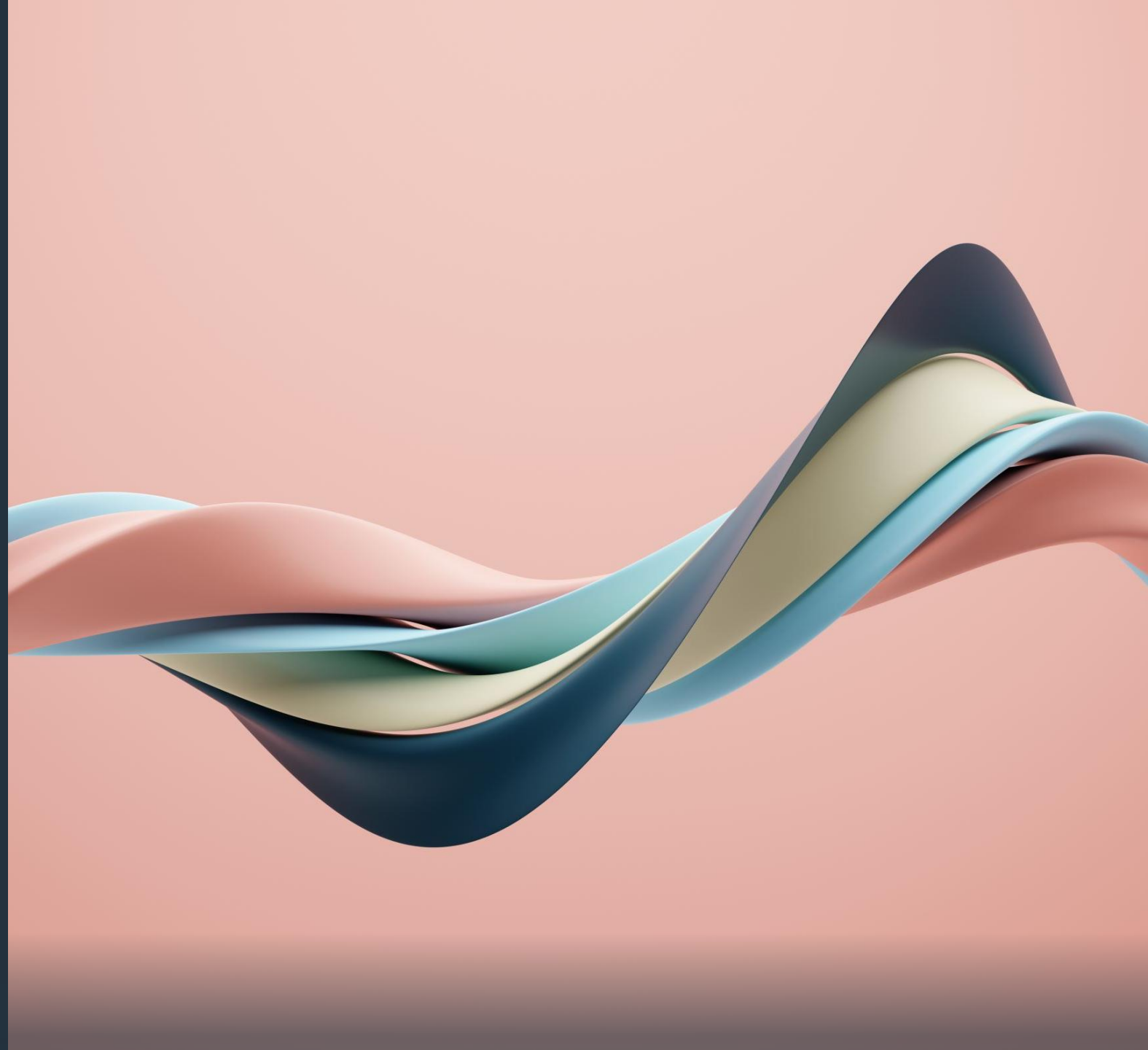
How to Use Educational Research to Improve Teaching Practice

