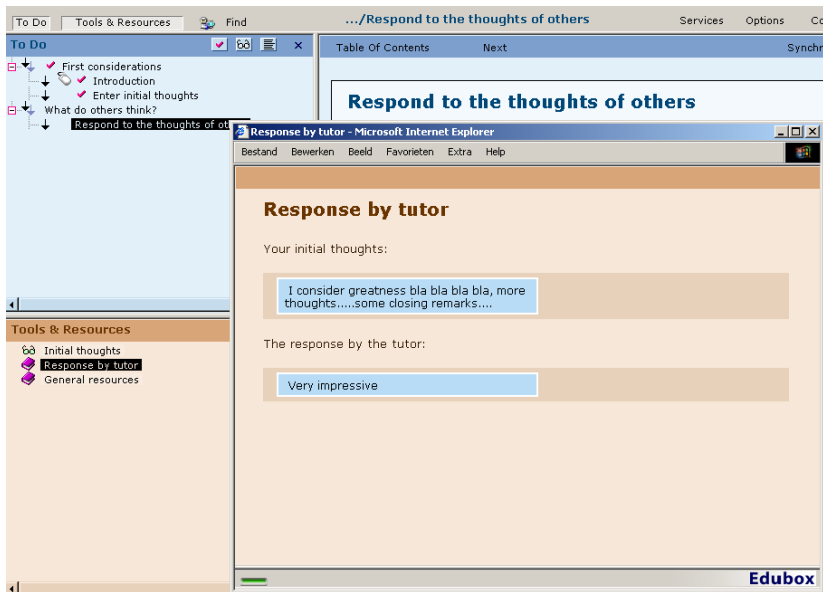


Figure 14 comments by the tutor (learner-view)

### 3.2.7 Complete the unit of learning

If all feedback has been entered by the Tutor, he can set the second support-activity to completed by checking the rendered checkbox (caused by the <user-choice> element for the support-activity). The completion of the unit of learning is triggered by the completion of this support-activity.

## 4. How the resulting LD looks

### 4.1 Introduction

For a player to be able to render the structures in the previous section a package containing the needed XHTML files and an unit of learning manifest file is structured. The following sections explain different parts of this manifest file.

### 4.2 Roles

There are two role-types in the unit of learning, one learner role and one staff role:

```
<roles>
  <learner identifier="Learner">
    <title>Learner</title>
    <information>
      <title>The Learner role</title>
      <item identifierref="R-information-for-learner"/>
    </information>
  </learner>
  <staff identifier="Tutor">
    <title>Tutor</title>
    <information>
      <title>The Tutor role</title>
      <item identifierref="R-information-for-tutor"/>
    </information>
  </staff>
</roles>
```

#### Table 1 roles

For each role an item containing additional information about the role is available. This information will be available to the user in the specific role during runtime.

### 4.3 Properties

To store the initial thoughts and responses, two global personal properties are defined and one existing global personal property is referenced:

```
<globpers-property identifier="GP-username">
  <existing href="http://eml.ou.nl/dossier/name"/>
</globpers-property>
<globpers-property identifier="GP-initial-thoughts-GUID-37E65BD4-077A-CC19-6A65-3F687FC9F7B1">
  <global-definition uri="GP-initial-thoughts-GUID-37E65BD4-077A-CC19-6A65-3F687FC9F7B1">
    <title>What do I think is greatness</title>
    <datatype datatype="text"/>
  </global-definition>
</globpers-property>
<globpers-property identifier="GP-response-to-initial-thoughts-GUID-37E65BD4-077A-CC19-6A65-3F687FC9F7B1">
  <global-definition uri="GP-response-to-initial-thoughts-GUID-37E65BD4-077A-CC19-6A65-3F687FC9F7B1">
    <title>Responses to the initial thoughts</title>
    <datatype datatype="text"/>
  </global-definition>
</globpers-property>
```

#### Table 2 global properties

The fact that they are global means that their value remains set even after the run has been completed and that they are also available from within another unit of learning. Because they are personal, the value is set individually each user. The data type "text" results in a text area being rendered by the rendered when the

<set-property> element is being used. The GP-username property is filled with the username of the current user by the player. To illustrate the difference with these global properties, the feedback given by the tutor is being stored in a local personal property:

```
<locpers-property identifier="LP-tutor-comments-initial-thoughts-GUID-37E65BD4-077A-CC19-6A65-3F687FC9F7B1">
  <title>Response by tutor</title>
  <datatype datatype="text"/>
</locpers-property>
```

### Table 3 local properties

The result of this choice is that the value is reset for each run of the unit of learning and is also not available from another unit of learning.

The unit of learning uses two additional properties to set the completion of two of the three learning activities of the unit of learning. One of the properties is a local property, which contains the same value for all users. The other is a local personal property, and is set on a per-user basis. Both properties are *Booleans* (possible values are true and false) and are initially set to false.

```
<loc-property identifier="LP-activity-2-completed-GUID-37E65BD4-077A-CC19-6A65-3F687FC9F7B1">
  <title>Activity Enter Initial Thoughts completed</title>
  <datatype datatype="boolean"/>
  <initial-value>>false</initial-value>
</loc-property>
<locpers-property identifier="LP-activity-3-completed-GUID-37E65BD4-077A-CC19-6A65-3F687FC9F7B1">
  <title>Enter response to initial thoughts completed</title>
  <datatype datatype="boolean"/>
  <initial-value>>false</initial-value>
</locpers-property>
```

### Table 4 local properties used for activity completion

## 4.4 Activities

The five activities in the UML activity diagram on page 6 have been translated into three learning activities and two support activities.

### 4.4.1 Learning-activities

The learning-activities, all with metadata that can be viewed during runtime, have been grouped into two activity sequences.

```
<learning-activity isvisible="true" identifier="LA-introduction">
  <title>Introduction</title>
  <activity-description>
    <item identifier="I-introduction-a" identifierref="R-dummy">
      <title>What</title>
    </item>
    <item identifier="I-introduction-b" identifierref="R-dummy">
      <title>Why</title>
    </item>
    <item identifier="I-introduction-c" identifierref="R-dummy">
      <title>When</title>
    </item>
  </activity-description>
  <complete-activity>
    <user-choice/>
  </complete-activity>
  <metadata>
    <schema>EML</schema>
    <schemaversion>1.1</schemaversion>
    <emlmd:typical-learning-time>10 minutes</emlmd:typical-learning-time>
    <emlmd:description>
      <emlmd:langstring>An introductory text that learners should read explaining.....</emlmd:langstring>
    </emlmd:description>
  </metadata>
</learning-activity>
```

```

    </emlmd:description>
  </metadata>
</learning-activity>

