

Augmented contextual instruction Design document V.01



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First published 2013

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Overview

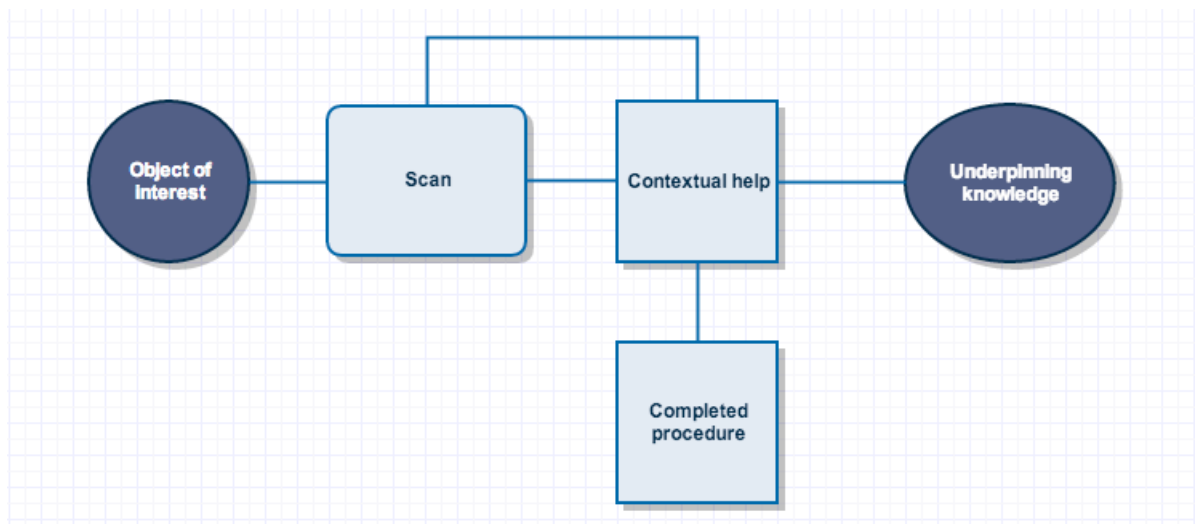
Augmented contextual instruction provides learners with context specific procedural instruction based on recognised images and objects. More specifically, augmented contextual instruction could be used to provide instruction to pre-apprentices in the disassembly and assembly of components that make up a mechanical or electrical device.



