XQuestion - QTI Element Support

Version 1.0

3.1 <questestinterop>

This is supported once or zero times. It must contain one <assessment>, or one <objectbank>, or it may contain multiple sections and items which will be made available as an objectbank.

Elements:
- <objectbank> - yes.
- <assessment> - yes.
- <section> - yes, supported as objectbank.
- <item> - yes, supported as objectbank

3.2 <objectbank>

This is supported once in <questestinterop>.
Attributes:
- ident – no, it is unclear how this is to be referenced.

Elements:
- qtimetadata – no
- section – yes
- item – yes

3.3 <assessment>
This is supported once in <questestinterop>.

Attributes:
- ident – yes, this should be unique, it will be reported in the responses document.
- title – no, this is only for use in authoring.
- xml:lang – yes, any material in the assessment without a language specified will default to this language.

Elements:
- <duration> - yes
- <qtimetadata> - no
- <objectives> - yes
- <assessmentcontrol> - yes
- <rubric> - yes
- <presentation_material> - yes
- <outcomes_processing> - yes, see external document for support of this element
- <assessproc_extension> - no, no extensions known yet
- <assessfeedback> - yes
- <selection_ordering> - no
- <reference> - yes
- <section_ref> - yes
- <section> - yes

3.3.6 <assessmentcontrol>
This is supported zero or more times inside <assessment>.

Attributes:
- view – yes, this has a default of 'All'. If it is not specified, this element is considered to apply to all. <assessmentcontrol> with view value 'All' or not specified are always applied first, regardless of the order in which they appear in the XML.
- solutionswitch – yes, This has a default of 'Yes', but defaults are not applied to overwrite values where values are not specified.
- hintswitch – yes, This has a default of 'Yes', but defaults are not applied to overwrite values where values are not specified.
- feedbackswitch – yes, This has a default of 'Yes', but defaults are not applied to overwrite values where values are not specified.

3.3.10 <assessfeedback>
This is supported zero or more times inside <assessment>.

Attributes:
- Ident – yes, this must be matched in <displayfeedback>. There are two special values that can be applied for this element. If ident='sendingresponses', then at the end of the assessment, the results will be sent to the URL specified in the flash query string, 'sendURL'. If ident='finished', then at the end of the assessment, the contents of this screen will be displayed while the browser is being redirected to the URL specified in the flash query string 'forwardURL'. Where either of these assessfeedbacks are present they are always shown after regular assessment feedback has been shown and they are not available for use with <displayfeedback> in <outcomes_processing>.

- title – no, this is for use in authoring
- view – yes, only the specified viewer will be presented with this feedback

Elements:
- <material> - yes
- <flow_mat> - yes

3.4 <section>
This is supported zero or more times in <assessment> and in <section>.

Attributes:
- ident – yes, this should be unique, it will be reported in the responses document.
- title – no, no appropriate place found for this attribute, used for authoring
- xml:lang – yes, any material in the section without a language specified will default to this language.

Elements:
- <duration> - yes
- <qtimetadata> - no
- <sectionprecondition> - no, this is for further study in V2
- <sectionpostcondition> - no, this is for further study in V2
- <objectives> - yes
- <sectioncontrol> - yes
- <rubric> - yes
- <presentation_material> - yes
- <outcomes_processing> - yes, see external document for support of this element
- <sectionproc_extension> - no, no extensions known yet
- <sectionfeedback> - yes
- <selection_ordering> - no
- <reference> - yes
- <section_ref> - yes
- <section> - yes
- <item_ref> - yes
- <item> - yes

3.4.8 <sectioncontrol>
This is supported zero or more times inside <section>.

Attributes:
- view – yes, this has a default of 'All'. If it is not specified, this element is considered to apply to all. <sectioncontrol> with view value 'All' or not specified are always applied first, regardless of the order in which they appear in the XML.
- solutionswitch – yes, This has a default of 'Yes', but defaults are not applied to overwrite values where values are not specified.
- hintswitch – yes, This has a default of 'Yes', but defaults are not applied to overwrite values where values are not specified.
- feedbackswitch – yes, This has a default of 'Yes', but defaults are not applied to overwrite values where values are not specified.