```

**Table 5 learning-activity LA-introduction**

The first learning-activity (*LA-introduction*) provides information about the unit of learning. The information has been compiled from three XHTML files containing part of the information. The player combines the items within an activity-description to one file, with a automatically generated table of contents listing each of the items. See Figure 3 on page 8 for a view of the rendered page in the player.

```

<learning-activity isvisible="true" identifier="LA-enter-initial-thoughts">
  <title>Enter initial thoughts</title>
  <activity-description>
    <item identifier="I-enter-initial-thoughts" identifierref="R-initial-thoughts">
      <title>Consider what you think is greatness</title>
    </item>
  </activity-description>
  <complete-activity>
    <when-property-value-is-set>
      <property-ref ref="LP-activity-2-completed-GUID-37E65BD4-077A-CC19-6A65-3F687FC9F7B1"/>
      <property-value>true</property-value>
    </when-property-value-is-set>
  </complete-activity>
  <metadata>
    <schema>EML</schema>
    <schemaversion>1.1</schemaversion>
    <emlmd:typical-learning-time>1 hour</emlmd:typical-learning-time>
    <emlmd:description>
      <emlmd:langstring>Learners are asked to consider what they think is greatness....</emlmd:langstring>
    </emlmd:description>
  </metadata>
</learning-activity>

```

**Table 6 learning-activity LA-enter-initial-thoughts**

The second learning-activity (*LA-enter-initial-thoughts*) provides the learners with a form where they can enter their initial thoughts (see Figure 5 on page 8). The completion of the activity is set by the tutor. This has been done to prevent the learners from proceeding to the next activity where they are asked to respond to each others thoughts before all learners have completed this step.

```

<learning-activity isvisible="false" identifier="LA-respond-to-others">
  <title>Respond to the thoughts of others</title>
  <activity-description>
    <item identifier="I-respond-to-others-1" identifierref="R-dummy">
      <title>What</title>
    </item>
    <item identifier="I-respond-to-others-2" identifierref="R-response-to-initial-thoughts-form">
      <title>Enter your response</title>
    </item>
  </activity-description>
  <complete-activity>
    <when-property-value-is-set>
      <property-ref ref="LP-activity-3-completed-GUID-37E65BD4-077A-CC19-6A65-3F687FC9F7B1"/>
      <property-value>true</property-value>
    </when-property-value-is-set>
  </complete-activity>
  <metadata>
    <schema>EML</schema>
    <schemaversion>1.1</schemaversion>
    <emlmd:typical-learning-time>1 hour</emlmd:typical-learning-time>
    <emlmd:description>
      <emlmd:langstring>Learners are asked to read the initial thoughts....</emlmd:langstring>
    </emlmd:description>
  </metadata>
</learning-activity>

```

**Table 7 learning-activity LA-respond-to-others**

The third learning-activity (*LA-respond-to-others*, see also Figure 12 on page 11) consists of a static instruction, explaining what to do, and a form using a `<set-property>` element to set the global personal property that stores the initial thoughts of the learner. This learning-activity can't be set to completed by the learner. Completion depends on a value change of the property *LP-activity-3-completed-GUID-37E65BD4-077A-CC19-6A65-3F687FC9F7B1* (see Table 4 for the LD code that defines the property) from its initial value of false to true. This can be done by the tutor.

```
<activity-structure identifier="AS-first-step" structure-type="sequence">
  <title>First considerations</title>
  <information>
    <item identifierref="R-Info-AS-first-step"/>
  </information>
  <environment-ref ref="E-wig-general-environment"/>
  <learning-activity-ref ref="LA-introduction"/>
  <learning-activity-ref ref="LA-enter-initial-thoughts"/>
  <metadata>
    <schema>EML</schema>
    <schemaversion>1.1</schemaversion>
    <emlmd:description>
      <emlmd:langstring>The first two activities of the course consist of reading an introduction text and entering
initial thoughts.</emlmd:langstring>
    </emlmd:description>
  </metadata>
</activity-structure>
<activity-structure identifier="AS-second-step" structure-type="sequence">
  <title>What do others think?</title>
  <information>
    <item identifierref="R-Info-AS-second-step"/>
  </information>
  <environment-ref ref="E-wig-general-environment"/>
  <environment-ref ref="E-overview-thoughts"/>
  <environment-ref ref="E-response-by-tutor"/>
  <learning-activity-ref ref="LA-respond-to-others"/>
</activity-structure>
```

**Table 8 activity-structures for the learning-activities**

The three learning-activities are grouped into two activity-structures. The first one (*AS-first-step*) consists of the two first learning-activities and makes the environment *E-wig-general-environment* available during both activities. The resource *R-Info-AS-first-step* contains general instructions for the learner, and is being displayed when the activity-structure *AS-first-step* (and not the learning-activities within the sequence) is selected. The second activity-structure (*AS-second-step*) contains only one learning-activity (*LA-respond-to-others*) but adds an extra two environments to the already available environment. Here, like with the first sequence, the resource *R-Info-AS-second-step* is being displayed when the activity-structure itself is selected.

#### 4.4.2 Support-activities

```
<support-activity identifier="SA-first-step" isvisible="true">
  <title>Monitor the initial thoughts</title>
  <environment-ref ref="E-wig-general-environment"/>
  <environment-ref ref="E-overview-responses"/>
  <activity-description>
    <item identifier="I-sa-first-step" identifierref="R-set-activity2-complete">
      <title>Set the activity to completed</title>
    </item>
  </activity-description>
  <complete-activity>
    <when-property-value-is-set>
      <property-ref ref="LP-activity-2-completed-GUID-37E65BD4-077A-CC19-6A65-3F687FC9F7B1"/>
      <property-value>true</property-value>
    </when-property-value-is-set>
  </complete-activity>
</support-activity>
```

**Table 9 support-activity SA-first-step**

For the tutor, there are two support-activities. The first one (*SA-first-step*) consists of one activity-description and two environments. See Figure 8 on page 9 for a screenshot. The support-activity is set to completed using the same property as used for the completion state of the second learning-activity.

```
<support-activity identifier="SA-respond" isvisible="true">
  <title>Respond to initial thoughts</title>
  <role-ref ref="Learner"/>
  <environment-ref ref="E-wig-general-environment"/>
  <environment-ref ref="E-overview-responses"/>
  <activity-description>
    <item identifierref="R-response-to-initial-thoughts-form-tutor"/>
  </activity-description>
</support-activity>
```

**Table 10 support-activity SA-respond**

The second support-activity (*SA-respond*) is special because of the `<role-ref ref="Learner">` element. Because of that, The player knows that the support-activity should be repeated for each individual user in the specified role (in this case the *Learner* role). Figure 13 on page 11 shows the select box that is being rendered to enable the tutor to select the user for whom he wants to enter feedback.

