

Introduction

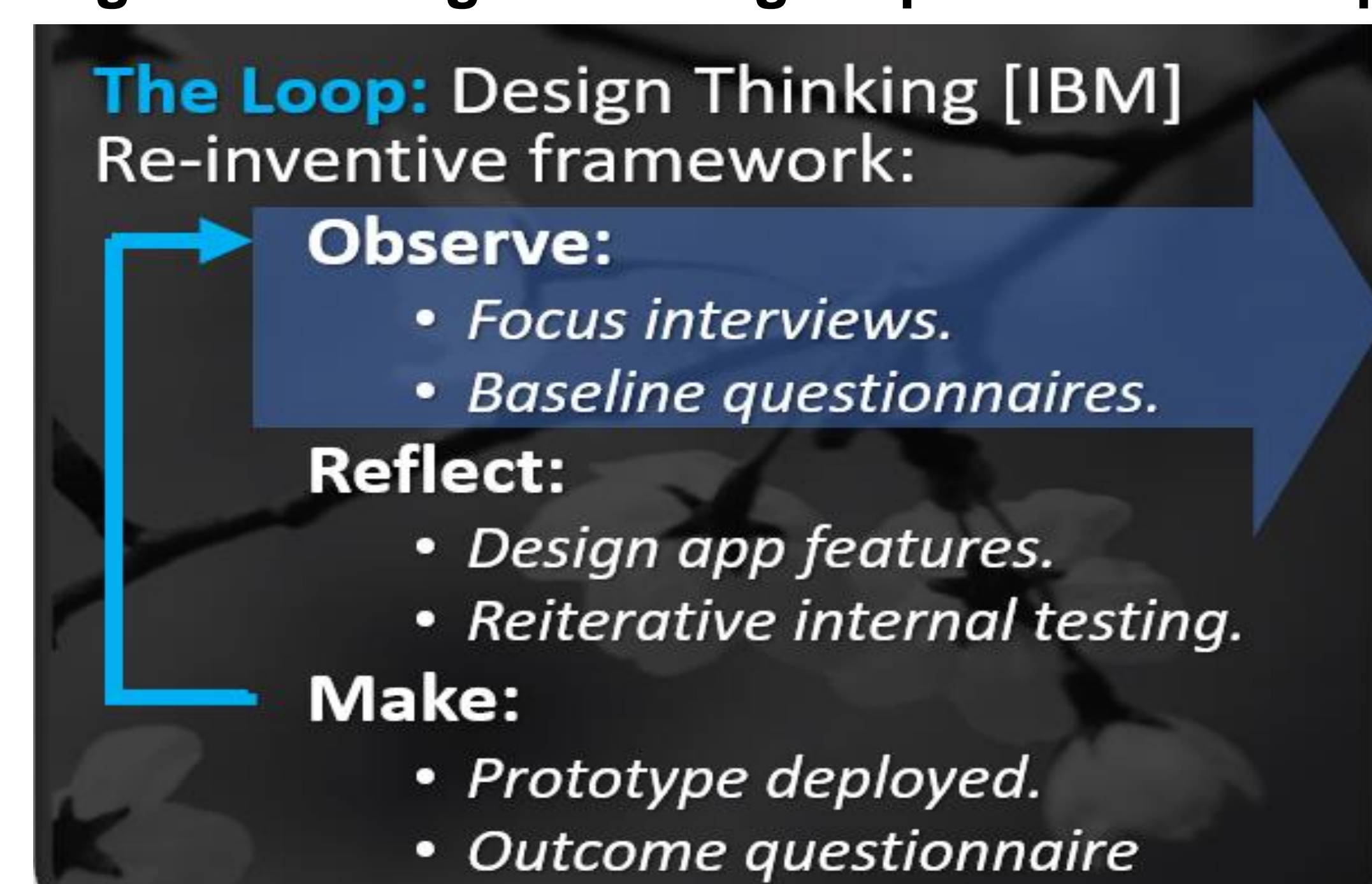
- Feedback consists of 'specific information about the comparison between a trainee's observed performance and a standard, with the intent to improve performance,'
- However, summative feedback usually occurs at the end of a rotation. This creates a disconnect between the actual experience and the feedback.
- There is a need for improved **formative feedback** in clinical education.
- Formative feedback supports a growth mindset and self-reflection. It is most effective when it is timely, addresses elements that are relevant to the trainee (actionable and motivational).^{1 2 3 4}
- Mobile applications could be integrated as a tool to facilitate the formative feedback process.^{5 6 7}

Purpose

The purpose of our project was to develop and test a tool (app) to provide feedback to medical trainees that is timely, relevant and effective. The Purpose of this research project was to Develop an innovative mobile application to facilitate provision of efficient and effective feedback to learners in a clinical setting. The objective of the Cardinal App is to improve frequency of feedback provision and specificity and promote self-assessment and reflection in learners through mainstreamed interaction with a mentor using an app platform.