3.4.12 <sectionfeedback>
This is supported zero or more times inside <section>.

Attributes:
- ident – yes, this must be matched in <displayfeedback>.
- title – no, this is for use in authoring
- view – yes, only the specified viewer will be presented with this feedback

Elements:
- <material> - yes
- <flow_mat> - yes

3.5 <item>
This is supported zero or more times in <section>.

Attributes:
- maxattempts - no
- label – no, no suitable place for this, used in authoring
- ident – yes, this is present in the responses document
- title – no, no suitable place found for this, used in authoring
- xml:lang – yes, any material in the item without a language specified will default to this language.

Elements:
<duration> - yes
<itemmetadata> - no
<objectives> - yes
<itemcontrol> - yes
<itemprecondition> - no, this is for further study in v2
<itempostcondition> - no, this is for further study in v2
<itemrubric> - yes
<rubric> - yes
<presentation> - yes
<resprocessing> - yes
<itemproc_extension> - no, no extensions yet available
<itemfeedback> - yes

3.5.7 <itemcontrol>
This is supported zero or more times inside <item>.

Attributes:
- view – yes, this has a default of 'All'. If it is not specified, this element is considered to apply to all. <itemcontrol> with view value 'All' or not specified are always applied first, regardless of the order in which they appear in the XML.
- solutionswitch – yes, This has a default of 'Yes', but defaults are not applied to overwrite values where values are not specified.
- hintswitch – yes, This has a default of 'Yes', but defaults are not applied to overwrite values where values are not specified.
- feedbackswitch – yes, This has a default of 'Yes', but defaults are not applied to overwrite values where values are not specified.

3.5.8 <itemrubric>
This is supported zero, one or many times. Caution, this element is deprecated.

Attributes:
- view – yes

Elements:
- <material> - yes

3.5.10 <presentation>
This is supported zero or once within <item>. It is important to note here, that if x0 and y0 values are provided, it does not change the point of reference for materials that are containted. The point of reference is always the item. This is so that x0 in a matimage in a presentation is equivalent to the location of x0 in a matimage in a feedback or objectives.

Attributes:
- label – no, this is for use in authoring tools
- width – yes
- height – yes
- x0 – yes
- y0 – yes
- xml:lang – yes, any material in the presentation without a language specified will default to this language.

Elements:
- <flow> - yes
- <material> - yes
- <response_lid> - yes
- <response_xy> - no
- <response_str> - yes
- <response_num> - no
- <response_grp> - no
- <response_extension> - no extensions supported yet

3.5.10 <flow>
This is supported zero or more times within <presentation> and <flow>.

Attributes:
- Class – yes, default "Block". Style document should always have a 'Block' style. Only the flow elements have defaults. For other elements where class is not specified, it is assumed that its parent's class is to be used.

Elements:
- <flow> - yes
- <material> - yes
- <material_ref> - yes
- <response_lid> - yes
- <response_xy> - no
- <response_str> - yes
- <response_num> - no
- <response_grp> - no
- <response_extension> - no extensions supported yet

3.5.12 <response_lid>
Yes, this is supported zero or more times within <presentation> and <flow>.

Attributes:
- ident – yes, this shows up on the responses document
- rcardinality – no, minnumber and maxnumber in the render element are used to identify this more clearly. Responses are always returned 'Ordered'. The responses are always ordered as they were selected.
- rtiming – no, only item timing is supported.

Elements:
- <material> - yes
- <material_ref> - yes
- <render_choice> - yes
- <render_hotspot> - no
- <render_slider> - no, not very useful
- <render_fib> - no, not very sensible
- <render_extension> - no, no extensions yet supported

3.5.14 <response_str>
Yes, this is supported zero or more times within <presentation> and <flow>.