## 4.5 Plays and Acts

The learning-activities and support-activities are all grouped into a single act within a single play. The `<role-part>` elements link the activities and roles together. All role-parts are part of a single act, though it is possible to have multiple acts with each act only being available after the previous one has been completed.

```
<play identifier="P-1" isvisible="true">
  <title>What is Greatness - default play</title>
  <act identifier="A-1">
    <title>What is Greatness - Default act</title>
    <role-part identifier="RP-Learner-1">
      <title>First step</title>
      <role-ref ref="Learner"/>
      <activity-structure-ref ref="AS-first-step"/>
    </role-part>
    <role-part identifier="RP-Tutor-1">
      <title>Support activities for first step</title>
      <role-ref ref="Tutor"/>
      <support-activity-ref ref="SA-first-step"/>
    </role-part>
    <role-part identifier="RP-Learner-2">
      <title>Second step</title>
      <role-ref ref="Learner"/>
      <activity-structure-ref ref="AS-second-step"/>
    </role-part>
    <role-part identifier="RP-Tutor-2">
      <title>Support activities for second step</title>
      <role-ref ref="Tutor"/>
      <support-activity-ref ref="SA-respond"/>
    </role-part>
    <complete-act>
      <when-role-part-completed ref="RP-Tutor-2"/>
    </complete-act>
    <metadata>
      <schema>EML</schema>
      <schemaversion>1.1</schemaversion>
      <emlmd:formal-title>MD: What is Greatness - default act</emlmd:formal-title>
    </metadata>
  </act>
  <complete-play>
    <when-last-act-completed/>
  </complete-play>
</play>
```

**Table 11 play, act, role-parts**

## 4.6 Environment

There are a total of four environment elements within this unit of learning.

```
<environment identifier="E-wig-general-environment">
  <title>General environment</title>
  <learning-object identifier="lo-E-wig-general-environment">
    <title>General resources</title>
    <item identifier="I-1-wig-general-environment" identifierref="R-dummy">
      <title>Introduction</title>
    </item>
    <item identifier="I-2-wig-general-environment" identifierref="R-dummy-2">
      <title>Examples</title>
    </item>
  </learning-object>
</environment>
```

**Table 12 environment E-wig-general-environment**

The first environment (*E-wig-general-environment*) consists of two static XHTML files combined together to one knowledge-object, just like has been done with the items in a learning-activity or support-activity.

```
<environment identifier="E-overview-thoughts">
  <title>Overview of initial thoughts</title>
  <service identifier="S-overview-initial-thoughts">
    <monitor>
      <role-ref ref="Learner"/>
      <title>Initial thoughts</title>
      <item identifierref="R-initial-thoughts-overview"/>
      <metadata>
        <schema>EML</schema>
        <schemaversion>1.1</schemaversion>
        <emlmd:formal-title>
          <emlmd:langstring>Overview of initial thoughts</emlmd:langstring>
        </emlmd:formal-title>
      </metadata>
    </monitor>
  </service>
</environment>
```

**Table 13 environment E-overview-thoughts**

The environment (*E-overview-thoughts*) displays the initial thoughts of all the learners in a table. The item file (*R-initial-thoughts-overview*) contains a table with a single row containing a <view-property> element. The player renders the needed table rows for the resulting table.

```
<environment identifier="E-overview-responses">
  <title>Overview of thoughts and responses</title>
  <service identifier="S-overview-initial-thoughts-tutor">
    <monitor>
      <role-ref ref="Learner"/>
      <title>Initial Thoughts</title>
      <item identifierref="R-initial-thoughts-overview-tutor"/>
      <metadata>
        <schema>EML</schema>
        <schemaversion>1.1</schemaversion>
        <emlmd:formal-title>
          <emlmd:langstring>Overview of initial thoughts</emlmd:langstring>
        </emlmd:formal-title>
        <emlmd:description>
          <emlmd:langstring>Contains an overview of the initial thoughts of the
learners...</emlmd:langstring>
        </emlmd:description>
      </metadata>
    </monitor>
  </service>
</service identifier="S-overview-responses">
```

```

<monitor>
  <role-ref ref="Learner"/>
  <title>Responses</title>
  <item identifierref="R-response-to-initial-thoughts-overview"/>
  <metadata>
    <schema>EML</schema>
    <schemaversion>1.1</schemaversion>
    <emlmd:formal-title>
      <emlmd:langstring>Overview of responses</emlmd:langstring>
    </emlmd:formal-title>
    <emlmd:description>
      <emlmd:langstring>Contains an overview of the reponses by learners... </emlmd:langstring>
    </emlmd:description>
  </metadata>
</monitor>
</service>
</environment>

```

**Table 14 environment E-overview-responses**

The environment *E-overview-responses* is available only for the tutor and consists of two services, one of them displaying all the initial thoughts, and the other displaying the responses from the learners. The tutor not only sees the initial thoughts entered by the learners (like displayed in *E-overview-thoughts*) but also the name of the learner that entered the thoughts.

```

<environment identifier="E-response-by-tutor">
  <title>Response by tutor</title>
  <learning-object identifier="lo-E-response-by-tutor">
    <title>Response by tutor</title>
    <item identifierref="R-response-by-tutor"/>
  </learning-object>
</environment>

```

**Table 15 environment E-response-by-tutor**

The final environment (*E-reponse-by-tutor*) contains a single learning-object which displays the feedback of the tutor for a single learner. The visibility of this environment is set in the conditions section of the design. See Table 16 on page 20 for the condition handling the visibility of this environment.

## 4.7 Conditions

Conditions in this unit of learning are used to show or hide parts of pages using classes, environments, activities-structures and support-activities.

They all have a basic structure, like in Table 16, consisting of an `<if>` statement checking a condition, a `<then>` part which describes what to do when the condition is true and an `<else>` part which describes what to do when the condition is false.

```
<if>
  <not>
    <no-value>
      <property-ref ref="LP-tutor-comments-initial-thoughts-GUID-37E65BD4-077A-CC19-6A65-3F687FC9F7B1"/>
    </no-value>
  </not>
</if>
<then>
  <show>
    <environment-ref ref="E-response-by-tutor"/>
  </show>
</then>
<else>
  <hide>
    <environment-ref ref="E-response-by-tutor"/>
  </hide>
</else>
```

**Table 16 conditionally show environment with tutor response**

The structure in Table 16 checks to see if a value has been entered into the local personal property that has been defined to contain the response by a tutor (for a single learner). If that property isn't empty, the environment that shows the content of both the learners initial thoughts and the feedback of the tutor is set to visible. For a screenshot of that environment see Figure 14 on page 12.