Professor Heidi Probst

Sheffield Hallam University



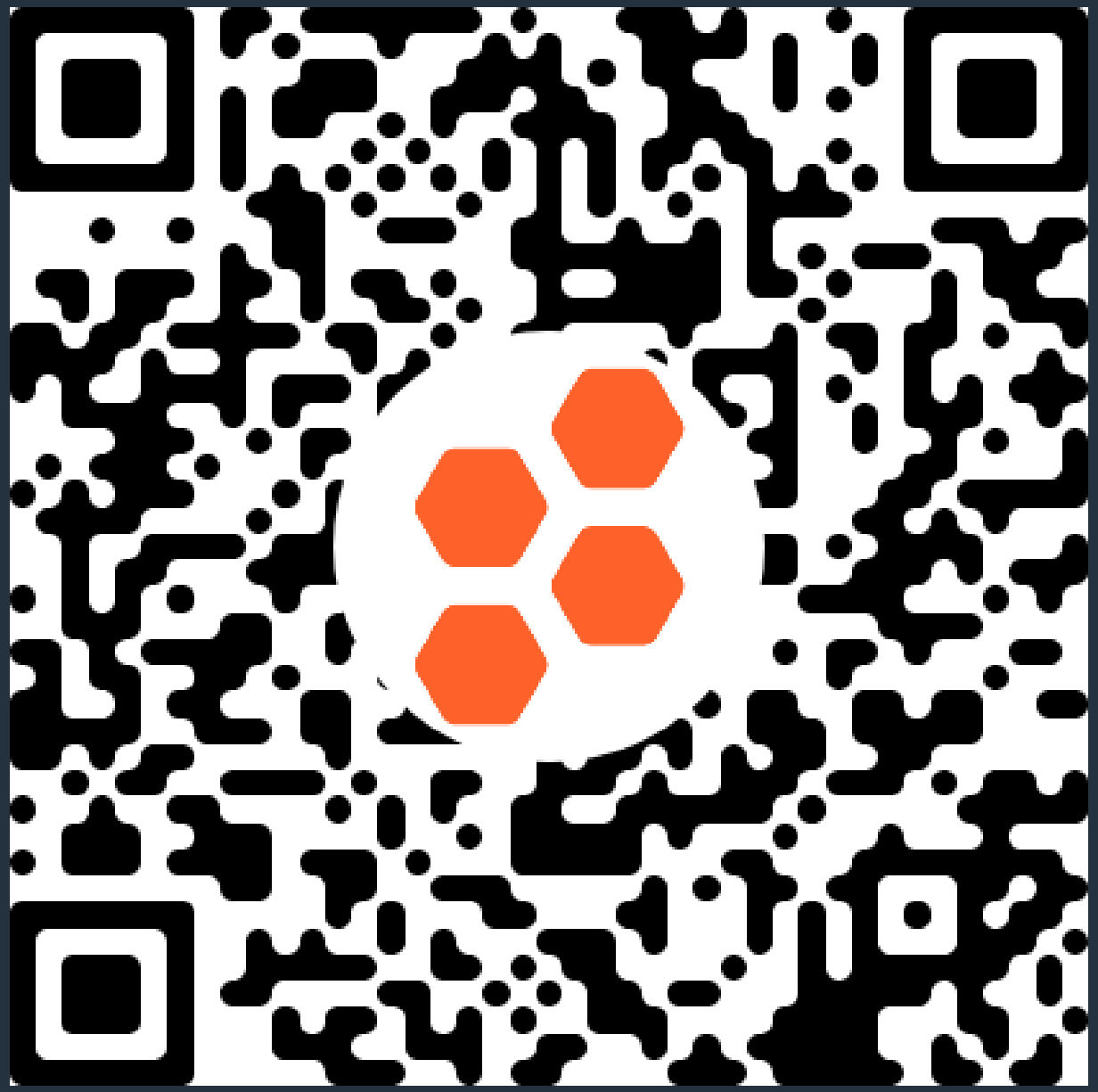
Agenda

Introduction to educational research- a case study.

A 4-Point approach to developing and implementing educational research to improve teaching practice.

Mastermind activity- Using the skills and expertise of the mastermind group approach you can develop your own educational research proposal.

Understanding where you are and what you want.