Attributes:
- ident – yes, this shows up on the responses document
- rcardinality – no
- rtiming – no, only item timing is supported.

Elements:
- <material> - yes
- <material_ref> - yes
- <render_choice> - no
- <render_hotspot> - no
- <render_slider> - nol
- <render_fib> - yes
- <render_extension> - no, no extensions yet supported

3.5.17 <render_choice>
Yes, this is supported once in <response_lid>

Attributes:
- shuffle – yes, the response_labels will be jumbled around, even if they are contained within flows. This jumble takes place once, statically, not dynamically in the flash, so the test produced will always have the response_labels in the same locations. Default is "No", must set to "Yes" to activate.
- minnumber – yes, this is the minimum number of options that need to be chosen before this response can be considered to be 'fully answered'.
- maxnumber – yes, the user cannot select more choices than this number.

Elements:
- <material> – yes
- <material_ref> – yes
- <response_label> – yes
- <flow_label> – yes
- <response_na> – no

3.5.17 <render_fib>
Yes, this is supported once in <response_str>

Attributes:
- charset – yes, the characters specified by the charset are guaranteed to be available.
- encoding – no, UTF-8 always used.
- rows - yes
- columns – yes
- maxchars – yes
- prompt – Box and Asterisk supported.
- fibtype – no.
- minnumber – no.
- maxnumber – no.

Elements:
- <material> – yes
- <material_ref> – yes
- <response_label> – yes
- <flow_label> – yes
- <response_na> – no

3.5.21 <response_label>

Attributes:
- labelrefid – no, this is deprecated
- ident – yes, this is required for resprocessing
- rshuffle – yes, a particular response label will stay fixed in location if this is set to 'No', even if the other response_labels are shuffled.
- rarea – no, not applicable in multiple choice questions
- rrange – no, not applicable in multiple choice questions
- match_group – no, not applicable in multiple choice questions
- match_max - no not applicable in multiple choice questions

Elements:
- <material> - yes
- <material_ref> - yes
- <flow_mat> - yes

3.5.22 <flow_label>

Attributes:
- class – yes, default "Block". Style document should always have a 'Block' style. Only the flow elements have defaults. For other elements where class is not specified, it is assumed that its parent's class is to be used.

Elements:
- <flow_label> - yes
- <response_label> - yes

3.5.23 <resprocessing>

This is supported zero or multiple times. Each <resprocessing> present is processed independently of any preceeding <resprocessing>. Where the same variable is defined in more than one <resprocessing>, they are summed to provide the value of that variable for <outcomesprocessing>.

There is a slight ambiguity in the specification regarding the use of the continue attribute of <respcondition>. Where "continue" is "No", no further <respcondition> in the same <resprocessing> will be evaluated, but <respcondition> elements in any subsequent <resprocessing> will be evaluated.

Attributes:
- scoremodel – This is a deprecated attribute and is not supported.

Elements:

- <outcomes> – yes
- <respcondition> – yes
- <itemproc_extension> – no extensions currently supported.

3.5.24 <outcomes>

This must appear once within the resprocessing element. A "SCORE" decvar is always provided whether it is present in the XML or not.

Attributes: None

Elements:

- <decvar> – yes
- <interpretvar> - not supported. No suitable location identifed for on-screen placement of this material.

3.5.25 <respcondition>

Attributes:
- title – no, this is used in authoring
- continue – yes. Be careful, this defaults to 'No' rather than 'Yes', this is an easy source for authoring error.

Elements:
- <conditionvar> - yes
- <setvar> - yes
- <displayfeedback> - yes
- <respcond_extension> - no extensions currently supported.

3.5.27 <itemfeedback>
This is supported zero or more times inside <section>.

Attributes:
- ident – yes, this must be matched in <displayfeedback>.
- title – no, this is for use in authoring
- view – yes, only the specified viewer will be presented with this feedback

Elements:
- <material> - yes
- <flow_mat> - yes
- <solution> - yes
- <hint> - yes

3.5.28 <solution>
This is supported zero or more times.

