



# Being, becoming: Well-being, education & justice in a changing world

## HDR Conference 2021

Monday 20 September  
9.00am – 5.00pm  
Education Building

*College of Education, Psychology and Social Work*

# **Challenges and Methodological Considerations in Conducting Online Design-Based Research**

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## **Abstract for Paper Presentation**

### **CEPSW HDR Conference**

Flinders University

20 September 2021

Design-Based Research (DBR) is interventionist by nature; and it involves merging an innovative educational design and resources with systematic evaluations of educational resources and learning outcomes. DBR aims to answer how can we make a particular design work and why it worked. In achieving such goal, DBR gathers the data that enable in explaining the (in)effectiveness of a particular design, and to redesign and enhance the intervention in iterative processes. Design-based research involves intersections Design, Learning/Practice, and Research domains.

There are activities that need to be undertaken within each intersection between the Design, Learning/Practice, and Research domains during the planning for and conducting design-based research. Intersection activities between design and learning are to ensure that the acquisition of skills is enjoyable and effective. Intersection activities between learning/practice and research involve identifying relevant research methods and methods to evaluate the effectiveness of skills-development intervention. Intersection activities between design and research are about thinking of how research methods and evaluation methods could be incorporated in the design.

This presentation reports challenges associated with DBR domains' intersection activities during the different stages of the research. Moreover, reflecting on the current START interventional study, the Smart Training on Arabic-Residents on Technology, an important challenge is the limited ability to identify real-life social-interaction factors and individual contextual factors due to conducting this study online. Such a challenge means mirroring some drawbacks in laboratory experimental research that DBR wanted to be distanced from – an acknowledged limitation that may impact the evaluation of the effectiveness of intervention.



The background features a dark blue field on the left with a white outline of Australia. To the right, three concentric circles in shades of blue and white overlap. The innermost circle is dark blue and contains the text. The middle circle is a lighter blue, and the outermost is the lightest blue, all featuring a bokeh effect of small white dots.