Educational Research some examples

Dementia education for Diagnostic Radiography students: Impact on confidence, knowledge, and attitudes towards dementia E. Berry, C. S. Mc Nally, A. Barbosa, C. Mason and D. Jones Radiography 2024 Vol. 30 Pages 51-55

1.5 hr training programme and 1.5 hour simulation activity

Test-retest method pre and post training intervention, using validated scales.

Statistically significant improvements in knowledge, confidence, attitudes and preparedness.

Preparedness 20% pre intervention vs 83% post intervention

Educational Research some examples

Implementation and evaluation of an online anatomy, radiology and contouring bootcamp for radiation therapists K. D'Angelo, P. Eansor, L. A. D'Souza, M. E. Norris, G. S. Bauman, Z. Kassam, et al.

J Med Imaging Radiat Sci 2021 Vol. 52 Issue 4 Pages 567-575

8 week online bootcamp, contouring platform,

Test-retest method pre and post training intervention, using MCQs, assessment of self-efficacy and satisfaction, contouring agreement (Dice similarity coefficient).

Statistically significant improvements in MCQ knowledge (pre 46.5% vs post 61.4%), confidence, knowledge and mean DSC scores improved.

All DSC scores showed improvement post Bootcamp but only 3 out of 15 reached statistical significance.

A case example
Evaluating Audio Feedback in comparison with Traditional Written Feedback

Dr Heidi Probst

Dr Rob Appleyard

Feedback

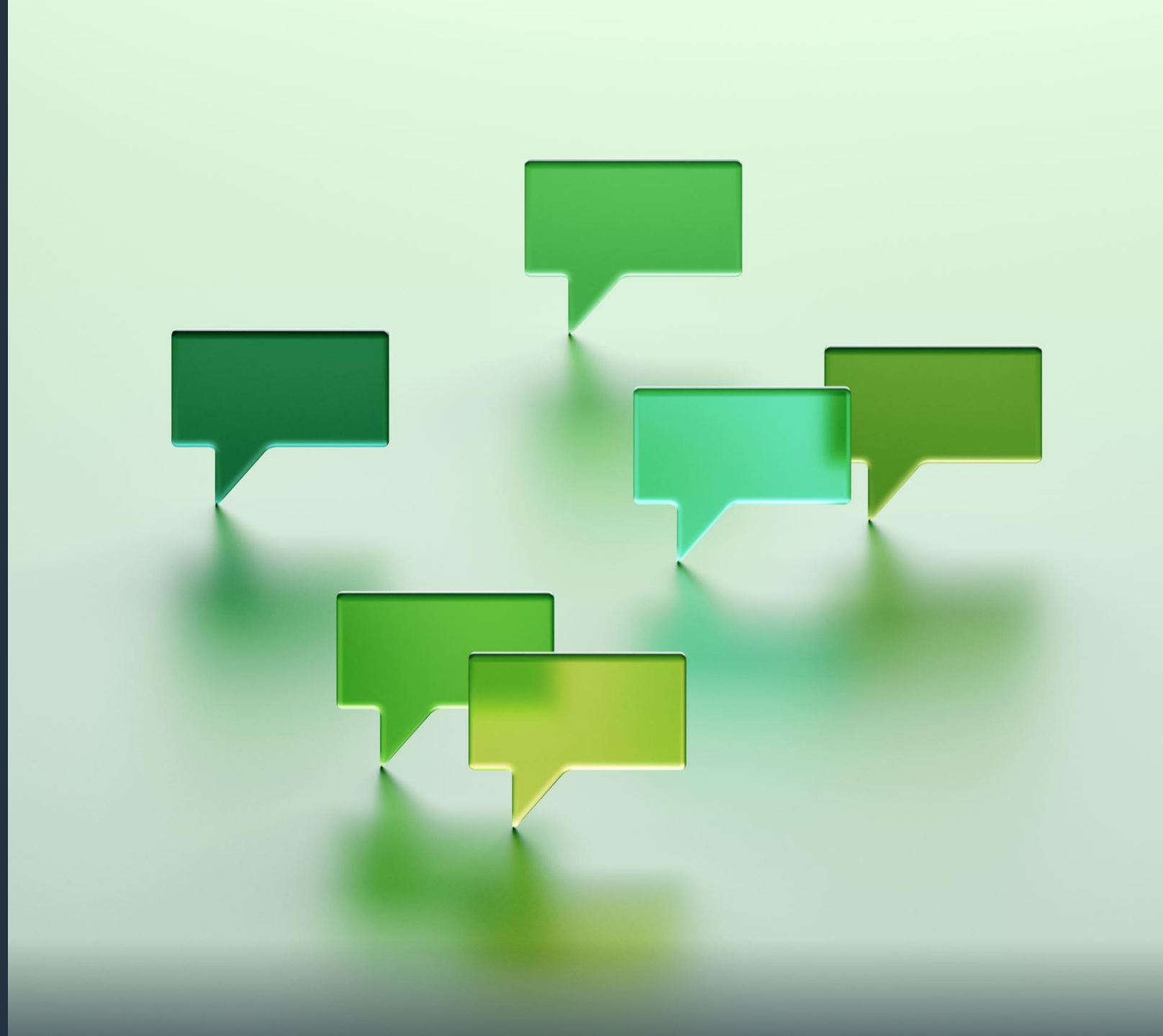
Bad human communication leaves us less room to grow[1].

