

# VU Research Portal

## Evaluation of Quality of Inquiries Instrument for Pre-university Science Students

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## Checklist

**HAVE I DONE EVERYTHING?**

Use the checklist to see  
whether all actions  
have been carried out

The checklist on the following pages has been prepared to check what actions you should think of when preparing and performing an inquiry. By using the checklist, you can see whether you have carried out all relevant actions regarding your inquiry.

Check whether you have performed all actions

## HAVE I DONE EVERYTHING?

### Colophon

This checklist is initially written in Dutch and has been translated into English for publication purposes.

CHECKLIST: HAVE I DONE EVERYTHING? was developed during the PhD study by Saskia van der Jagt on *Learning to inquire in the science subjects at pre-university level*. This checklist is a component of the Evaluating the Quality of Inquiries (EQI) instrument. The other two components are an ARV card and a set of rubrics. The EQI instrument can be used with the accompanying learning materials (general science inquiry unit, biology inquiry unit and physics inquiry unit).

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## HAVE I DONE EVERYTHING?

Check whether you have performed all actions

The first column contains descriptions about actions in your inquiry.  
Tick the box after each description (in each row) that is applicable to your inquiry plan.

<b>PREPARATION OF INQUIRY</b>	<b>Fully described in inquiry plan</b>	<b>Partly described in inquiry plan</b>	<b>Not described in inquiry plan</b>	<b>Inapplicable to this inquiry plan</b>
<b>VALIDITY</b> DOES THE INQUIRY PLAN CONTAIN...				
...the same independent and dependent variables in all parts?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...a theoretical framework?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...a univocal and defined inquiry question?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...a hypothesis that can be tested?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...a method with which the inquiry question can be answered?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...a method with which the hypothesis can be tested?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>RELIABILITY</b>				
Do you state other variables that could influence the measurements and observations and should be controlled?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you explain how the influence of other variables will be reduced?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## HAVE I DONE EVERYTHING?

Check whether you have performed all actions

Do you describe a control experiment to determine any influence of control variables?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you state how many times you will repeat the measurements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you describe how you will sample the population?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you describe another inquiry method with which you will try to get comparable results?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>ACCURACY</b>				
Have you planned to do the observations and measurements with several, independent observers, with whom you will speak in advance about the inquiry method?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have you explained how you will do the observations and measurement in an objective way?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have you explained how you will do the observations and measurement in a systematic way?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do the measuring instruments have an adequate measuring range (between minimum and maximum expected measuring rates)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are the measuring instruments accurate enough?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Do you have ticks in the column above? Change your inquiry plan!	Do you have ticks in the column above? Change your inquiry plan!	

## HAVE I DONE EVERYTHING?

Check whether you have performed all actions

The first column contains descriptions about actions in your inquiry.  
Tick the box after each description (in each row) that is applicable to your performed inquiry.

<b>PERFORMANCE OF INQUIRY</b>	<b>Yes</b>	<b>Partly</b>	<b>No</b>	<b>Inapplicable to this inquiry</b>
<b>VALIDITY</b>				
Have you investigated the independent variable(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have you measured the dependent variable(s) with appropriate measuring instruments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have you observed the dependent variable(s) from the inquiry question?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you have sufficient measuring rates / observation results to draw a conclusion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>RELIABILITY</b>				
Have you reduced the influence of other variables as much as possible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have you repeated the measurements a couple of times?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was your test sample large enough and sufficiently varied?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have you conducted a control experiment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## HAVE I DONE EVERYTHING?

Check whether you have performed all actions

<p>Have you only measured the influence of the independent variable(s) on the dependent variable(s)?  <small>This can be determined by comparing the results from the control experiment with the results of your 'real' experiment</small></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Did another inquiry method or a performance by another researcher yield similar results?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>ACCURACY</b>				
<p>Have you done all observations and measurements with several, independent observers?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Have you done and noted down all observations and measurements in an objective way?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Have you done and noted down all observations and measurements in a systematic way?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Did the measuring instruments have an adequate measuring range (between the minimum and maximum expected measuring rates)?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Did you calibrate or set to zero the measuring instruments before each measurement you performed?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<p><b>Do you have ticks in the column above?</b></p> <p>Perform (relevant parts of) your inquiry again.</p>	<p><b>Do you have ticks in the column above?</b></p> <p>Perform (relevant parts of) your inquiry again.</p>	