The second set of actions (listed in Table 17) is based on the completion of the second learning-activity (*Enter initial thoughts*). That activity was completed by setting a property (see also the `<when-property-value-is-set>` element in the listing in Table 6 on page 15).

```
<if>
  <is>
    <property-ref ref="LP-activity-2-completed-GUID-37E65BD4-077A-CC19-6A65-3F687FC9F7B1"/>
    <property-value>true</property-value>
  </is>
</if>
<then>
  <show>
    <class class="C-Activity2-complete"/>
    <activity-sequence-ref ref="AS-second-step"/>
    <support-activity-ref ref="SA-respond"/>
  </show>
  <hide>
    <class class="C-Activity2-not-complete"/>
  </hide>
</then>
<else>
  <show>
    <class class="C-Activity2-not-complete"/>
  </show>
  <hide>
    <class class="C-Activity2-complete"/>
    <activity-sequence-ref ref="AS-second-step"/>
    <support-activity-ref ref="SA-respond"/>
  </hide>
</else>
```

**Table 17 condition based on property value (completion of second activity)**

The classes used in this and the next set of actions correspond to classes used in the resource files. Those classes control the visibility of parts of the resource file. With them the change from the display of the

learning-activity like shown in Figure 5 on page 8 while the activity hasn't been set to completed, to the display of the learning-activity like shown in Figure 11 on page 10 is being controlled.

The activity-structure and/or support-activity referenced here only actually become visible if they have been made available to the user by linking them to the role of the user in a <role-part>. That means a learner won't be able to view the support-activity *SA-respond* even if *LP-activity-2-completed-GUID-37E65BD4-077A-CC19-6A65-3F687FC9F7B1* is true.

```

<if>
  <complete>
    <learning-activity-ref ref="LA-respond-to-others"/>
  </complete>
</if>
<then>
  <show>
    <class class="C-Activity3-complete"/>
  </show>
  <hide>
    <class class="C-Activity3-not-complete"/>
  </hide>
</then>
<else>
  <show>
    <class class="C-Activity3-not-complete"/>
  </show>
  <hide>
    <class class="C-Activity3-complete"/>
  </hide>
</else>

```

#### Table 18 condition based on completion of learning-activity

The last set of actions consists only of showing/hiding specific classes, but is now triggered by a check for the completion of a learning-activity (*LA-respond-to-others*). The completion of a learning-activity is controlled on a per user basis. Since the learning-activity *LA-respond-to-others* hasn't been made available to the Tutor role in a <role-part> the <if> condition in can never be true for a user in the Tutor role.

Things like displaying the next activity in an activity-structure after an activity has been completed isn't handled by conditions. Those actions are part of what is expected to be handled by the player based on de LD code.

## 4.8 Metadata

Metadata is not something just used during design-time. If metadata is added to an element, it can also be viewed during runtime. When editing a unit of learning like this using nothing more than a XML-editor, adding metadata can be a cumbersome task. It is expected that future LD-editors handle this in a better way.

IMS Learning Design allows for flexibility in choosing a metadata schema when adding metadata to a learning design. For this example the EML specific metadata schema has been used.

```
<metadata>
  <schema>EML</schema>
  <schemaversion>1.1</schemaversion>
  <emlmd:formal-title>
    <emlmd:langstring>What is Greatness</emlmd:langstring>
    <emlmd:langstring>Doing it the hard way</emlmd:langstring>
  </emlmd:formal-title>
  <emlmd:creator>Drs. P.J.B. Gorissen</emlmd:creator>
  <emlmd:creator>Based on the original Use-Case by James Dalziel</emlmd:creator>
  <emlmd:date>2003-09-02</emlmd:date>
  <emlmd:language>en</emlmd:language>
  <emlmd:typical-learning-time>2 hours and 10 minutes</emlmd:typical-learning-time>
  <emlmd:rights>
    <emlmd:langstring>2003</emlmd:langstring>
    <emlmd:langstring>Open Universiteit Nederland (OUNL)</emlmd:langstring>
    <emlmd:langstring>This example can be re-used without permission as long as the original copyright statement is
retained in the source</emlmd:langstring>
  </emlmd:rights>
  <emlmd:description>
    <emlmd:langstring>An example of how to create a Unit of Learning using EML 1.1</emlmd:langstring>
  </emlmd:description>
</metadata>
```

Table 19 metadata for the unit of learning

## 4.9 Learning-objectives and Prerequisites

Like metadata, the learning-objectives and prerequisites for a unit of learning or even individual learning-activities are available in the player during runtime. Adding them is simple using a reference to a resource that contains the learning-objectives or prerequisites.

```
<learning-objectives>
  <title>Learning-objectives</title>
  <item identifierref="R-learning-objectives"/>
</learning-objectives>
<prerequisites>
  <title>Prerequisites</title>
  <item identifierref="R-prerequisites"/>
</prerequisites>
```