# Challenges and Methodological Considerations in Conducting Online Design-Based Research

**Amelie Hanna**

Postdoctoral PhD Researcher

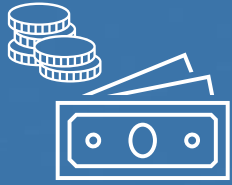
**CEPSW HDR Conference**

Flinders University

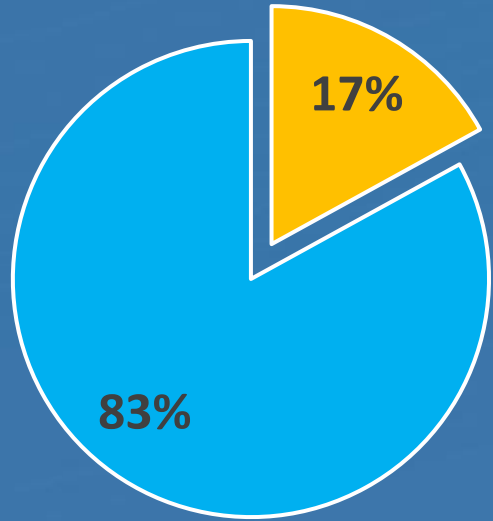
Adelaide, South Australia

20 September 2021

# Unemployment among Arabic-Speaking Migrants



**Culturally & Linguistically  
Diverse Background**



~ Unemployment among  
Arabic-Speaking Residents

**21%**



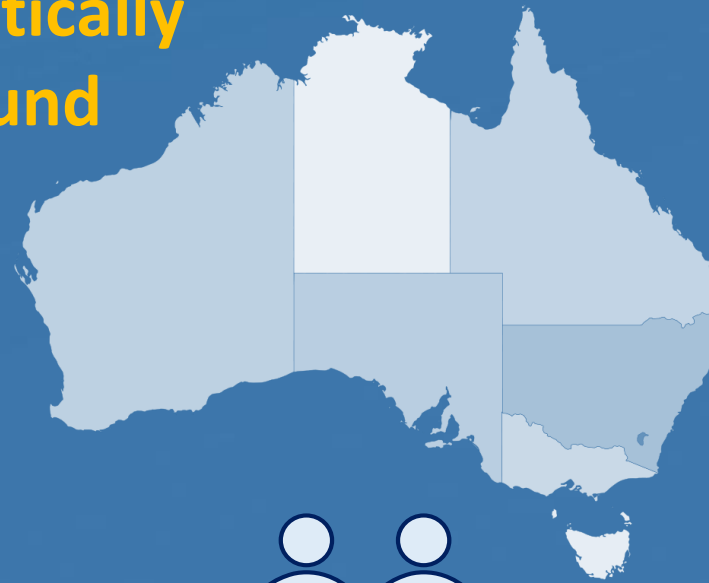
Lack of English Skills

Lack of Computer Skills

Lack of Professional Skills

Lack of Equal Opportunity

**7%**



# How unemployment is currently addressed?

- ❖ Provision of Unemployment Benefits
- ❖ Job Search Support
- ❖ Computer Training in English by TAFE, Private Providers or Non-for-Profits Organisations
- ❖ English Training by TAFE provided by Native-English Speakers for refugees only
- ❖ NEIS (New Business Assistance) mostly living allowance provided to most likely to those who have computer & English skills.