Rowan D. Williams

P- Problem

Background

- Feedback can be via oral face to face transactions, written text, electronic media (e-mail or through synchronous or asynchronous discussion), audio or video methods.
- Should feedback be both oral and written?
- Oral feedback allows the opportunity for the building of a relationship between the student and tutor.
- Written feedback has permanence.
- Pre-typed comments sheets are often used for speed but while they may improve the efficiency of marking there's evidence that suggests that this efficiency saving is not matched by sufficient quality and quantity of feedback from a student's perspective



Background- Benefits of Audio

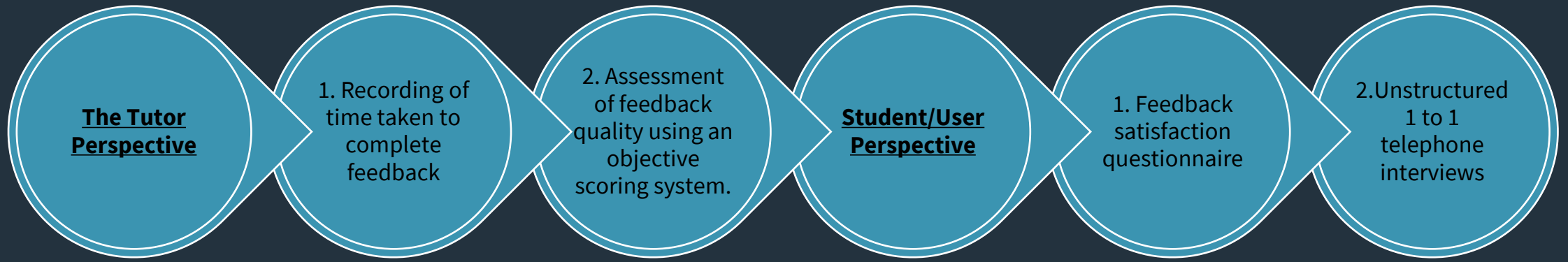
Audio feedback intuitively maybe more effective than written text because of the human element that allows the opportunity to build some trust

Empathy can be demonstrated by tone and inflection not possible in written feedback methods [2].

Using audio recordings for student feedback is not new and has been employed since the 1990's. Yet formal research into the effectiveness of this mode of feedback is patchy.

