1.1 Project goals[1]

Document purpose

This document is developed in order to support the assessor and the project provider in the first step of the educational impact assessment method: Define project goals. The goal of this first step is to specify the goals of the development project.

In most cases, a clear list of project goals is already in place. However, this list might be very brief or incomplete. This document has the aim to guide the assessor and the project provider to come up with an explicit list of project goals.

This document provides various questions which can be used to guide the assessor or project provider in a way of thinking, so that it might be easier to come up with specific project goals. In addition, this document provides a list of keywords which can also be used as an inspiration to identify more project goals.

Project Goal and Impact Assessment Questions

What are the project objectives in terms of education interventions?

- How is the project aiming to influence or change the regulatory environment, policies, legal framework, awareness among policy makers, or the public?
- How is the project aiming to encourage the provision of ICTs in public or private sectors in order to take up new ICT opportunities, providing ICT infrastructure and/or applications?
- How is the project seeking to enhance service delivery efficiencies through new technologies?
- How is the project seeking to create opportunities for direct use of ICTs by the poor to enhance their livelihoods? (Provision of market data, public use of ICTs)

[1] This document is a component of the Impact Assessment Method which is developed as part of the Master's Thesis of M.J.M. Smulders - Situational Method Engineering for ICT4D: Performing Impact Assessments for Educational Programs - at Utrecht University, in collaboration with Maxim Nyansa IT Solutions (2020).

1.2 Goal model[2]

Document purpose

The purpose of this document is to guide the assessor and project provider in creating a goal model as part of the second step of the educational impact assessment method: Create goal model. The goals that are modelled in this step are identified during the previous step of the method, which is called Define project goals.

The goal model is made with the use of GoalML. GoalML is a modelling language which is very elaborate. However, only a specific set of functionalities is used for the goal model that will be created during this impact assessment. This document provides a step by step explanation of how to create a goal model with GoalML. Furthermore, an explanation of the semantics of the modelling language is given.

The GoalML specification is derived from Köhling (2013). Also, the various shapes and symbols are derived from Köhling (2013), or are created using the MS Visio Template.

Tool support

Creating a goal model using GoalML can be done using MS Visio. A GoalML template, which can be implemented in MS Visio, can be used in order to have access to the relevant icon set. The name of this document is GoalML Template, and can be found in the SupportDocsIA folder.

If you do not have access to MS Visio, you might also be able to implement the template in another free modelling tool (e.g. Lucidchart), or draw the model on paper.

Creating a goal model

In order to create a goal model, first a set of project goals need to be in place. In the previous step of the impact assessment, such a list of project goals is composed. These goals can be split up in two different types of goals: Engagement goals, and Symbolic goals.

An engagement goal is visualized with the following symbol, and is used for the

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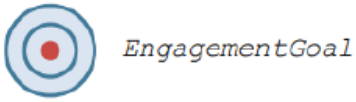
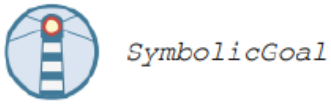
visualization of specific goals, which can directly be measured using specific metrics. In other words, an engagement goal is a goal of which the desired result is quantifiable. An example of an engagement goal is “decrease risk costs”.



A symbolic goal is visualized with the symbol below. With symbolic goals are meant, goals where no specific metrics can be defined to measure that specific goal. In other words, a symbolic goal is a goal of which the desired result is not directly quantifiable and includes a qualitative aspect. An example of a symbolic goal is “increase customer satisfaction”.



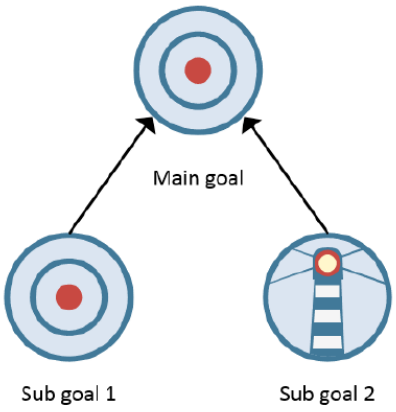
Therefore, the first step in creating a goal model is the following:

1. Divide your set of goals in engagement goals and symbolic goals.

After that, relations van be drawn between the goals. In most cases, there are different levels of abstraction in the set of goals. One goal might be the main goal of a project, with other goals being supportive of this main goal. It can also be the case that there are multiple main goals in place. The second step is as follows:

2. Create a goal structure with different levels and relations.

In order to do this, the main goal(s) should be identified. After that, the goals that directly support this main goal should be connected with an arrow. An example is shown in the figure below.



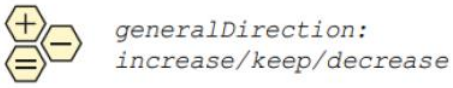
If all the goals are structured in this manner, the result will be a model containing all the project goals that were identified earlier.

Then, there are some specific small symbols that can be added to the various goals. Each addition will be explained here. The addition of these small symbols can be useful, but are not a necessary addition for every goal. Therefore, these symbols only need to be modelled if it has added value to the model.

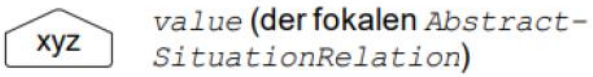
The final step in creating the goal model is as follows:

3. Model additional features to each project goal.

The first addition is the generalDirection. With this, it can be indicated if the goal has the aim to increase, decrease, or stay the same. For example, if a project goal prescribes to improve the number of computers that are available in schools. The goal has the aim to increase this number. In that case, a + sign can be added in the top right of the goal. If the goal is to decrease, a – sign can be added to the top right of the goal. And if the goal is to keep something equal, the = sign can be added. How this is done is shown below.