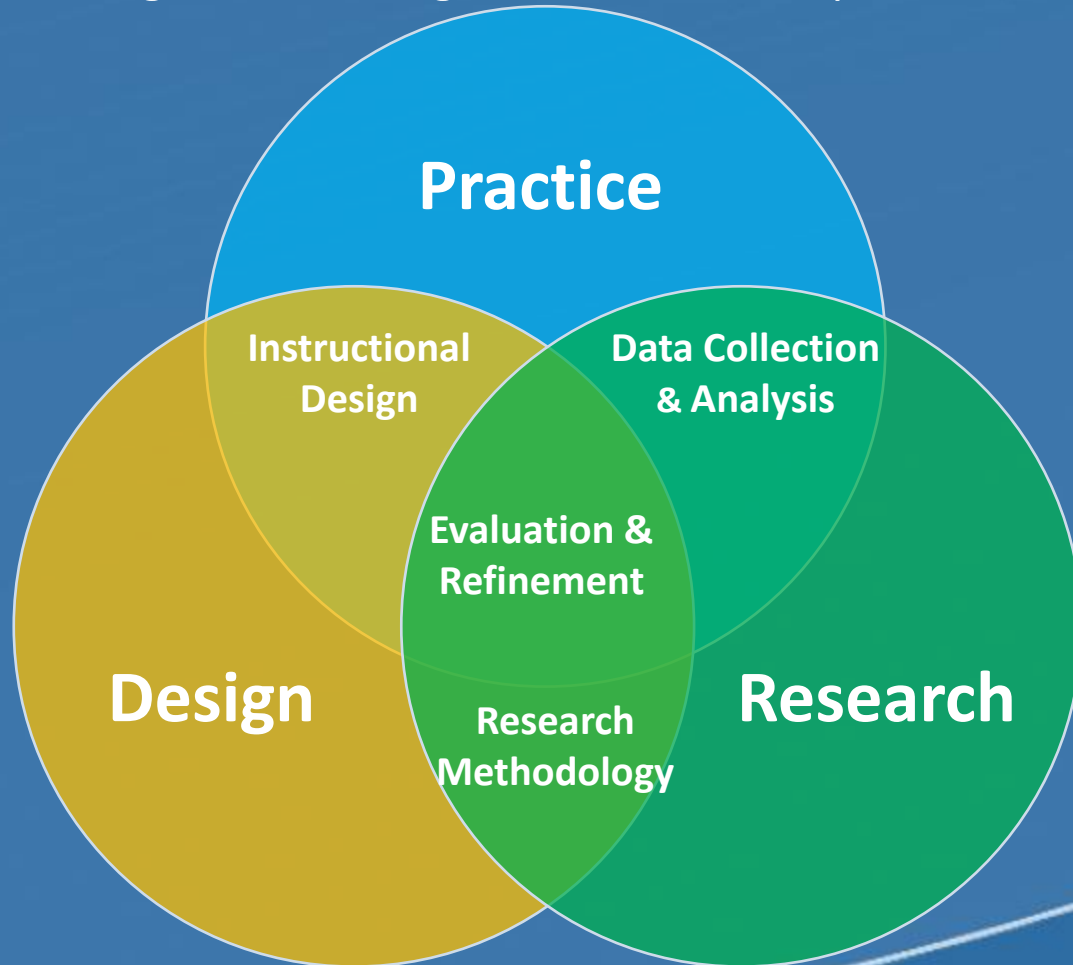
## Results

- ❑ The majority of those receiving unemployment benefits are unemployed for an extended period of time (2-10 years).
- ❑ The more they are unemployed, the more chance they will remain unemployed, regardless of their job search efforts



# Design-Based Research

Design-Based Research (DBR) tries to merge educational research and practice together – as it involves a systematic evaluation of a creative design, in order to refine the design, so learning outcomes are improved in each iteration (Cernusca & Ionas 2014).



Source: Amended from Cernusca & Ionas (2014)



# Design-Based Research

In DBR, both researcher and designer are working together to refine an innovative intervention (Rodríguez 2017). Also, both researcher and practitioner in each stage of DBR, from identifying the problem, through implementing the intervention, assessing it in order to create theoretical and design principles (Anderson & Shattuck 2012)

Design-Based Research has the promise in (Baumgartner et al. 2003):

- (a) exploring possibilities for creating novel learning & teaching
- (b) developing theories of learning and instruction that are contextually based
- (c) advancing and consolidating design knowledge
- (d) increasing our capacity for educational innovation

DBR focuses on designing and testing the intervention in practice, including (Mingfong, San & Ming 2010):

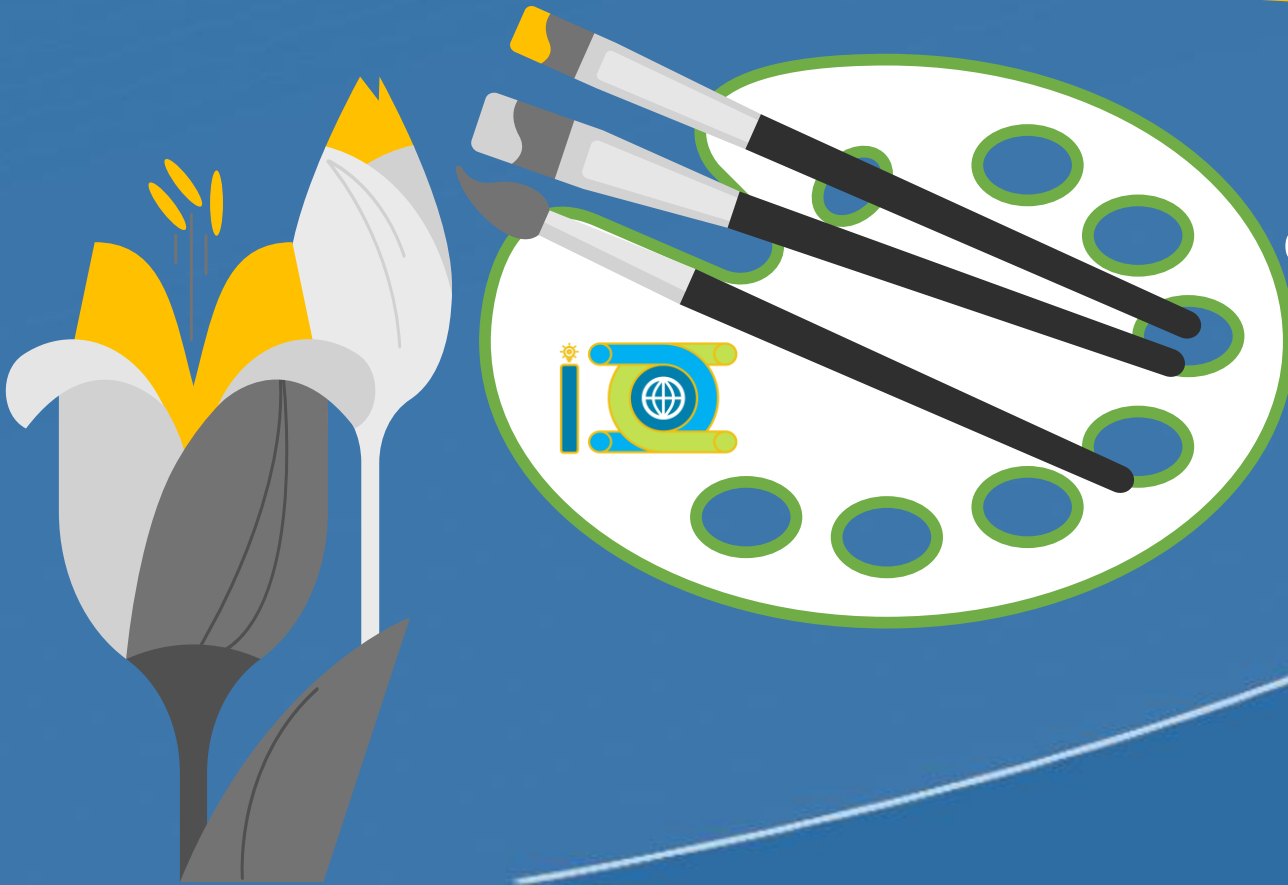
- frameworks for learning
- the affordances of the chosen instructional tools
- domain knowledge presentation
- contextual limitations