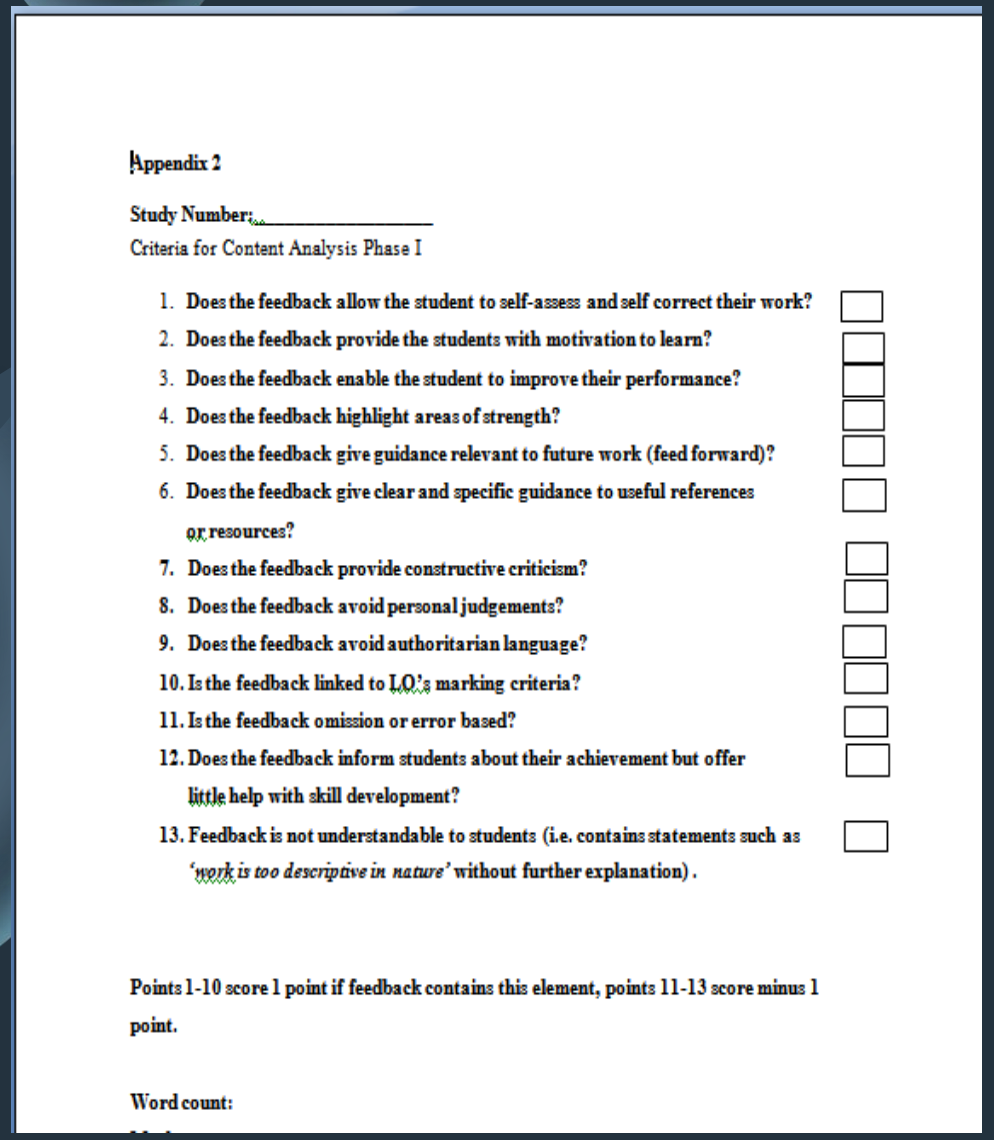
P- Plan

Method


The Tutor Perspective
1. Recording of time taken to complete feedback
2. Assessment of feedback quality using an objective scoring system.
Student/User Perspective
1. Feedback satisfaction questionnaire
2.Unstructured 1 to 1 telephone interviews

Some key areas to attend to.

- **Minimising bias**
- **Issues of Power imbalance**
- **Sample size considerations.**



Appendix 2

Study Number:_____

Criteria for Content Analysis Phase I

1. **Does the feedback allow the student to self-assess and self correct their work?** ☐
2. **Does the feedback provide the students with motivation to learn?** ☐
3. **Does the feedback enable the student to improve their performance?** ☐
4. **Does the feedback highlight areas of strength?** ☐
5. **Does the feedback give guidance relevant to future work (feed forward)?** ☐
6. **Does the feedback give clear and specific guidance to useful references or resources?** ☐
7. **Does the feedback provide constructive criticism?** ☐
8. **Does the feedback avoid personal judgements?** ☐
9. **Does the feedback avoid authoritarian language?** ☐
10. **Is the feedback linked to LO's marking criteria?** ☐
11. **Is the feedback omission or error based?** ☐
12. **Does the feedback inform students about their achievement but offer little help with skill development?** ☐
13. **Feedback is not understandable to students (i.e. contains statements such as *'work is too descriptive in nature'* without further explanation).** ☐

Points 1-10 score 1 point if feedback contains this element, points 11-13 score minus 1 point.