Attributes
- feedbackstyle – no, this is not well specified.

Elements
- <solutionmaterial> - yes

3.5.29 <solutionmaterial>
This is supported one or more times.

Elements
- <flow_mat> - yes
- <material> - yes

3.5.30 <hint>
This is supported zero or more times.

Attributes
- feedbackstyle – no, this is not well specified.

Elements
- <hintmaterial> - yes

3.5.31 <hintmaterial>
This is supported one or more times.

Elements
- <flow_mat> - yes
- <material> - yes

3.6.3 <material>
This is supported in numerous elements, zero or more times.

Attributes:
- label, no, this is for use in authoring systems.
- xml:lang, yes, the material will only be displayed if this language matches the language for which the assessment is being rendered. If this is left blank, it inherits from the language of the presentation/item/section/assessment that contains it.

Elements:
- <mattext> - yes
- <matemtext> - yes
- <matimage> - yes
- <mataudio> - yes, application/x-shockwave-flash supported
- <matvideo> - yes, application/x-shockwave-flash supported
- <matapplet> - yes, application/x-shockwave-flash supported
- <matapplication> - yes, application/x-shockwave-flash supported
- <matref> - yes
- <matbreak> - yes
- <mat_extension> - no
- <alt_material> - no

3.6.5 <mattext>
This is supported zero or more times in <material>.

Attributes:
- text/type – yes, text/plain and text/html supported
- charset – no - Unicode is supported. All text is treated as unicode.
- label – no, used in authoring
- uri – no
- entityref – no
- width – yes
- height – no – cannot compel text to be of a certain height, height of text is dependent on width, pointsize and amount of text
- x0 – yes
- y0 – yes
- xml:lang – no – only relevant at the material level
- xml:space – yes

3.6.6 <matemtext>
This is supported as <mattext>, 3.6.5

3.6.7 <matbreak>
This is supported zero or more times in <material>.

3.6.8 <matimage>
This is supported zero or more times in <material>.

Attributes:
- imagtype – yes, can be image/gif or image/jpeg or application/x-shockwave-flash. Does not need to be present. Imagetype will be guessed from .gif, .jpg or .swf at end of file name.
- label – yes, this is used to identify the image for screenreaders
- uri – yes
- entityref – no
- width – yes
- height – yes
- x0 – yes
- y0 - yes
- embedded - no

3.6.13 <matref>
This is supported zero or more times in the <material> element.

Attributes:
- linkrefid - yes

3.6.15 <flow_mat>
This is supported zero or more times.

Attributes:
- Class – yes, default "Block". Style document should always have a 'Block' style. Only the flow elements have defaults. For other elements where class is not specified, it is assumed that its parent's class is to be used.

Elements:
- <flow_mat> - yes
- <material> - yes
- <material_ref> - yes

3.6.17 <objectives>

This is supported zero or more times. Objectives are displayed on their own page with navigation buttons.

Attributes:
- view – yes, the objectives will only be displayed to the appropriate viewer.

Elements:
- <material> - yes
- <flow_mat> - yes

3.6.18 <rubric>

This is supported zero or more times. Rubrics are displayed for the duration of the time that their containing element is displayed.

Attributes:
- view – yes, the objectives will only be displayed to the appropriate viewer.

Elements:
- <material> - yes
- <flow_mat> - yes

3.6.19 <decvar>

This is supported zero or more times. A decvar of type "Integer" with a name "SCORE" and defaultval of 0 is automatically provided. If a decvar with the name "SCORE" is present, it will overwrite the defaultval of 0 with its value.