# Proposed Innovative Intervention

Smart Training for Arabic Residents on Technology (START)



Computer Training  
Business Training  
English Training





# Instructional Design of Intervention

No	Business Training	Computer Training
01	Assessment of Business Idea	Experiencing Internet Navigation
02	Understanding Business Structure & Obligations	Searching Professional Online Databases
03	Building Business Plan	Learning Microsoft Word
04	Record Keeping for Income & Expenses	Learning Microsoft Excel
05	Building Business Presence	Learning Microsoft PowerPoint
06	Maintaining Customers Database	Learning Microsoft Access
07	Basics of Social Media and Marketing	Learning Facebook Group & Page Creation
08	Experiencing Email Marketing	Learning Microsoft Outlook
09	Understanding Online Professional Image	Practicing Development Website through Website X5
10	Selling Online	Building Shopping Cart using WebsiteX5
Project	Practicing above Business Skills	Practicing above Computer Skills
	and Practicing Setting up e-Business Project	

Skills	English Training
Listening	Listening & Watching Modules
Reading	Reading Transcriptions, Glossaries, Extra Resources
Writing	Writing Ads, Brochures, Business Plans, Marketing Emails etc.
Speaking	Speaking in Advertisements and Support Sessions



4) Spreadsheet accounting

Managing Different Sources ✓

Creating Excel Workbook

Understanding Data Types

Recording Income

Recording Expenses

Navigation Bar

Business Lesson

## Managing Different Sources

Cash

Debit or Credit Cards

Arabic Transcription

ستحتاج إلى تسجيل التحويلات ، سواء الولادة أو الصادرة ، التي  
الحاجة الدفع عبر الإنترنت ، أو عمليات تحويل الأموال