Another important factor in the goal model is the addition of targets. For every specific goal, a value can be described. This value defines the numeral target for the specific project goal. This target can be defined with a white box below the goal icon like shown below. It is of great importance to add a target value if these are defined. These values can be used to indicate the progress of the impact that has been made by the project. The block as seen below is used to indicate this value.



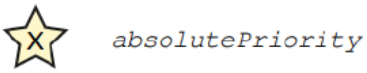
Together with such a target value, it should be indicated if the value should be achieved once at a time (en-bloc), as a minimum (satisfy), as exactly that specific value (exact), that the value should be maintained (maintain), or that the value should be improved upon

(improve).

The different values of the value van be visualized with the following icons:

This can be applied in the model as follows:

Lastly, it is possible to give some goals a priority. Therefore it can be the case that some goals need to be achieved before others. Priority can be indicated with a star shape, including the number of priority (with 1 being the highest priority). The visualization for this is as follows:



Furthermore, this can be visualized in the model as follows:

There are plenty more options to expand the goal model with. However, these are not necessary for the purpose of this impact assessment method. However, you are free to

implement additional shapes as explained in

References:

Köhling, C. (2013). Entwurf einer konzeptuellen Modellierungsmethode zur Unterstützung rationaler Zielplanungsprozesse in Unternehmen. Cuvillier Verlag.

1.3 Method fragments[3]

Document purpose

This document is developed in order to guide the assessor and project provider in the selection of relevant method fragments (i.e. indicators) to be used during the impact assessment process. This document should be used during two steps of the method, the first one being Select relevant method fragments, and the second one being Determine demographics of interest.

Every development project is different. Therefore, not every method fragment/indicator that is listed below is relevant for each impact assessment and development project. Also, every impact assessment might focus on a different demographic part of the population to be assessed. This document gives an overview of the 29 different method fragments, and their corresponding metrics. In this way, the document might support the assessor and project provider in creating a better overview of the indicators of interest.

List of Method Fragments (i.e. Indicators)

The method fragments which are displayed in green are used as default. These method fragments should be applied in each impact assessment, as they form a foundation for the evaluation.

General project	**General national**
General regional	**Demographic**
Accessibility	Additional effects
Affordability	Career
Cost-Benefit	Education level
Hardware infrastructure	ICT employment
Information needs	Internet availability
Internet usage	Livelihood
Local economy support	Network speed and quality
PC usage	Security
Self-efficacy	Service and support
Smartphone usage	Tablet usage
Teacher efficacy	Technology acceptance PC
Technology acceptance smartphone	Technology acceptance tablet
TPACK (Pedagogical-, technological-, and content-knowledge in teachers)	

[3] This document is a component of the Impact Assessment Method which is developed as part of the Master's Thesis of M.J.M. Smulders - Situational Method Engineering for ICT4D: Performing Impact Assessments for Educational Programs - at Utrecht University, in collaboration with Maxim Nyansa IT Solutions (2020).

Overview of Method Fragments and their Corresponding Metrics

Again, the method fragments which are displayed in green are used as default. Furthermore, it should be mentioned that the metrics which are mentioned in the tables below are collected in various ways and with various individuals (project provider, community/school leader, teachers, students).

General project

Metric	Data type
Number of schools reached (number of projects)	Numeric
Number of students reached	Numeric
Deployment rate (per month)	Numeric
Number of employees in school/project environment	Numeric
Number of students in school/project environment	Numeric
Total number of courses offered by school	Numeric
Total number of teachers	Numeric
Number of teachers with ICT literacy skills	Numeric
Number of teachers with teaching certification	Numeric
Number of teachers with ICT certification	Numeric
Number of new teachers in past year	Numeric
Number of teachers left in past year	Numeric
Average student grade overall	Numeric
Average student grade ICT class	Numeric
Repeater ratio	Numeric

General national

Metric	Data type
Unemployment rate national	Numeric
Unemployment rate youth (ages 15-24) national	Numeric
Gross domestic product (GDP) per capita	Numeric
Most recent poverty headcount ratio at $1.90 a day (2011 PPP) (% of population)	Numeric
Average grade for target students (national)	Numeric
Child enrolment (number of children not in school ages 5-14) national	Numeric
Average student grade ICT class (national)	Numeric
Repeater ratio (national)	Numeric

General regional

Metric	Data type
Unemployment rate target region	Numeric
Unemployment rate youth (ages 15-24) target region	Numeric
Average grade for target students (regional)	Numeric
Child enrolment (number of children not in school ages 5-14) regional	Numeric
Average student grade ICT class (regional)	Numeric
Repeater ratio (regional)	Numeric

Demographic

Metric	Data type
Age	Numeric
Gender	MC Answer (Num)
Country	String
Place of residence	String
Place of school	String
School name	String
Education level	MC Answer (Num)
Number of times solicited	Numeric
Number of jobs	Numeric

Career

Metric	Data Type
Graduated	Binary
Job	Binary
Happiness with job	Likert (Num)
Satisfaction salary	Likert (Num)
Hindsight help of project	Likert (Num)