Table 20 learning-objectives and prerequisites

## 4.10 Resources

The resources section is probably the least interesting part of the unit of learning, but it provides the crucial link between the internal identifiers and the actual resource files. The <resources>, <resource> and <file> elements are part of the IMS Content packaging namespace and are not IMS LD specific.

```
<imscp:resources>
  <imscp:resource identifier="R-prerequisites" type="webcontent" href="prerequisites.xml">
    <imscp:file href="prerequisites.xml"/>
  </imscp:resource>
  <imscp:resource identifier="R-learning-objectives" type="webcontent" href="learning-objectives.xml">
    <imscp:file href="learning-objectives.xml"/>
  </imscp:resource>
</imscp:resources>
```

```

</imscp:resource>
<imscp:resource identifier="R-information-for-learner" type="webcontent" href="dummy.xml">
  <imscp:file href="dummy.xml"/>
</imscp:resource>
<imscp:resource identifier="R-information-for-tutor" type="webcontent" href="dummy.xml">
  <imscp:file href="dummy.xml"/>
</imscp:resource>
<imscp:resource identifier="R-dummy" type="webcontent" href="dummy.xml">
  <imscp:file href="dummy.xml"/>
</imscp:resource>
<imscp:resource identifier="R-dummy-2" type="webcontent" href="dummy2.xml">
  <imscp:file href="dummy2.xml"/>
  <imscp:file href="einstein.gif"/>
</imscp:resource>
<imscp:resource identifier="R-Info-AS-first-step" type="webcontent" href="activity-seq1-info.xml">
  <imscp:file href="activity-seq1-info.xml"/>
  <imscp:file href="einstein2.gif"/>
</imscp:resource>
<imscp:resource identifier="R-Info-AS-second-step" type="webcontent" href="activity-seq2-info.xml">
  <imscp:file href="activity-seq2-info.xml"/>
  <imscp:file href="pencils.jpg"/>
</imscp:resource>
<imscp:resource identifier="R-initial-thoughts" type="imsldcontent" href="initial-thoughts-form.xml">
  <imscp:file href="initial-thoughts-form.xml"/>
</imscp:resource>
<imscp:resource identifier="R-set-activity2-complete" type="imsldcontent" href="set-activity2-complete.xml">
  <imscp:file href="set-activity2-complete.xml"/>
</imscp:resource>
<imscp:resource identifier="R-initial-thoughts-overview" type="imsldcontent" href="initial-thoughts-overview.xml">
  <imscp:file href="initial-thoughts-overview.xml"/>
</imscp:resource>
<imscp:resource identifier="R-initial-thoughts-overview-tutor" type="imsldcontent" href="initial-thoughts-overview-
tutor.xml">
  <imscp:file href="initial-thoughts-overview-tutor.xml"/>
</imscp:resource>
<imscp:resource identifier="R-response-to-initial-thoughts-form" type="imsldcontent" href="response-to-initial-
thoughts-form.xml">
  <imscp:file href="response-to-initial-thoughts-form.xml"/>
</imscp:resource>
<imscp:resource identifier="R-response-to-initial-thoughts-overview" type="imsldcontent" href="responses-
overview.xml">
  <imscp:file href="responses-overview.xml"/>
</imscp:resource>
<imscp:resource identifier="R-response-by-tutor" type="imsldcontent" href="initial-thoughts-tutor-comments.xml">
  <imscp:file href="initial-thoughts-tutor-comments.xml"/>
</imscp:resource>
<imscp:resource identifier="R-response-to-initial-thoughts-form-tutor" type="imsldcontent" href="initial-thoughts-
tutor-form.xml">
  <imscp:file href="initial-thoughts-tutor-form.xml"/>
</imscp:resource>
</imscp:resources>

```

### Table 21 resources used

Since this was only an example and not an actually used unit of learning, the dummy.xml and dummy2.xml files were used a lot. A full listing of the resources is available in the appendix.

## Appendix 1 Full listing of Unit of Learning

```

<?xml version="1.0" encoding="UTF-8"?>
<imscp:manifest xmlns:imscp="http://www.imsglobal.org/xsd/imscp_v1p1" xmlns="http://www.imsglobal.org/xsd/imslid_v1p0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:emlmd="http://eml.ou.nl/eml11/metadata"
xsi:schemaLocation="http://www.imsglobal.org/xsd/imscp_v1p1 imscp_v1p1.xsd http://www.imsglobal.org/xsd/imslid_v1p0
IMS_LD_Level_B.xsd http://eml.ou.nl/eml11/metadata metadata.xsd" identifier="What-Is-Greatness-The-Hard-Way-r01">
  <imscp:organizations>
    <learning-design identifier="LD-What-Is-Greatness-The-Hard-Way-r01" uri="WIGTHWr01" level="B">
      <title>What is Greatness</title>
      <learning-objectives>
        <title>Learning-objectives</title>
        <item identifierref="R-learning-objectives"/>
      </learning-objectives>
      <prerequisites>
        <title>Prerequisites</title>
        <item identifierref="R-prerequisites"/>
      </prerequisites>
      <components>
        <roles>
          <learner identifier="Learner">
            <title>Learner</title>
            <information>
              <title>The Learner role</title>
              <item identifierref="R-information-for-learner"/>
            </information>
          </learner>
          <staff identifier="Tutor">
            <title>Tutor</title>
            <information>
              <title>The Tutor role</title>
              <item identifierref="R-information-for-tutor"/>
            </information>
          </staff>
        </roles>
        <properties>
          <globpers-property identifier="GP-username">
            <existing href="http://eml.ou.nl/dossier/name"/>
          </globpers-property>
          <globpers-property identifier="GP-initial-thoughts-GUID-37E65BD4-077A-CC19-6A65-3F687FC9F7B1">
            <global-definition uri="GP-initial-thoughts-GUID-37E65BD4-077A-CC19-6A65-3F687FC9F7B1">
              <title>What do I think is greatness</title>
              <datatype datatype="text"/>
            </global-definition>
          </globpers-property>
          <globpers-property identifier="GP-response-to-initial-thoughts-GUID-37E65BD4-077A-CC19-6A65-
3F687FC9F7B1">
            <global-definition uri="GP-response-to-initial-thoughts-GUID-37E65BD4-077A-CC19-6A65-
3F687FC9F7B1">
              <title>Responses to the initial thoughts</title>
              <datatype datatype="text"/>
            </global-definition>
          </globpers-property>
          <locpers-property identifier="LP-tutor-comments-initial-thoughts-GUID-37E65BD4-077A-CC19-6A65-
3F687FC9F7B1">
            <title>Response by tutor</title>
            <datatype datatype="text"/>
          </locpers-property>
          <loc-property identifier="LP-activity-2-completed-GUID-37E65BD4-077A-CC19-6A65-3F687FC9F7B1">
            <title>Activity Enter Initial Thoughts completed</title>
            <datatype datatype="boolean"/>
            <initial-value>>false</initial-value>
          </loc-property>
          <locpers-property identifier="LP-activity-3-completed-GUID-37E65BD4-077A-CC19-6A65-
3F687FC9F7B1">
            <title>Enter response to initial thoughts completed</title>
            <datatype datatype="boolean"/>
          </locpers-property>
        </properties>
      </learning-design>
    </imscp:organizations>
  </imscp:manifest>