Word count:

Cronbach Alpha= 0.743

Number: RMfP study no 174

These questions refer specifically to your most recently completed MSc module. Please check only one box for each question (double click on the box that is next to your response and click on 'checked' in the 'default value' section of the window that appears on screen)

For feedback received for the module 'Research Methods for Practice'

1. Quantity and Timing of Feedback

SA= Strongly Agree, A= Agree, U= unsure, D= Disagree, SD= StronglyDisagree

The feedback came back very quickly	SD☐ D☐ U☐ A☐ SA☐
There is hardly any feedback on my assignment	SD☐ D☐ U☐ A☐ SA☐
I didn't receive much guidance in what to do about the areas where I went wrong	SD☐ D☐ U☐ A☐ SA☐
I would learn more if I received more feedback	SD☐ D☐ U☐ A☐ SA☐

2. Quality of Feedback

SA= Strongly Agree, A= Agree, U= unsure, D= Disagree, SD= StronglyDisagree

The feedback helps me understand how I am doing in relation to others	SD☐ D☐ U☐ A☐ SA☐
The feedback has helped me understand things better	SD☐ D☐ U☐ A☐ SA☐
The feedback shows me how to do better next time	SD☐ D☐ U☐ A☐ SA☐
Once I reviewed the feedback I understood why I got the mark I did.	SD☐ D☐ U☐ A☐ SA☐
I didn't understand some of the feedback	SD☐ D☐ U☐ A☐ SA☐
I **can not** see from the feedback what I need to do to improve	SD☐ D☐ U☐ A☐ SA☐

Cronbach Alpha=0.852

Number: RMfP study no 174

3. What you have done with the Feedback

SA= Strongly Agree, A= Agree, U= unsure, D= Disagree, SD= StronglyDisagree

I considered the feedback carefully and tried to understand what the feedback was saying.	SD☐ D☐ U☐ A☐ SA☐
I used the feedback to go back over what I had done in the assignment.	SD☐ D☐ U☐ A☐ SA☐
The feedback will not help me in subsequent assignments	SD☐ D☐ U☐ A☐ SA☐
The feedback has prompted me to go over material covered in the module.	SD☐ D☐ U☐ A☐ SA☐
The mark is more important to me than the feedback	SD☐ D☐ U☐ A☐ SA☐
I will use the feedback to help plan future assignments	SD☐ D☐ U☐ A☐ SA☐

Would you be willing to participate in a telephone interview? **Yes** ☐ **No** ☐

If you answered Yes above please provide a contact phone number or e-mail address so we can arrange a suitable time for the interview

Please use the space below to provide any further comments you think would help us in this study.

Thank you for taking the time to participate in this study. **Remember to save this document with the original file name before closing and returning to** h.probst@shu.ac.uk