Cost-Benefit

Metric	Data Type
Recurring (variable) expenses of the ICT4D project per year (can include Internet subscriptions, stationery and other consumables, maintenance, phone connection costs, utilities, staff salary, etc.)	Numeric
Direct income generated by the ICT4D project per year (if applicable)	Numeric
Money saved from using the ICT4D project per year(if applicable)	Numeric
One-off (initial) expenses of the ICT4D project (can include ICT hardware and software costs, building renovation costs, other physical infrastructure costs, initial training, set-up costs, etc.)	Numeric

Education level

Metric	Data Type
Satisfaction ICT knowledge	Likert (Num)
Satisfaction level of education	Likert (Num)
Satisfaction ICT knowledge teacher	Likert (Num)
Satisfaction ICT level lessons	Likert (Num)
Satisfaction ICT quantity lessons	Likert (Num)
Education challenges	Likert (Num)

Accessibility

Metric	Data Type
Number of students in school/project environment that make active use of ICT facilities	Numeric
Number of hours a week that computers are freely accessible	Numeric
Number of days a week that computers are freely accessible	Numeric
Number of hours of computers usage scheduled for lessons	Numeric
Number of hours a week that computers are accessible for outsiders	Numeric
Access to personal accounts for students	Binary
Access to personal accounts for employees	Binary

Additional effects

Metric	Data Type
Wider effects community/personal	Binary
Type of effects community/personal	Binary

Affordability

Metric	Data type
Total expenditure of the school/project environment in US Dollars per year	Numeric
Internet costs in US Dollars per year	Numeric
Satisfaction internet costs	Binary
Maintenance costs of hardware in US Dollars per year	Numeric
Budget for ICT training teachers	Binary
Budget value for ICT training teachers in US Dollars per year	Numeric
Total revenue of the school/project environment in US Dollars per year	Numeric

Hardware infrastructure

Metric	Data type
Number of mobile phones available for staff (including personal mobile phones)	Numeric
Number of Personal Computers or laptops available	Numeric
Number of tablets available	Numeric
Number of printers available	Numeric

ICT employment

Metric	Data type
Motivation ICT professionals	Likert (Num)
Qualification ICT professionals	Likert (Num)
Retainment ICT professionals	Likert (Num)
Saturation ICT professionals	Likert (Num)
Importance of ICT literacy for career progression	Likert (Num)
Satisfaction with ICT lessons for career	Likert (Num)
Perceived chance of job	Likert (Num)

Information needs

Metric	Data type
Main sources of general information	Scale
Type of information needs	Scale
Availability digital educational material	Likert (Num)
Availability digital interactive educational content	Likert (Num)

Internet availability

Metric	Data type
Availability Internet connection	Binary
Internet download speed in MB per second	Numeric
Internet upload speed in MB per second	Numeric
Intranet availability	Binary
Number of PCs connected to Intranet	Numeric

Internet usage

Metric	Data type
Internet use before	Binary
Internet use importance	Scale
Satisfaction internet usage	Likert (Num)
Added value of internet in education	Likert (Num)
Added value of internet personal	Likert (Num)

Livelihood

Metric	Data type
Survival threshold	Likert (Num)
Protection threshold (1-3)	Likert (Num)
New skills (1-2)	Likert (Num) & Scale
Availability of support services	Likert (Num)
Community participation	Likert (Num)
Personal empowerment	Likert (Num)

Local economy support

Metric	Data type
Percentage of hardware items supplied by local parties	Numeric
Percentage of supplemental accessories (e.g. furniture) supplied by local parties	Numeric

Network speed and quality

Metric	Data type
Restore time network failure	Scale
Type of Internet connection	Scale
Number of local telephone calls successful on first attempt	Binary
Satisfaction internet speed	Likert (Num)
Internet speed institution better than internet cafes	Likert (Num)
Internet speed frustration	Likert (Num)
Perception restore time	Likert (Num)

PC Usage

Metric	Data type
Number of courses that are supplemented with PC usage	Numeric
PC usage for word processing	Binary
PC usage for spreadsheets and DBMS	Binary
PC usage for communication	Binary
PC usage for resources on Internet	Binary
PC usage for instruction	Binary
Used a computer before	Binary
Accessibility PC/laptop	Binary
PC usage location	Scale
PC usage purpose	Scale
Satisfaction computer availability	Likert (Num)
Added value of PCs in education	Likert (Num)
Added value of PCs personal	Likert (Num)
Perception of increased productivity	Likert (Num)

Security

Metric	Data type
Use of anti-virus	Binary
Physical security in place	Binary
Number of data backups per year	Numeric

Self-efficacy

Metric	Data type
Self-efficacy using windows computer	Likert (Num)
Self-efficacy perform word processing tasks	Likert (Num)
Self-efficacy entertainment	Likert (Num)
Self-efficacy information searching	Likert (Num)
Self-efficacy confident at school	Likert (Num)
Self-efficacy good use of internet	Likert (Num)

Service and support

Metric	Data type
Number of employees with hardware maintenance skills	Numeric
Failure frequency computer	Scale
PC failure restore time	Scale
Most common type of computer failure	Scale
Frequency power failure	Scale

Smartphone usage

Metric	Data type
Used a smartphone before	Binary
Smartphone accessibility	Binary
Smartphone usage purpose	Scale
Added value of smartphones in education	Likert (Num)
Added value of smartphones personal	Likert (Num)