Attributes:

- varname – yes, case sensitive. "SCORE" is not the same as "score"
- vartype – yes, all types, String, Decimal, Scientific, Boolean, Enumerated and Integer are supported. If an incorrect, misspelled or case-incorrect type is provided, this will default to Integer.
- defaultval – yes, if this is not provided then the following are used "" for String, 0.0 for Decimal, 0.0 for Scientific, false for Boolean and 0 for Integer. The first value of the enumeration members is used where the type is Enumerated. If there are no members, the defaultval is set to "".
- cutvalue – no, there is no useful way defined to use this information yet, this may be tied in with ADL mastery concepts at a later date. It may be more useful when applied to a section or assessment than an Item.
- maxvalue – yes, the numerical value will not be permitted to be above this number after resprocessing
- minvalue – yes, the numerical value will not be permitted to be below this number after resprocessing
- members – yes, where there is an enumeration, only values described by this attribute may be set.

3.6.20 <interpretvar>

Not supported. This is a piece of material and no suitable location has been identifed for on-screen placement of this material.

3.6.21 <setvar>
This is supported zero or more times.

Attributes.
- varname – yes, this is case sensitive. Must be the same as variable it is acting upon.
- action – yes. Set, Add, Subtract, Divide, Multiply are supported for variables of type Integer, Decimal, Scientific and Boolean. Set and Add are supported for String and Enumerated. Boolean aritmetic (Modulo 2 Arithmetic) is used for operations on Boolean values.

3.6.22 <displayfeedback>
This is supported zero or more times.

Attributes.
- feedbacktype – yes, this can be 'Response', 'Solution' or 'Hint'. This defines which part of the feedback to show. Only the part specified will be displayed. If no part is specified, Response is the default and only the response part is shown. If itemcontrol, sectioncontrol or assessmentcontrol has defined that this particular view cannot view the type of feedback specified then the feedback will not be shown.
- linkrefid – yes. Case sensitive. This should correspond with a feedback, either itemfeedback, sectionfeedback or assessfeedback.

3.6.23 <conditionvar>
Conditionvar must be present once. It is treated like an 'And' type – all of the conditions contained within must be true for conditionvar to evaluate to true.

Elements.
- <not> - yes
- <and> - yes
- <or> - yes
- <unanswered> - yes
- <other> - yes
- <varequal> - yes
- <varlt> - yes
- <varlte> - yes
- <vargt> - yes
- <vargte> - yes
- <varsubset> - yes
- <varinside> - no
- <varsubstring> - yes
- <durequal> - yes
- <durlte> - yes
- <durgt> - yes
- <durgte> - yes
- <var_extension> - no

3.6.23.1 <varequal>
This is supported zero or multiple times.

Attributes
- respident – yes, case-sensitive
- case – yes. Be careful, this defaults to 'Yescase', differently to varsubstring, Possible values, Yescase, Nocase. 'Yes','No','yes','no','yescase' and 'nocase' are also accepted, although not strictly correct.
- index – supported. Used where multiple answers are returned

3.6.23.2 <varlt>
This is supported zero or multiple times.

Attributes
- respident – yes, case-sensitive
- index – supported. Used where multiple answers are returned

3.6.23.3 <varlte>
This is supported zero or multiple times.

Attributes
- respident – yes, case-sensitive
- index – supported. Used where multiple answers are returned

3.6.23.4 <vargt>
This is supported zero or multiple times.

Attributes
- respident – yes, case-sensitive
- index – supported. Used where multiple answers are returned

3.6.23.5 <vargte>
This is supported zero or multiple times.

Attributes
- respident – yes, case-sensitive
- index – supported. Used where multiple answers are returned

3.6.23.6 <varsubset>
This is supported zero or multiple times. It is interpreted to mean that a set is provided in this element and that if the response is any of the values in that set then it returns true. Otherwise it returns false.

*It is recommended that this element is not used as it specified vaguely and is open to wide range of interpretation. It is safer for the author to use other elements which can form a superset of any of the possible interpretations of this element.

Attributes
- respident – yes, case-sensitive
- index – supported. Used where multiple answers are returned.
- setmatch –supported, this is interpreted to mean that the value must match one of the values provided in a case-sensitive manner.