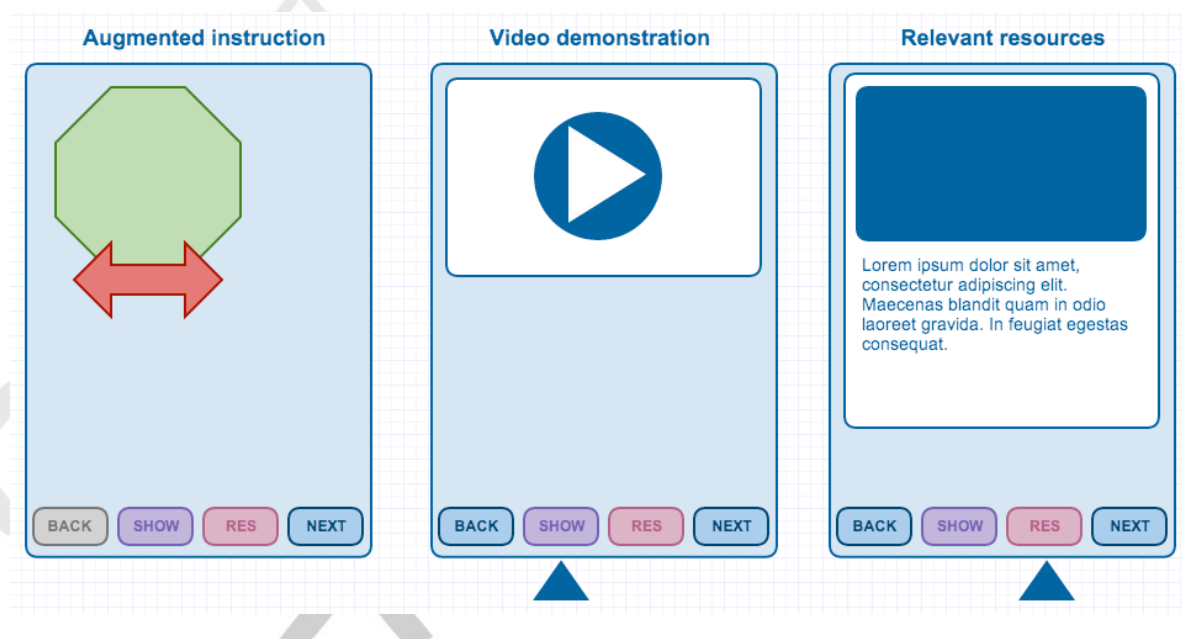


Functionality

Learners can use the Junaio app to search BHI channels on Metaio platform for available instruction and then activate the relevant instruction based their image or object of interest. Once recognised, the contextual instruction will guide the learner through a procedure or process such as an assembly or disassembly of a component. Access to underpinning knowledge, resources relevant to the each stage of the procedure or process and functionality to repeat/reverse the instruction will be provided.



This diagram shows onscreen elements that make up the augmented contextual instruction experience.



Delivery approaches

Delivery approaches for augmented contextual instruction include:

- **Trainer-led**

A trainer will be able to demonstrate a procedure or process to learners in a class or training room session. Learners can then attempt to work their way through the same procedure or process with assistance from augmented contextual instruction. Augmented contextual instruction will provide access to underpinning knowledge and resources relevant to the each stage of the procedure or process.

- **Self-paced**

Learners can work their own way through a prescribe procedure of process with augmented contextual instruction. Like the trainer-led experience, access to relevant underpinning knowledge and resources will be provided.



Development requirements

The development of augmented contextual instruction requires the following:

- Access to subject matter expert in nominated area to provide instructional advice on the assembly and disassembly procedure for specific component.
- 1 x license for Metaio Creator. Without a license, Metaio Creator operates in Demo mode, which restricts access to features and functionality that is required to develop augmented contextual help. Pricing available on Metaio website.
<http://www.metaio.com/products/creator/pricing>
- Creation of a BHI account on the Metaio developer network to create channels that will be accessed by augmented contextual instruction.
- Create appropriate number of channels and assets for each augmented contextual instruction sequence.
- Access to BHI network and iPads for use with student trial. Metaio's Junaio augmented reality browser needs to be installed.





Limitations/Constraints

The following limitations or constraints have been identified for augmented contextual instruction:

1. Augmented contextual instruction is limited to a single or a very limited number of standalone sequences accessed through Metaio's Junaio augmented reality browser.
2. Augmented contextual instruction will be deployed with Metaio watermark.
3. Augmented contextual instruction is administered through channels hosted on Metaio web platform. Augmented contextual instruction is not connected to, or administered by BHI infrastructure.
4. Learners cannot create new or customise augmented contextual instruction sequences.



Future features

The following functionality and features could be considered for development in future iterations of augmented contextual instruction:

- Depart from use of proprietary augmented reality platforms and pricing paywalls. Pursue development of device and platform agnostic augmented contextual instruction and additional augmented reality experiences for display in web browsers that support HTML5 (JSARToolKit with the WEBRTC getUserMedia API).
- Explore the use of XBOX360 Kinect to capture 3D point cloud data required for image and object recognition as an alternative to Metaio Toolbox
- Explore use of wearable technology such as Google Glass to provide *hands free* contextual instruction without obstruction or interruption. For example, the learner would no longer need to put down their tools or object of interest to activate next step or stage of the contextual instruction.
- Permit creation, customisation and submission of peer and trainer reviewed learner generated contextual instruction to BHI infrastructure such as Generic Competency Units and Apprenticeship Block
- Integrate augmented contextual instruction with existing BHI products such as Mobas and StudentDiary.
- Personalise learner's contextual instruction through analysis and aggregation of their academic submissions to BHI infrastructure.

Each specified feature or functionality would need to be scoped, designed, reviewed, discussed and agreed upon before commencement of development.