Tablet usage

Metric	Data type
Used a tablet before	Binary
Tablet accessibility	Binary
Tablet usage purpose	Scale
Added value of tablets in education	Likert (Num)
Added value of tablets personal	Likert (Num)

Teacher efficacy

Metric	Data type
Efficacy for instructional strategies (1-4)	Likert (Num)
Efficacy for classroom management (1-4)	Likert (Num)
Efficacy for student engagement (1-4)	Likert (Num)

Technology acceptance PC

Metric	Data type
Perceived ease of use (1-2)	Likert (Num)
User satisfaction (1-4)	Likert (Num)

Technology acceptance tablet

Metric	Data type
Perceived ease of use (1-2)	Likert (Num)
User satisfaction (1-4)	Likert (Num)

Technology acceptance smartphone

Metric	Data type
Perceived ease of use (1-2)	Likert (Num)
User satisfaction (1-4)	Likert (Num)

T-PACK

Metric	Data type
Pedagogical knowledge (PK) (1-7)	Likert (Num)
Technological knowledge (TK) (1-4)	Likert (Num)
Content knowledge (1-4)	Likert (Num)
Interaction between pedagogical and content knowledge (PCK) (1-6)	Likert (Num)
Interaction between technological and pedagogical knowledge (TPK) (1-6)	Likert (Num)
Interaction between content and technological knowledge (TCK) (1-4)	Likert (Num)

2.1 Sampling strategy[4]

Document purpose

This document is developed in order to guide the assessor and the project provider in the first step of the second phase of the impact assessment method. The goal of this step is to determine an appropriate sampling method for the evaluation of the development project. This document provides two simple steps in order to make a decision on the sampling strategy for the performance of the surveys.

It can be decided to select the entire population as a sample for the surveys. If this is not desired or not feasible, a smaller sample can be chosen which represents the entire population. If this is the case, an appropriate sample size needs to be chosen.

Step 1: Defining sample size

It is suggested to use a confidence interval of 5, making the confidence level 95%. If you want to increase the precision level of the results, you may want to choose a confidence interval of 2. If you want to increase the accuracy of your survey results, you can use a confidence level of 99%. In order to calculate your sample size, it is suggested to use an online tool1.

Step 2: Defining sampling technique

Furthermore, a sampling technique needs to be chosen. It is suggested to use random sampling. However, it is assumed that it can be challenging to reach certain project environments, especially rural areas. Therefore, the decision can be made to use nonrandom sampling in the form of convenience sampling.

References:

Gombitova, J., Soet, G., Poelert, A., Sarna, K., Mukherjee, R., Clerx, C., . . . Kraus, S.(2020).Capture reliable data in the international development sector. Akvo. Retrieved from https://datajourney.akvo.org/ebook-capture-reliable-data-in-the-internationaldevelopment- sector

[4] This document is a component of the Impact Assessment Method which is developed as part of the Master's Thesis of M.J.M. Smulders - Situational Method Engineering for ICT4D: Performing Impact Assessments for Educational Programs - at Utrecht University, in collaboration with Maxim Nyansa IT Solutions (2020).

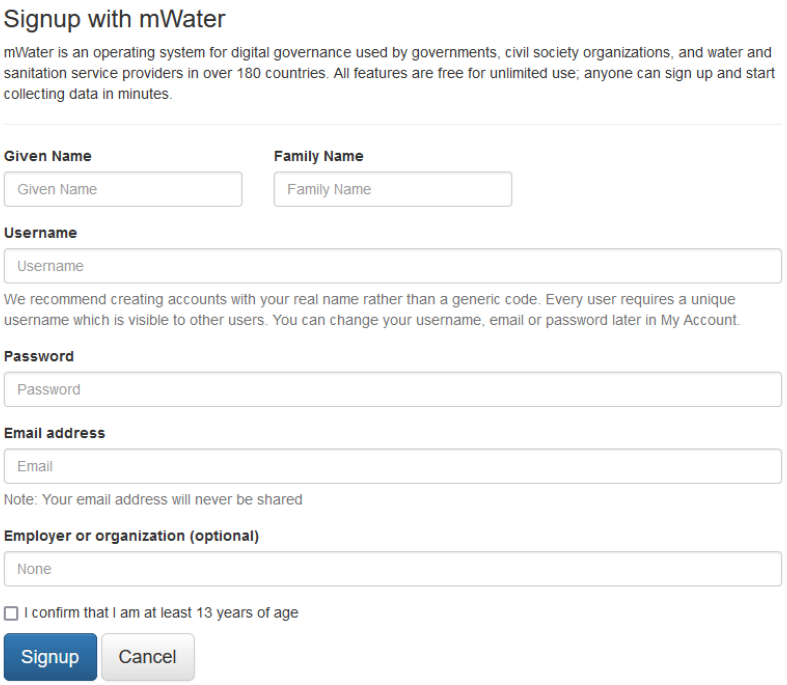
2.2 Data Collection

This tool uses mWater to collect all the data.

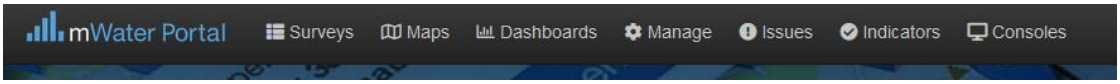
mWater is a data platform that can be used to collect, monitor and analyze data. It is a free platform that can be used online and offline on multiple platforms.

A short instruction on how to use mWater for the impact assessment tool is given below. For more information it is advised to look at the official mWater documentation provided on their official site.