3.6.23.7 <varsubstring>

This is supported zero or multiple times. The value defined in this tag must be contained in the response to evaluate to true.

Attributes
- respident – yes, case-sensitive
- case – yes. Be careful, this defaults to 'No', differently to varequals, Possible values, Yes, No.
- index – supported. Used where multiple answers are returned

3.6.23.8 <varinside>

- Not supported yet – this element is useful for drag and drop style questions. These types of questions aren't supported yet.

3.6.23.9 <durequal>

This is supported zero or multiple times. Unclear whether this can be useful, it is very unlikely exact period of time will be matched.

*It is recommended that this element is not used. For it to be useful a margin of error needs to be defined in the specification. ie duration = 5 seconds +/- 1 second

Attributes
- respident – yes, this must be present and correspond to one of the responses, however the duration measures the time taken to attempt the item as a whole.
- index – this can be present, and the condition will only be evaluated if the index required is present, otherwise it will evaluate to false

3.6.23.10 <durlt>

This is supported zero or multiple times.

Attributes
- respident – yes, this must be present and correspond to one of the responses, however the duration measures the time taken to attempt the item as a whole.
- index – this can be present, and the condition will only be evaluated if the index required is present, otherwise it will evaluate to false

3.6.23.11 <durlte>

This is supported zero or multiple times.

Attributes
- respident – yes, this must be present and correspond to one of the responses, however the duration measures the time taken to attempt the item as a whole.
- index – this can be present, and the condition will only be evaluated if the index required is present, otherwise it will evaluate to false

3.6.23.12 <durgt>
This is supported zero or multiple times.

Attributes
- respident – yes, this must be present and correspond to one of the responses, however the duration measures the time taken to attempt the item as a whole.
- index – this can be present, and the condition will only be evaluated if the index required is present, otherwise it will evaluate to false

3.6.23.13 <durgte>
This is supported zero or multiple times.

Attributes
- respident – yes, this must be present and correspond to one of the responses, however the duration measures the time taken to attempt the item as a whole.
- index – this can be present, and the condition will only be evaluated if the index required is present, otherwise it will evaluate to false

3.6.23.14 <not>
This is supported zero or multiple times. Inverts the outcome. Where there are many elements contained, there is an implied 'and' applied to the elements before not is applied. If no elements are contained, this evaluates as true.

Elements
- supported as per conditionvar

3.6.23.15 <and>
This is supported zero or multiple times. If no contained elements evaluate to false, this evaluates as true. If there are no elements contained, this evaluates as true.

Elements
- supported as per conditionvar

3.6.23.16 <or>
This is supported zero or multiple times. If any contained element evaluates to true, this evaluates as true. If there are no elements contained, this evaluates as false.

Elements
- supported as per conditionvar

3.6.23.17 <unanswered>

This is supported and reports true when no value has been entered for a response. Care should be taken with FIB, Slider and Drag questions where "" or default values might be regarded as an appropriate response.

Attributes
- respident – yes, case-sensitive

3.6.23.18 <other>

This is supported zero or more times. This always evaluates to true. This should not always evaluate to true, but the specification is too vague for a meaningful implementation.

*It is recommended that this element is not used as it specified vaguely and is open to wide range of interpretation.

3.6.24 <presentation_material>

Yes, this is supported zero or once in <assessment> and <section>.

Elements:
<flow_mat> - yes

3.6.25 <reference>

This is supported once in <assessment>, <section> or <item>. Reference is present in the schema for item, but not in the binding document. Be careful about using this in <item>.

Elements:
- <mattext> - yes
- <matemtext> - yes
- <matimage> - yes
- <mataudio> - yes
- <matvideo> - yes
- <matapplet> - yes
- <matapplication> - yes
- <matbreak> - yes – doesn't have label so is not referencable.
- <mat_extension> - yes, any extensions will be passed through

3.3.26 <material_ref>
This is supported zero or more times.

Attributes:
- Linkrefid – yes, this references a label rather than an id.