Practice

Design

4) Spreadsheet accounting

Managing Different Sources ✓

Creating Excel Workbook ✓

Understanding Data Types

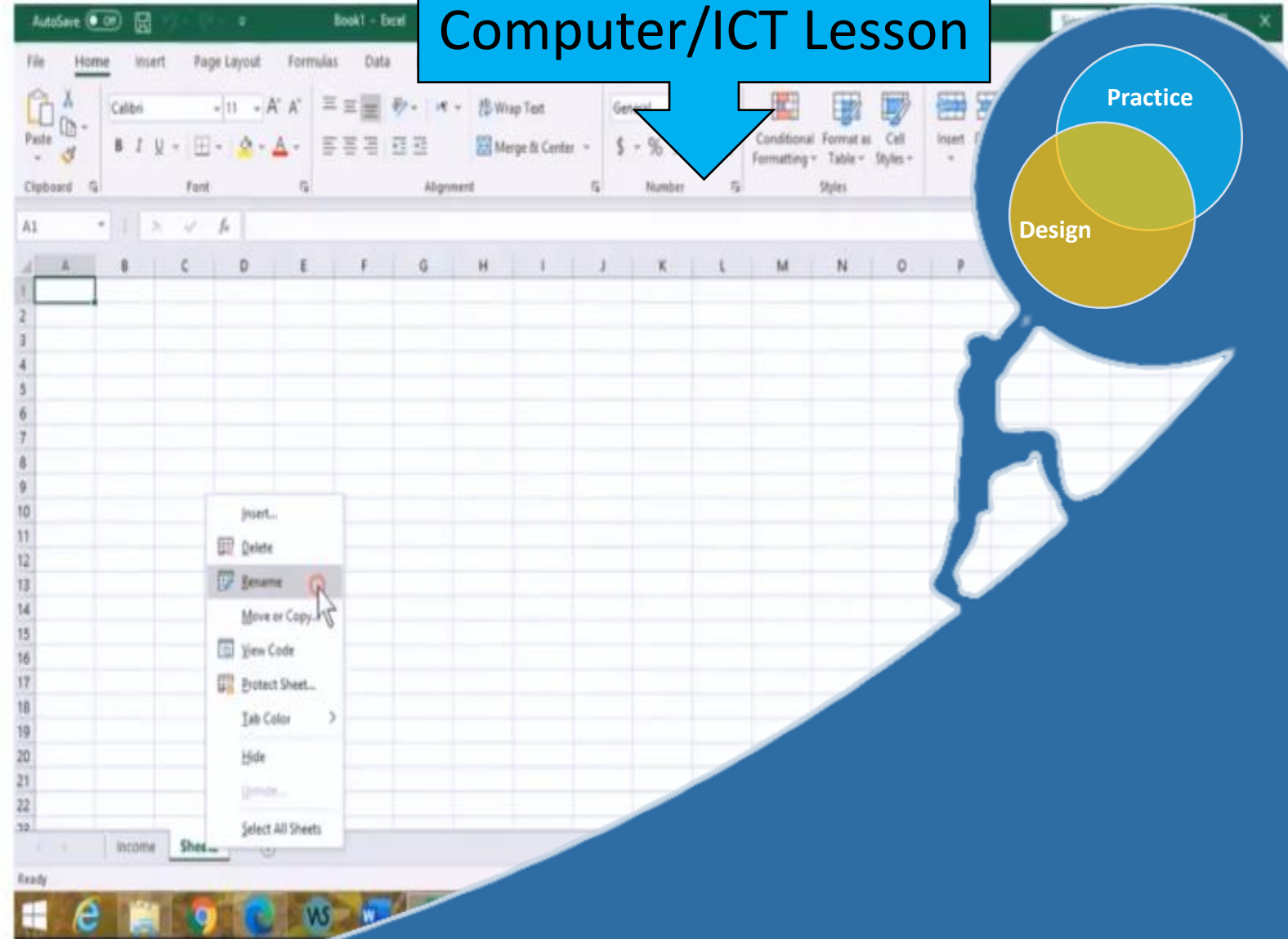
Recording Income

Recording Expenses

Resources

Conclusion

# Corresponding Computer/ICT Lesson



MENU القائمة GLOSSARY ... لغات ARABIC عربي

التسويق عبر البريد الإلكتروني

Existing Customers

العملاء الحاليين

Expenses

المصارف أو الإنفاق

Financial Advisor (Accountant)