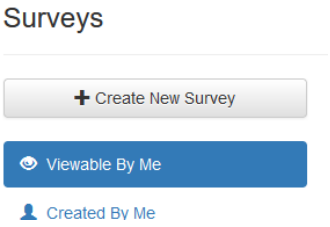
1) Make an account on mWater



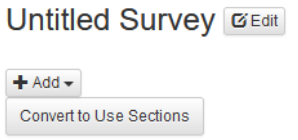
2) Click on the “Surveys” button located top left

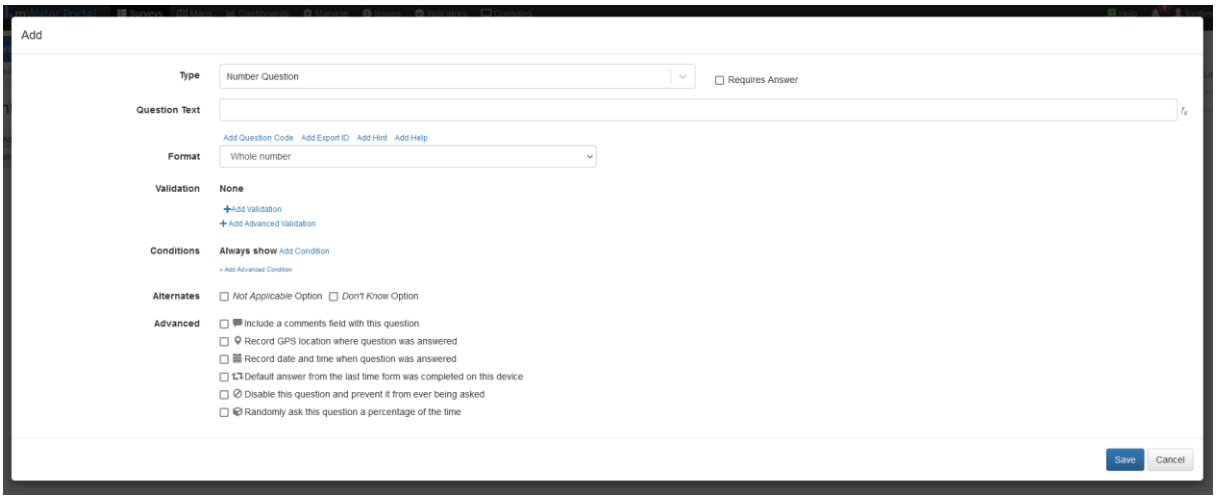


3) Click on the “Create New Survey” button to create a new survey

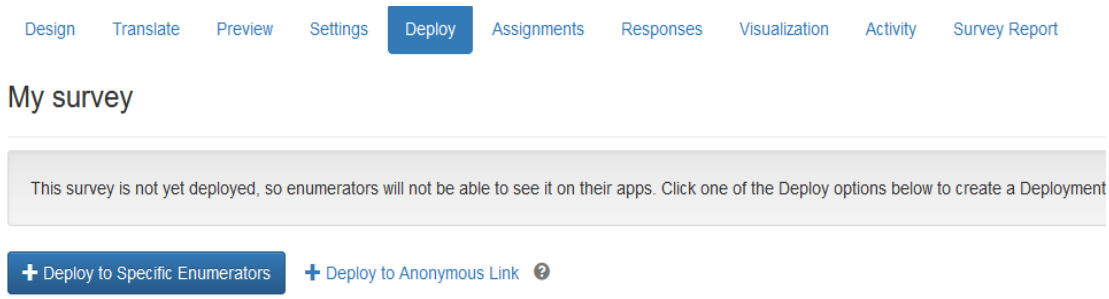


4) Make the survey by editing the title and adding questions. For more information about how to make the questions for the impact assessment tool please read the questions section down below.



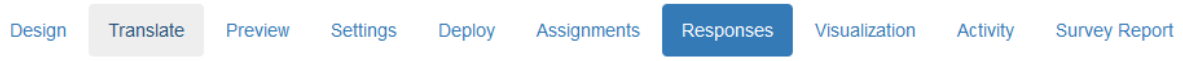


5) When the survey is done and ready for deployment,

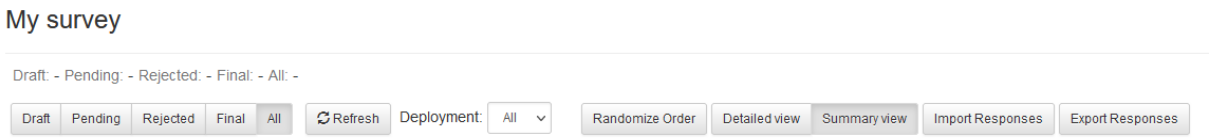


a. Click on the “Deploy” button.
b. Click on the “Deploy to Specific Enumerators” button or the “Deploy to Anonymous Link” button depending on your situation. For more information about which one to use, click on the question mark next to the buttons.
c. After selecting the option appropriate for your situation, fill in the required data and use the generated link to perform the surveys.