Methods

Figure 1: Design Thinking loop for Cardinal App



- Design Thinking (IBM) was used to design the Cardinal App (developed using Qualtrics technology). App content was based on existing feedback apps⁸, focus interviews and baseline questionnaires with users. An initial prototype was internally tested in the LIAM team and then used by actual learners and mentors. Faculty (feedback providers) and student clinicians/residents (feedback recipients) from medical, dental, and other professional health care Program at the University of Louisville Health Science

Outcomes



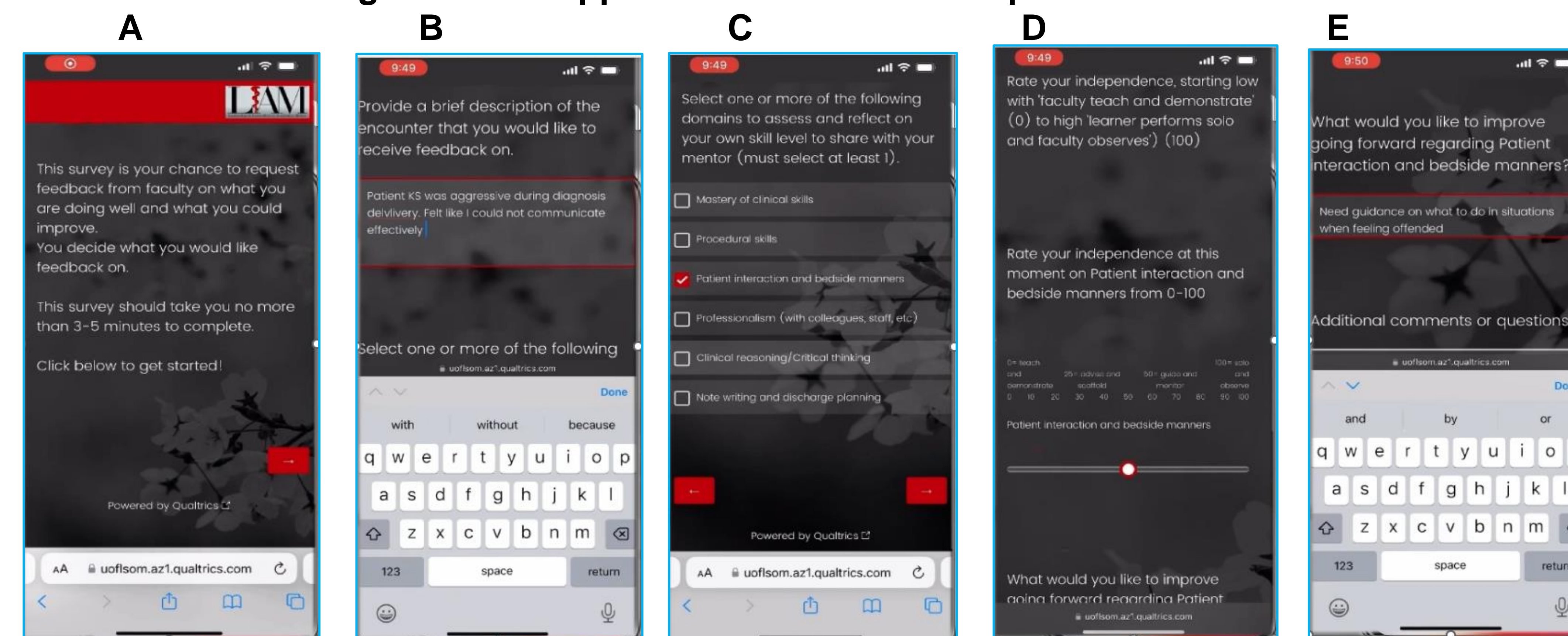
Figure 2: A trainee starts with the QR code or the website.

https://uoflsom.az1.qualtrics.com/jfe/form/SV_8r0iOHZS6INXinA

Accessing the QR code on a cell phone or entering the website address on a desktop computer allows access to the application. (Fig 2)



Figure 3: The application windows in sequence



- Once the link is accessed, the trainee clicks the red arrow to start.
- The trainee types out an aspect of a situation they want to receive feedback on.
- Then they select a category of that performance to receive feedback on.
- The trainee then rates him/herself.
- The trainee is asked what they would like to improve going forward.(Fig 3E)

Upon completion, a link is emailed to the trainee's mentor to respond to the issues the trainee entered and rate the trainee.

Finally, the trainee is emailed with the mentor's responses.

Conclusions

- Benefits of App for formative feedback :
 - 1) Feedback is real time during a trainee's rotation, as often as requested by the trainee. This makes it timely.
 - 2) Feedback is initiated by the trainee. The request is then rated by the mentor. This allows for comparison and generates discussion between learner and teacher.
 - 3) Opportunity for self-reflection by self-ratings in App.
 - 4) The opportunities for learning are specific and actionable to the trainee.
 - 5) Involving the trainee in the topics of the evaluation motivates the trainee to value the feedback and improve accordingly.
- The feedback app can be used across clinical and research learning environments.
- However: The app does not replace insight gained from follow up face-to-face interactions with a mentor.

Future Directions

- The app would require implementation and testing for efficacy in a larger sample.
- Acquire funding to develop and test Cardinal App 2.0

Acknowledgements

The authors would like to thank Laura Weingartner, Staci Saner and Gerard Rabalais for their support.

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