المستشار المالي (المحاسب)

Financial Records

السجلات المالية

Income

الدخل

Using Glossary for  
English-Arabic  
Key Terminology

## Managing Different Sources

Cash

Debit or Credit Cards

Bank Money Transfer

Keep Receipts and Proofs of Purchase

سجل على الشراء. حاول إنشاء حساب مصرفي منفصل لأعمالك

Practice  
Design



MENU القائمة GLOSSARY كلمات ARABIC عربي

على الرغم من أن المحاسب الخاص بك سيساعدك في إعداد ضريبتك ، إلا أنك لا تزال بحاجة إلى الاحتفاظ بسجلات دقيقة لدخلك ونفقاتك ، لذا دعنا الآن نعرف المزيد حول استخدام Microsoft Excel في حفظ السجلات.

### Income & Expenses to/from Different Sources

As a sole-trader, you will need to record transactions, whether incoming or outgoing, that occur either by cash credit or debt card through Point-of-Sale, online payment processing, or Bank Money Transfer. It is important to avoid duplication.

Using Notes for  
Arabic-English  
Transcription

## Managing Different Sources

Cash

Debit or Credit Cards

Bank Money Transfer

Keep Receipts and Proofs of Purchase

Separate Bank Account for Business Transactions

من المهم أن تكون دقيقاً في الاحتفاظ بسجلات دقيقة لدخلك ونفقاتك.

Practice  
Design

# Research Methodology

DBR researchers use mixed research methods, and they select what they see are needed (Maxcy 2003). The selection of these methods should link processes of enactment to outcomes (Baumgartner et al. 2003).

## Quantitative & Qualitative Methods

- Initial & Final Practical Tests
- LMS Log Data (Learning Analytics)
- LMS Built-in End-of-Module Survey
- Participant Observation via Skype Support Sessions
- LMS Built-in End-of-START Survey
- Final Follow-up Interviews (Phone/Skype)




# Data Collection and Interpretation




- Initial Practical Test of Module




- Self-Pace Module Participation



- Learning Activities



- Quizzes




- Final Practical Test of Module



- Skype Support (Participant Observation)




- End-of-Module Online Built-in Survey



- Log Data (Learning Analytics)



- Quantitative & Qualitative Data Analysis



- Interpretation of Data Results



# Examples of Activities & Quizzes

Create an Excel spreadsheet and record your expenses this week and calculate the total expenses.

## Match Translations, Meanings, or Actions

Taxable income

Point-of-Sale (POS)

To rename a sheet

To calculate the total income

Income

Tax File Number TFN

Right-click on the name and from the menu on Rename and choose a name

A device where a customer executes the payment for goods / services and it generates a receipt

الدخل

رقم الملف الضريبي

It equals assessable income minus expenses

Practice

Research



Totally dissatisfied

Totally satisfied

The overall module "Mastering Record Keeping"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The online system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The lesson structure and navigation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The learning objectives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The video materials (texts, animations, screen recordings)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The audio materials	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The provision of glossary	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The learning activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The quiz	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The support session	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Could you please explain further the reasons of your ratings about "aspects you like in the module"?

Could you please explain further the reasons of your ratings about "aspects you did not like in the module"?