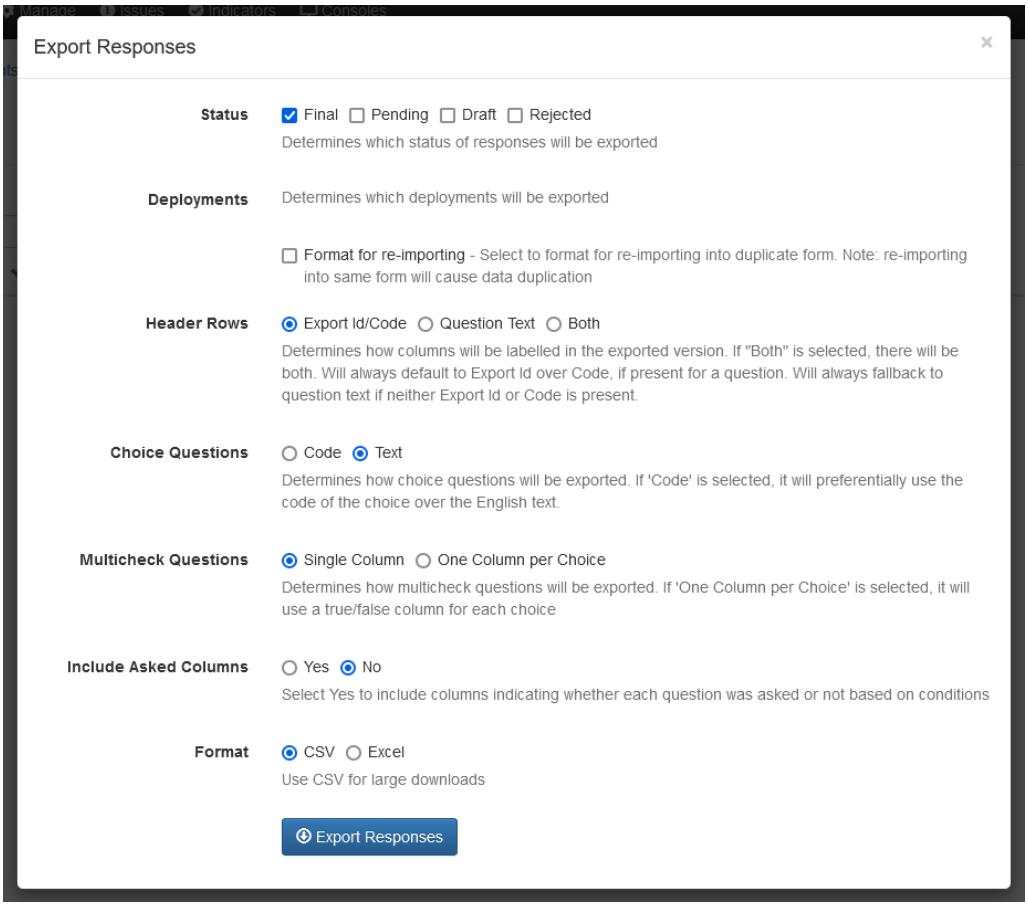
6) Export all the survey data after all the surveys have been filled in.
   a. Click on the “Surveys” button in the top menu bar
   b. Click on the survey you want to export the data from.
   c. Click on “Responses”



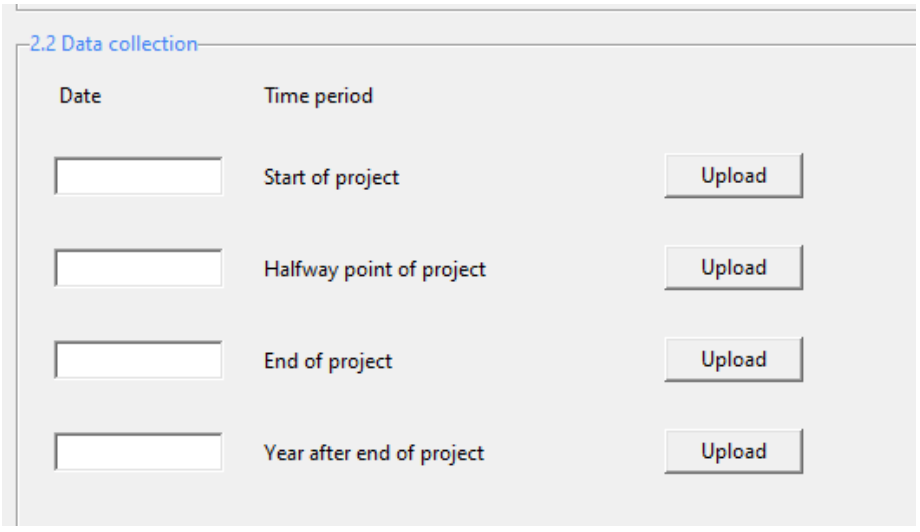
d. Click on the “Export Responses” button and a pop up window will appear called “Export Responses”.



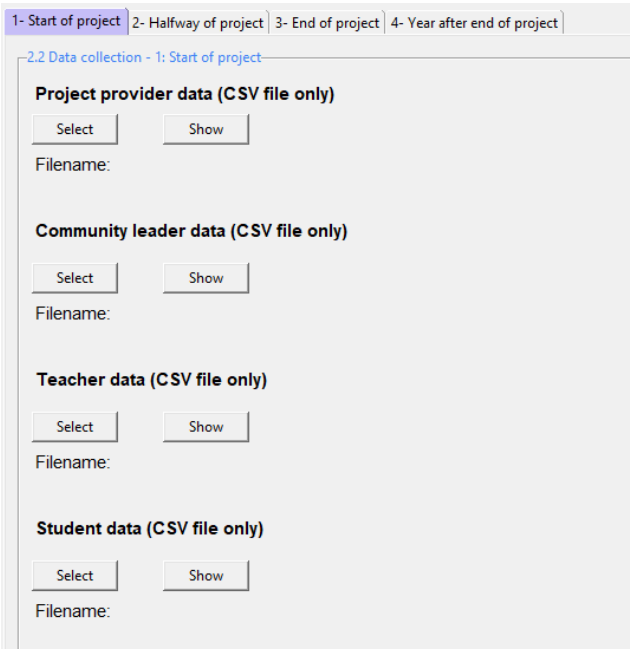
e. Select the options as shown below and click on the “Export Responses” button to download the survey data as a CSV file