```

```

    <initial-value>false</initial-value>
  </locpers-property>
</properties>
<activities>
  <learning-activity isvisible="true" identifier="LA-introduction">
    <title>Introduction</title>
    <activity-description>
      <item identifier="I-introduction-a" identifierref="R-dummy">
        <title>What</title>
      </item>
      <item identifier="I-introduction-b" identifierref="R-dummy">
        <title>Why</title>
      </item>
      <item identifier="I-introduction-c" identifierref="R-dummy">
        <title>When</title>
      </item>
    </activity-description>
    <complete-activity>
      <user-choice/>
    </complete-activity>
    <metadata>
      <schema>EML</schema>
      <schemaversion>1.1</schemaversion>
      <emlmd:typical-learning-time>10 minutes</emlmd:typical-learning-time>
      <emlmd:description>
        <emlmd:langstring>An introductory text that learners should read explaining the what, why and
when of the course.</emlmd:langstring>
      </emlmd:description>
    </metadata>
  </learning-activity>
  <learning-activity isvisible="true" identifier="LA-enter-initial-thoughts">
    <title>Enter initial thoughts</title>
    <activity-description>
      <item identifier="I-enter-initial-thoughts" identifierref="R-initial-thoughts">
        <title>Consider what you think is greatness</title>
      </item>
    </activity-description>
    <complete-activity>
      <when-property-value-is-set>
        <property-ref ref="LP-activity-2-completed-GUID-37E65BD4-077A-CC19-6A65-
3F687FC9F7B1"/>
        <property-value>true</property-value>
      </when-property-value-is-set>
    </complete-activity>
    <metadata>
      <schema>EML</schema>
      <schemaversion>1.1</schemaversion>
      <emlmd:typical-learning-time>1 hour</emlmd:typical-learning-time>
      <emlmd:description>
        <emlmd:langstring>Learners are asked to consider what they think is greatness and enter those
thoughts in a text box.</emlmd:langstring>
      </emlmd:description>
    </metadata>
  </learning-activity>
  <learning-activity isvisible="false" identifier="LA-respond-to-others">
    <title>Respond to the thoughts of others</title>
    <activity-description>
      <item identifier="I-respond-to-others-1" identifierref="R-dummy">
        <title>What</title>
      </item>
      <item identifier="I-respond-to-others-2" identifierref="R-response-to-initial-thoughts-form">
        <title>Enter your response</title>
      </item>
    </activity-description>
    <complete-activity>
      <when-property-value-is-set>
        <property-ref ref="LP-activity-3-completed-GUID-37E65BD4-077A-CC19-6A65-
3F687FC9F7B1"/>
        <property-value>true</property-value>
      </when-property-value-is-set>
    </complete-activity>
    <metadata>

```

```

        <schema>EML</schema>
        <schemaversion>1.1</schemaversion>
        <emlmd:typical-learning-time>1 hour</emlmd:typical-learning-time>
        <emlmd:description>
          <emlmd:langstring>Learners are asked to read the initial thoughts by others and respond to
them.</emlmd:langstring>
        </emlmd:description>
      </metadata>
    </learning-activity>
    <activity-structure identifier="AS-first-step" structure-type="sequence">
      <title>First considerations</title>
      <information>
        <item identifierref="R-Info-AS-first-step"/>
      </information>
      <environment-ref ref="E-wig-general-environment"/>
      <learning-activity-ref ref="LA-introduction"/>
      <learning-activity-ref ref="LA-enter-initial-thoughts"/>
      <metadata>
        <schema>EML</schema>
        <schemaversion>1.1</schemaversion>
        <emlmd:description>
          <emlmd:langstring>The first two activities of the course consist of reading an introduction text
and entering initial thoughts.</emlmd:langstring>
        </emlmd:description>
      </metadata>
    </activity-structure>
    <activity-structure identifier="AS-second-step" structure-type="sequence">
      <title>What do others think?</title>
      <information>
        <item identifierref="R-Info-AS-second-step"/>
      </information>
      <environment-ref ref="E-wig-general-environment"/>
      <environment-ref ref="E-overview-thoughts"/>
      <environment-ref ref="E-response-by-tutor"/>
      <learning-activity-ref ref="LA-respond-to-others"/>
    </activity-structure>
    <support-activity identifier="SA-first-step" isvisible="true">
      <title>Monitor the initial thoughts</title>
      <environment-ref ref="E-wig-general-environment"/>
      <environment-ref ref="E-overview-responses"/>
      <activity-description>
        <item identifier="I-sa-first-step" identifierref="R-set-activity2-complete">
          <title>Set the activity to completed</title>
        </item>
      </activity-description>
      <complete-activity>
        <when-property-value-is-set>
          <property-ref ref="LP-activity-2-completed-GUID-37E65BD4-077A-CC19-6A65-
3F687FC9F7B1"/>
          <property-value>true</property-value>
        </when-property-value-is-set>
      </complete-activity>
    </support-activity>
    <support-activity identifier="SA-respond" isvisible="true">
      <title>Respond to initial thoughts</title>
      <role-ref ref="Learner"/>
      <environment-ref ref="E-wig-general-environment"/>
      <environment-ref ref="E-overview-responses"/>
      <activity-description>
        <item identifierref="R-response-to-initial-thoughts-form-tutor"/>
      </activity-description>
    </support-activity>
  </activities>
  <environments>
    <environment identifier="E-wig-general-environment">
      <title>General environment</title>
      <learning-object identifier="lo-E-wig-general-environment">
        <title>General resources</title>
        <item identifier="I-1-wig-general-environment" identifierref="R-dummy">
          <title>Introduction</title>
        </item>
        <item identifier="I-2-wig-general-environment" identifierref="R-dummy-2">

```

```

        <title>Examples</title>
      </item>
    </learning-object>
  </environment>
  <environment identifier="E-overview-thoughts">
    <title>Overview of initial thoughts</title>
    <service identifier="S-overview-initial-thoughts">
      <monitor>
        <role-ref ref="Learner"/>
        <title>Initial thoughts</title>
        <item identifierref="R-initial-thoughts-overview"/>
        <metadata>
          <schema>EML</schema>
          <schemaversion>1.1</schemaversion>
          <emlmd:formal-title>
            <emlmd:langstring>Overview of initial thoughts</emlmd:langstring>
          </emlmd:formal-title>
        </metadata>
      </monitor>
    </service>
  </environment>
  <environment identifier="E-overview-responses">
    <title>Overview of thoughts and responses</title>
    <service identifier="S-overview-initial-thoughts-tutor">
      <monitor>
        <role-ref ref="Learner"/>
        <title>Initial Thoughts</title>
        <item identifierref="R-initial-thoughts-overview-tutor"/>
        <metadata>
          <schema>EML</schema>
          <schemaversion>1.1</schemaversion>
          <emlmd:formal-title>
            <emlmd:langstring>Overview of initial thoughts</emlmd:langstring>
          </emlmd:formal-title>
          <emlmd:description>
            <emlmd:langstring>Contains an overview of the initial thoughts of the learners. Note:
because this is a portfolio variable, there might be 'old' thoughts in here that have been entered during a previous run. This is
the Tutor role view, so it does include usernames.</emlmd:langstring>
          </emlmd:description>
        </metadata>
      </monitor>
    </service>
  <service identifier="S-overview-responses">
    <monitor>
      <role-ref ref="Learner"/>
      <title>Responses</title>
      <item identifierref="R-response-to-initial-thoughts-overview"/>
      <metadata>
        <schema>EML</schema>
        <schemaversion>1.1</schemaversion>
        <emlmd:formal-title>
          <emlmd:langstring>Overview of responses</emlmd:langstring>
        </emlmd:formal-title>
        <emlmd:description>
          <emlmd:langstring>Contains an overview of the repsonses by learners. Note: because
this is a portfolio variable, there might be 'old' thoughts in here that have been entered during a previous
run.</emlmd:langstring>
        </emlmd:description>
      </metadata>
    </monitor>
  </service>
</environment>
<environment identifier="E-response-by-tutor">
  <title>Response by tutor</title>
  <learning-object identifier="lo-E-response-by-tutor">
    <title>Response by tutor</title>
    <item identifierref="R-response-by-tutor"/>
  </learning-object>
</environment>
</environments>
</components>
</method>