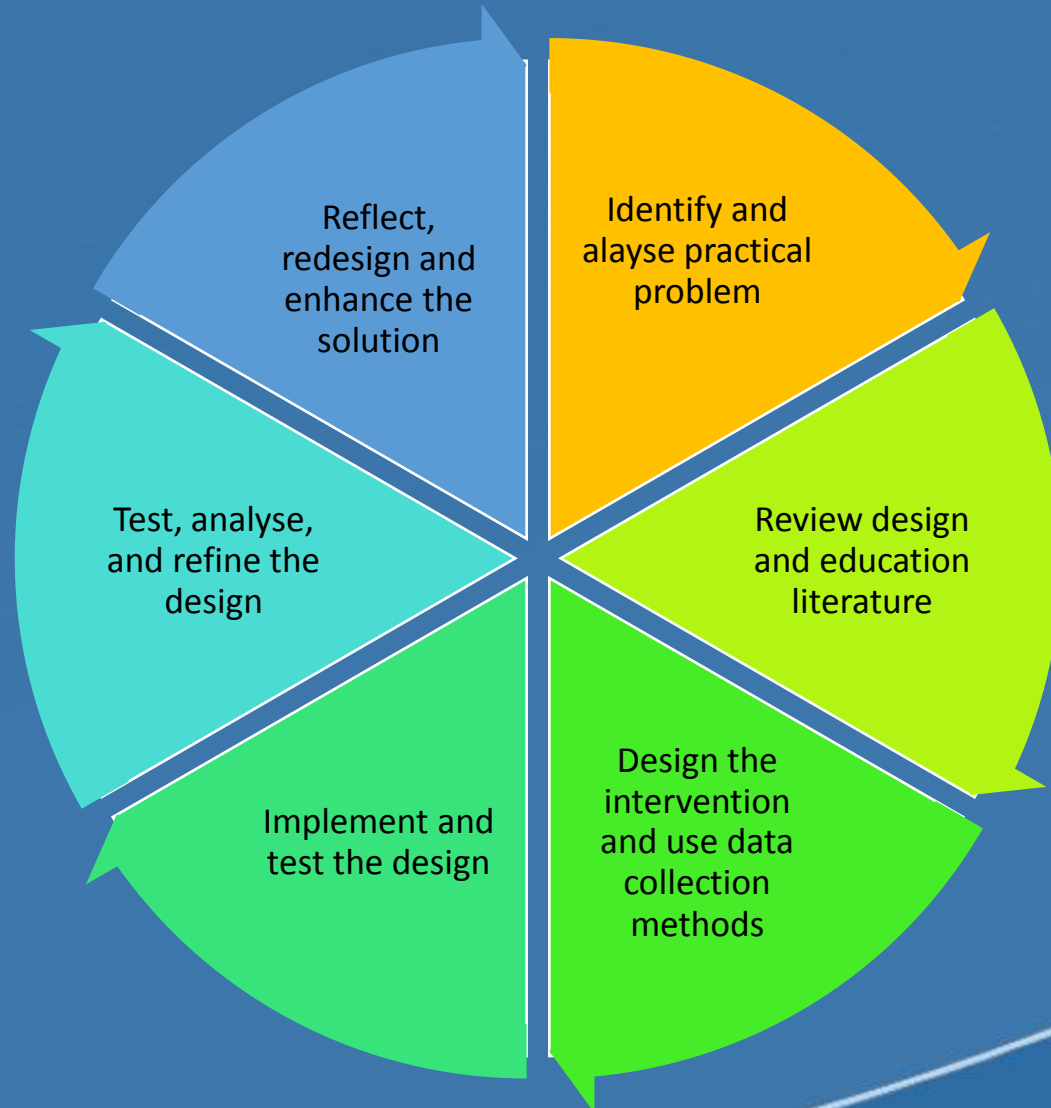
Would you like to add any comments, suggestions or feedback in relation to this module?

Submit

# End-of-Module Survey



# Evaluation, Refinement and Enhancement



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# Challenges and Methodological Considerations in Conducting Online Design-Based Research

## Summary & Conclusion

- ❖ DBR focuses on designing and testing an innovative intervention in practice.
- ❖ START Training is assessed using mixed methods and a variety of research tools.
- ❖ Challenges in the Researcher's Online Design-Based Research:
  - Overwhelming efforts (3x1 Researcher, Designer & Instructor)
  - The blur steps and applications of findings for the re-design
  - Developing, implementing and administrating the intervention
  - Ethical considerations: trainees regardless of their participation in study
  - Difficulty in recruitment
  - High drop-out rate due to the lengthy training / beyond formal education
  - Lack of funding for incentives and retaining
  - Making meanings of data analysis results in each iteration
  - Refining processes are strenuous effort



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