7) The exported responses is saved in a CSV file that needs to be loaded into the tool.
    a. Click on the “Upload” button of the time period of the CSV file

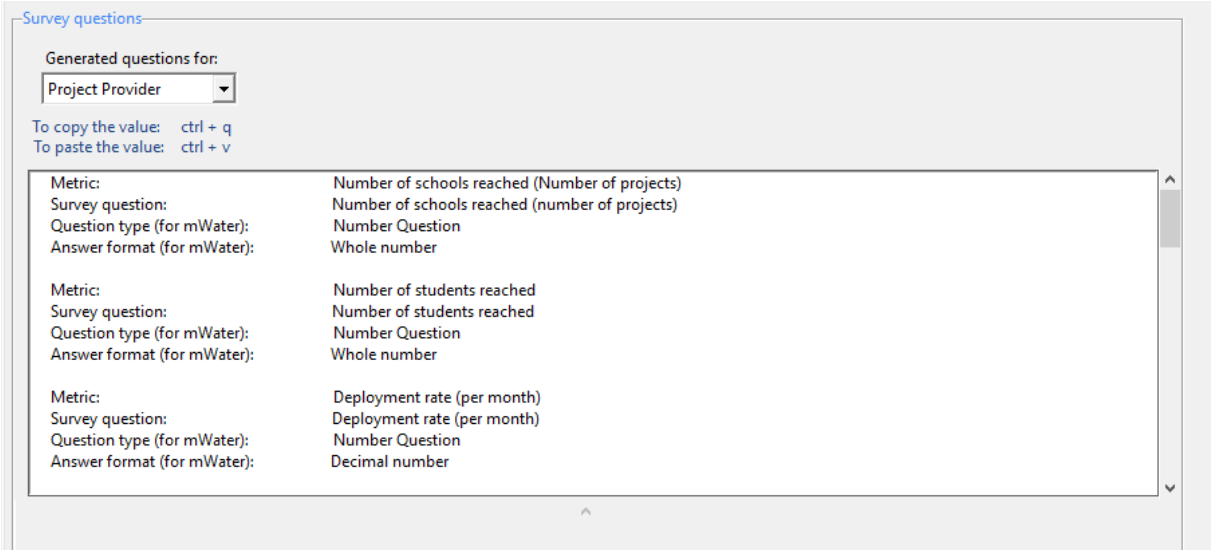


b. Click on the “Select” button of the target group of the CSV file and select the CSV file



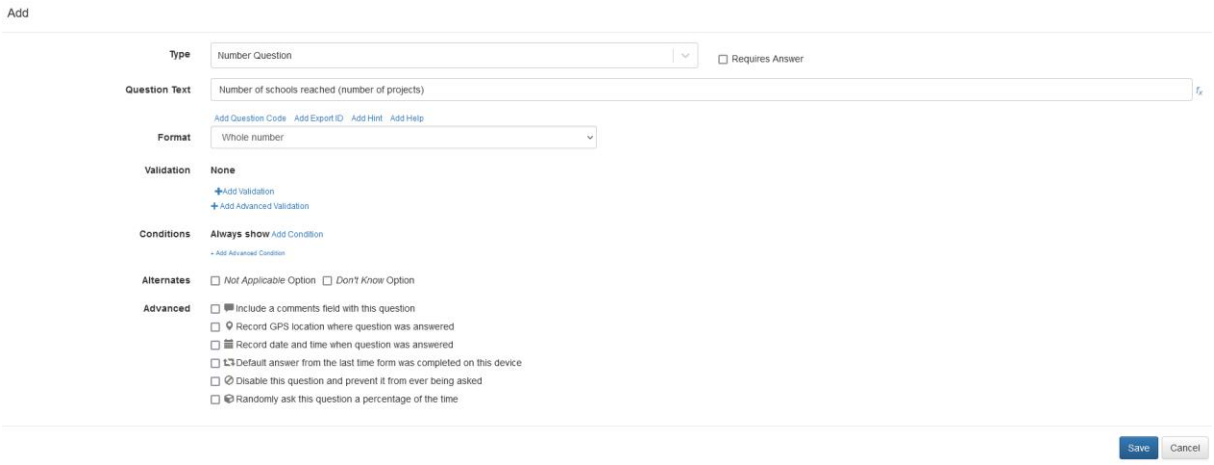
Tool Survey Questions Example

The questions generated in the tool come with the inputs needed for mWater. The variables with "(for mWater)" behind it are the options in mWater when making a new question.



- Example -

If we take the image before as an example and fill in the fields that we get from the tool, we get the result as seen below. Make sure the mWater inputs are exactly the same as in the tool otherwise the tool might not process it correctly!