```

```

<play identifier="P-1" isvisible="true">
  <title>What is Greatness - default play</title>
  <act identifier="A-1">
    <title>What is Greatness - Default act</title>
    <role-part identifier="RP-Learner-1">
      <title>First step</title>
      <role-ref ref="Learner"/>
      <activity-structure-ref ref="AS-first-step"/>
    </role-part>
    <role-part identifier="RP-Tutor-1">
      <title>Support activities for first step</title>
      <role-ref ref="Tutor"/>
      <support-activity-ref ref="SA-first-step"/>
    </role-part>
    <role-part identifier="RP-Learner-2">
      <title>Second step</title>
      <role-ref ref="Learner"/>
      <activity-structure-ref ref="AS-second-step"/>
    </role-part>
    <role-part identifier="RP-Tutor-2">
      <title>Support activities for second step</title>
      <role-ref ref="Tutor"/>
      <support-activity-ref ref="SA-respond"/>
    </role-part>
    <complete-act>
      <when-role-part-completed ref="RP-Tutor-2"/>
    </complete-act>
    <metadata>
      <schema>EML</schema>
      <schemaversion>1.1</schemaversion>
      <emlmd:formal-title>MD: What is Greatness - default act</emlmd:formal-title>
    </metadata>
  </act>
  <complete-play>
    <when-last-act-completed/>
  </complete-play>
  <metadata>
    <schema>EML</schema>
    <schemaversion>1.1</schemaversion>
    <emlmd:formal-title>MD: What is Greatness - default play</emlmd:formal-title>
  </metadata>
</play>
<complete-unit-of-learning>
  <when-play-completed ref="P-1"/>
</complete-unit-of-learning>
<conditions>
  <if>
    <not>
      <no-value>
        <property-ref ref="LP-tutor-comments-initial-thoughts-GUID-37E65BD4-077A-CC19-6A65-3F687FC9F7B1"/>
      </no-value>
    </not>
  </if>
  <then>
    <show>
      <environment-ref ref="E-response-by-tutor"/>
    </show>
  </then>
  <else>
    <hide>
      <environment-ref ref="E-response-by-tutor"/>
    </hide>
  </else>
  <if>
    <is>
      <property-ref ref="LP-activity-2-completed-GUID-37E65BD4-077A-CC19-6A65-3F687FC9F7B1"/>
      <property-value>true</property-value>
    </is>
  </if>
  <then>
    <show>

```

```

        <class class="C-Activity2-complete"/>
        <activity-structure-ref ref="AS-second-step"/>
        <support-activity-ref ref="SA-respond"/>
    </show>
    <hide>
        <class class="C-Activity2-not-complete"/>
    </hide>
</then>
<else>
    <show>
        <class class="C-Activity2-not-complete"/>
    </show>
    <hide>
        <class class="C-Activity2-complete"/>
        <activity-structure-ref ref="AS-second-step"/>
        <support-activity-ref ref="SA-respond"/>
    </hide>
</else>
<if>
    <complete>
        <learning-activity-ref ref="LA-respond-to-others"/>
    </complete>
</if>
<then>
    <show>
        <class class="C-Activity3-complete"/>
    </show>
    <hide>
        <class class="C-Activity3-not-complete"/>
    </hide>
</then>
<else>
    <show>
        <class class="C-Activity3-not-complete"/>
    </show>
    <hide>
        <class class="C-Activity3-complete"/>
    </hide>
</else>
</conditions>
</method>
<metadata>
    <schema>EML</schema>
    <schemaversion>1.1</schemaversion>
    <emlmd:formal-title>
        <emlmd:langstring>What is Greatness</emlmd:langstring>
        <emlmd:langstring>Doing it the hard way</emlmd:langstring>
    </emlmd:formal-title>
    <emlmd:creator>Drs. P.J.B. Gorissen</emlmd:creator>
    <emlmd:creator>Based on the original Use-Case by James Dalziel</emlmd:creator>
    <emlmd:date>2003-09-02</emlmd:date>
    <emlmd:language>en</emlmd:language>
    <emlmd:typical-learning-time>2 hours and 10 minutes</emlmd:typical-learning-time>
    <emlmd:rights>
        <emlmd:langstring>2003</emlmd:langstring>
        <emlmd:langstring>Open Universiteit Nederland (OUNL)</emlmd:langstring>
        <emlmd:langstring>This example can be re-used without permission as long as the original copyright
statement is retained in the source</emlmd:langstring>
    </emlmd:rights>
    <emlmd:description>
        <emlmd:langstring>An example of how to create a Unit of Learning using EML 1.1</emlmd:langstring>
    </emlmd:description>
</metadata>
</learning-design>
</imscp:organizations>
<imscp:resources>
    <imscp:resource identifier="R-prerequisites" type="webcontent" href="prerequisites.xml">
        <imscp:file href="prerequisites.xml"/>
    </imscp:resource>
    <imscp:resource identifier="R-learning-objectives" type="webcontent" href="learning-objectives.xml">
        <imscp:file href="learning-objectives.xml"/>
    </imscp:resource>