3.1 Loading in Data

After loading in the survey CSV files as described in document 2.2 (step 7), the tool needs to be manually notified by pressing on the “Load in data” button. This ensures that previous data is deleted and the new provided CSV files are loaded in.

3.2 Summary data

Summary tables

The summary table is a summarization of the collected survey data. To create a summary table:

1. Select a target group from the first dropdown menu
2. Select the time frame from the second dropdown menu
3. Click on the “Create table” button

The time frame dropdown menu will only show the time frames that are loaded in. Otherwise “(No data available)” will be shown in the menu.

The following table shows the description of each header in the table.

Header name	**Description**
Metric name	Name of metric
# of responses	Number of responses
Min	Minimum value of the metric
Max	Maximum value of the metric
Mean	Average value of the metric
Modus	Middle value of the metric
Median	Value that occurs most often of the metric

Visualizations

The visualizations tab gives the user the option to view basic visualizations per metric of the survey data that has been loaded in. To view a visualization of a metric:

1. Select a target group from the first dropdown menu
2. Select the time frame(s) from the second dropdown menu
3. Select the metric from the third dropdown menu if present
4. Click on the “Create visualization” to create the visualization

The metric dropdown menu will only show the metrics that are loaded in for the selected time frame(s). Otherwise “(No data available)” will be shown in the menu. Metrics with only string data are not visualized

Question type	**Visualization type**
Numeric	Bar chart
Likert	Radar chart
Boolean	Stacked bar chart
Multiple choice	Stacked bar chart
Scale	Stacked bar chart

4.1 Metric results

After the survey data is loaded in, a summary data can be generated with the results up to the current time frame. The following table describes the header names of the table:

Header name	**Description**
Metric name	Name of the metric
Target group	Group that is targeted
Demographic scope	The scope of the demographic where the focus is on
Target for metric	The pre determined target that is set for the metric
Increase / Decrease	The pre determined direction of the set target. Increase for when the target is an increase relative to the initial survey data, decrease for when the target is a decrease relative to the initial survey data
Current average	Current average of the metric
# that reach target	Number of values that reach the target
% of target reached	Percentage of all values that reach the target

4.2 Evaluation[5]

Document purpose

This document has been drafted in order to guide the assessor and the project provider in the last phase of the impact assessment. More specifically, this document aims to guide in carrying out the step: Evaluate with evaluation questions. This document prescribes various questions, which can be answered for every outcome of the measurements that have been performed earlier in the impact assessment. These questions can help in drafting conclusions about the impact of the project, and in making decisions about the future development of the project.

Evaluation questions If possible, it would be highly beneficial to involve local parties in the evaluation of the results. This is not mandatory, but highly advised.

1. Is the impact desirable?
2. What is the time of the impact? (short term/long term?)
3. Is the impact sustainable over time?
4. What is the severity of the impact?
5. What is the number of beneficiaries of the impact?
6. What is the level of impact on different individuals in the community?
7. Is the impact in line with the goals of the development project?

[5] This document is a component of the Impact Assessment Method which is developed as part of the Master's Thesis of M.J.M. Smulders - Situational Method Engineering for ICT4D: Performing Impact Assessments for Educational Programs - at Utrecht University, in collaboration with Maxim Nyansa IT Solutions (2020).

5 About

The goal of this tool is to support the implementation of the impact assessment method SIAM-ed which has been developed by M.J.M. Smulders in this master's thesis - Situational Method Engineering for ICT4D: Performing Impact Assessments for Educational Programs. The abstract of the method can be seen below. The tool does not fully automate the implementation but aims to guide the user during the implementation process.
This tool is part of the master's thesis of H.N.Le – Developing a tool to support the impact assessment of EDU4D projects – at Utrecht University, in collaboration with Maxim Nyansa IT Solutions (2021).

Github Link: TBA

Method abstract

Since the rise of ICTs, also the role ICTs play in supporting development initiatives has grown. Since then, the term ICT4D has been adapted in the field of development programs which are IT-based. This study focuses on the domain of ICT4D in the educational domain. In developing countries there exists a large digital divide between persons that have access to ICTs and information, and individuals that do not. Next to accessibility issues, there is often a lack of skill to handle with these ICTs in the most optimal way. In order to support the development of education in these developing countries, many western organizations made attempts to implement ICT projects. However, in order to confirm if an educational development project has an impact on its target community, an evaluation must be performed in the form of an impact assessment. It is discussed that there are too few studies that focus on the evaluation of ICT4D projects. Performing an impact assessment is a non-trivial process. Hence, a method is required. In order to develop a method that seeks to achieve a wide applicability and a means to anticipate to novel developments, situational method engineering can be applied. Therefore, this study proposes a situational method for the performance of an impact assessment on ICT4D programs in the field of education in order to contribute to the current landscape of evaluation methods. The proposed impact assessment method is situational, meaning that the method is adaptable to a specific development project in the domain of education. This is done by selecting relevant method fragments. Each method fragment consists of a set of metrics which are used as input for the impact evaluation. The benefit of this is that the method is generalizable to other educational development projects. The proposed impact assessment method is validated through focus groups. After that, the method is implemented in a real-world development context in

West-Africa in the form of a pilot study. Based on the implementation, results from the pilot study are drafted and the treatment is evaluated upon.

Reference:

Smulders, M. J. (2020). Situational Method Engineering for ICT4D: Performing Impact Assessments for Educational Programs (Master's thesis).

https://dspace.library.uu.nl/handle/1874/400776