```

```

<imscp:resource identifier="R-information-for-learner" type="webcontent" href="dummy.xml">
  <imscp:file href="dummy.xml"/>
</imscp:resource>
<imscp:resource identifier="R-information-for-tutor" type="webcontent" href="dummy.xml">
  <imscp:file href="dummy.xml"/>
</imscp:resource>
<imscp:resource identifier="R-dummy" type="webcontent" href="dummy.xml">
  <imscp:file href="dummy.xml"/>
</imscp:resource>
<imscp:resource identifier="R-dummy-2" type="webcontent" href="dummy2.xml">
  <imscp:file href="dummy2.xml"/>
  <imscp:file href="einstein.gif"/>
</imscp:resource>
<imscp:resource identifier="R-Info-AS-first-step" type="webcontent" href="activity-seq1-info.xml">
  <imscp:file href="activity-seq1-info.xml"/>
  <imscp:file href="einstein2.gif"/>
</imscp:resource>
<imscp:resource identifier="R-Info-AS-second-step" type="webcontent" href="activity-seq2-info.xml">
  <imscp:file href="activity-seq2-info.xml"/>
  <imscp:file href="pencils.jpg"/>
</imscp:resource>
<imscp:resource identifier="R-initial-thoughts" type="imsldcontent" href="initial-thoughts-form.xml">
  <imscp:file href="initial-thoughts-form.xml"/>
</imscp:resource>
<imscp:resource identifier="R-set-activity2-complete" type="imsldcontent" href="set-activity2-complete.xml">
  <imscp:file href="set-activity2-complete.xml"/>
</imscp:resource>
<imscp:resource identifier="R-initial-thoughts-overview" type="imsldcontent" href="initial-thoughts-overview.xml">
  <imscp:file href="initial-thoughts-overview.xml"/>
</imscp:resource>
<imscp:resource identifier="R-initial-thoughts-overview-tutor" type="imsldcontent" href="initial-thoughts-overview-
tutor.xml">
  <imscp:file href="initial-thoughts-overview-tutor.xml"/>
</imscp:resource>
<imscp:resource identifier="R-response-to-initial-thoughts-form" type="imsldcontent" href="response-to-initial-thoughts-
form.xml">
  <imscp:file href="response-to-initial-thoughts-form.xml"/>
</imscp:resource>
<imscp:resource identifier="R-response-to-initial-thoughts-overview" type="imsldcontent" href="responses-
overview.xml">
  <imscp:file href="responses-overview.xml"/>
</imscp:resource>
<imscp:resource identifier="R-response-by-tutor" type="imsldcontent" href="initial-thoughts-tutor-comments.xml">
  <imscp:file href="initial-thoughts-tutor-comments.xml"/>
</imscp:resource>
<imscp:resource identifier="R-response-to-initial-thoughts-form-tutor" type="imsldcontent" href="initial-thoughts-tutor-
form.xml">
  <imscp:file href="initial-thoughts-tutor-form.xml"/>
</imscp:resource>
</imscp:resources>
</imscp:manifest>

```

**Table 22 Full listing of unit of learning**

## Appendix 2 Selected listings of resource files

### A 2.1 initial-thoughts-form.xml

This resource is used by the learners to enter their initial thoughts.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns:ld="http://www.imsglobal.org/xsd/imsld_v1p0" xmlns="http://www.w3.org/1999/xhtml">
  <head>
    <title>Enter some initial thoughts regarding what is greatness</title>
  </head>
  <body>
    <div class="C-Activity2-not-complete block-in-flow">
      <p>Please enter your initial thoughts about what you think is greatness.</p>
      <ld:set-property ref="GP-initial-thoughts-GUID-37E65BD4-077A-CC19-6A65-3F687FC9F7B1"/>
    </div>
    <div class="C-Activity2-complete block-in-flow">
      <p>You entered these initial thoughts:</p>
      <table border="0" width="50%" cellspacing="1" cellpadding="0">
        <tr>
          <td>
            <ld:view-property href="GP-initial-thoughts-GUID-37E65BD4-077A-CC19-6A65-3F687FC9F7B1"
property-of="self" view="value"/>
          </td>
        </tr>
      </table>
    </div>
    <div class="C-Activity2-complete in-flow">The activity has been completed by the tutor.</div>
  </body>
</html>
```

**Table 23** initial-thoughts-form.xml

As you can see, the file contains the classes *C-activity2-complete* and *C-activity2-not-complete*. Visibility of the classes is set in the conditions section of the unit of learning (see Table 17 on page 20). While the activity hasn't been set to completed (only the class *C-activity2-not-complete* is visible then), the `<set-property>` element causes The player to render a form with text area element and ok-button enabling the learner to enter, and if needed, change his/her initial thoughts. The thoughts are then stored in the global personal property *GP-initial-thoughts-GUID-37E65BD4-077A-CC19-6A65-3F687FC9F7B1*. If that property already has a value, that value is shown when the form is being displayed en written over when the form is (re-)submitted.

After the activity has been completed, only the class *C-activity2-completed* is visible. That causes the form to become invisible and it is replaced by a table showing the contents of the *GP-initial-thoughts-GUID-37E65BD4-077A-CC19-6A65-3F687FC9F7B1* property (read-only). It also set the text "The activity has been completed by the tutor" to visible.

The file uses the cascading effect of the class property in XHTML to also add the *block-in-flow* or *in-flow* style to the `<div>` element. In XHTML a browser, and thus the player, is supposed to cascade styles with the later ones taking precedence over previous ones. The *block-in-flow* style causes the text to be displayed as a text box using a different background, different coloring etc, while the *in-flow* style (which is the default style for all text displayed in the player) just applies the default fonts etc. to the text.

This structure of combining `<view-property>` and `<set-property>` elements in the same resource file with the visibility controlled by class-visibility is also used in many of the other resources.

## A 2.2 responses-overview.xml

The resource responses-overview.xml gives an overview of all the initial responses by the learners with their username. It is used for the service that gives the overview of the initial thoughts (*S-overview-initial-thoughts*) in the environment *E-overview-thoughts* (see Table 13 on page 18 for a listing of the LD structure used). Figure 8 on page 9 shows a screenshot of the rendered page in The player.

As you can see, the table in the XHTML file only contains a header row and a single table row with the <view-property> elements. Rendering of the additional rows needed for all learners is handled by The player.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns:ld="http://www.imsglobal.org/xsd/imslid_v1p0" xmlns="http://www.w3.org/1999/xhtml">
  <head>
    <title>The intital thoughts</title>
  </head>
  <body>
    <table border="0" width="50%" cellspacing="1" cellpadding="0">
      <tr>
        <th>Learner</th>
        <th>Overview of the responses to the initial thoughts</th>
      </tr>
      <tr>
        <td>
          <ld:view-property ref="GP-username"/>
        </td>
        <td>
          <ld:view-property ref="GP-response-to-initial-thoughts-GUID-37E65BD4-077A-CC19-6A65-3F687FC9F7B1"/>
        </td>
      </tr>
    </table>
  </body>
</html>
```

**Table 24** responses-overview.xml