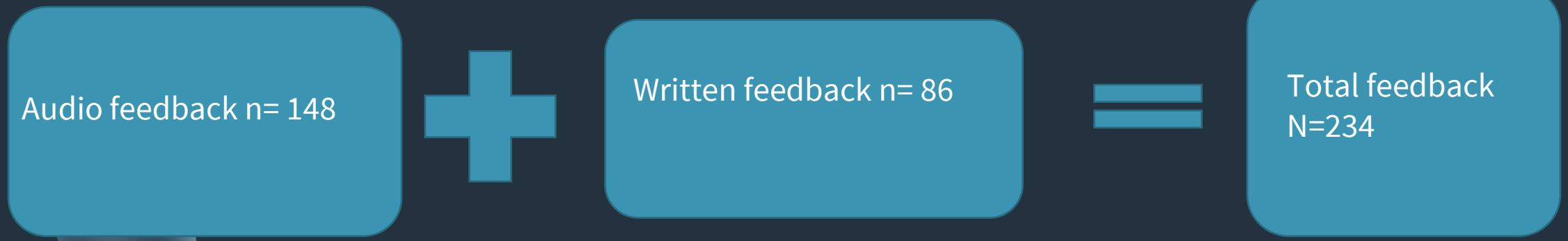
Cronbach Alpha = 0.646

P- Proof

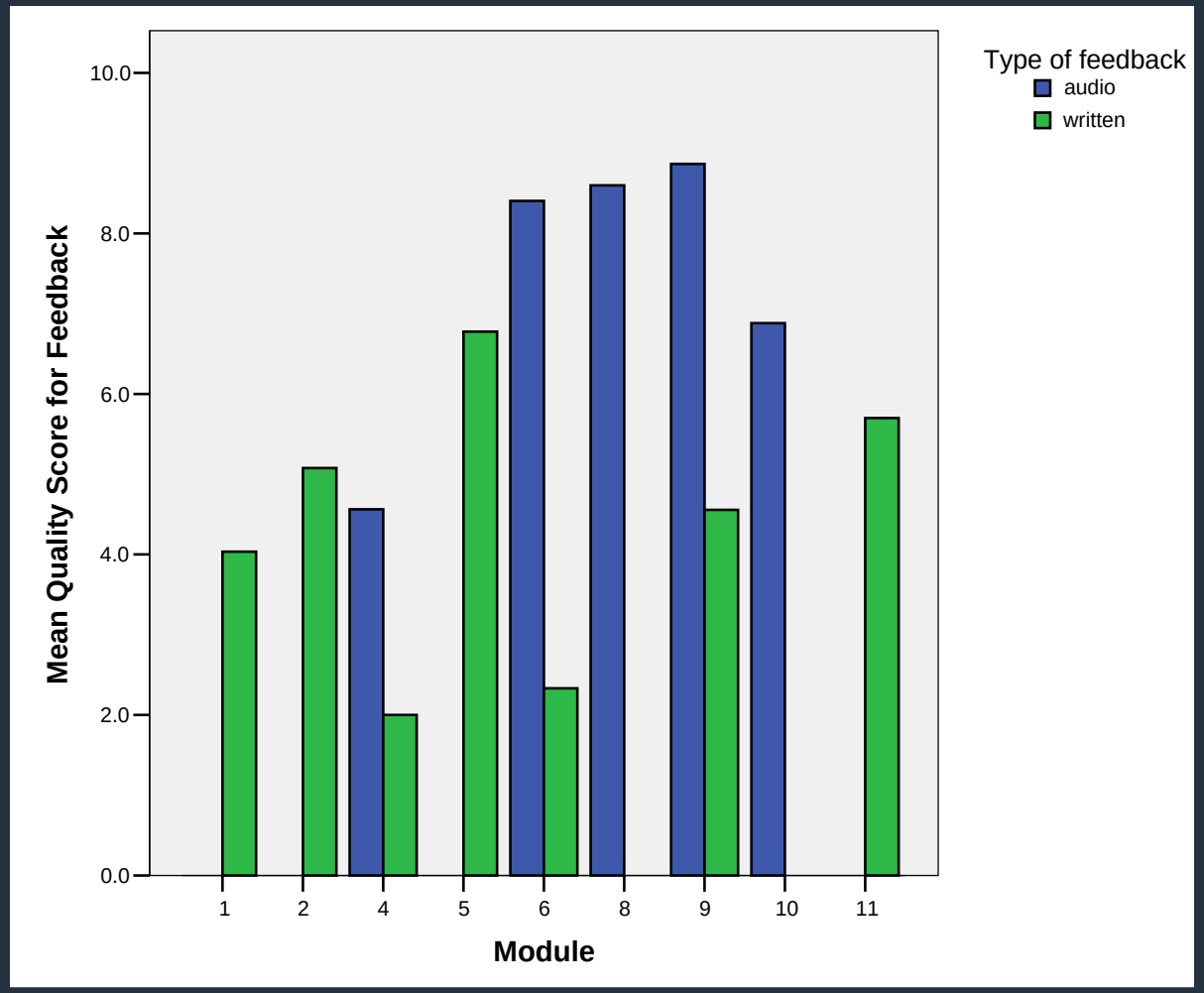
Some key areas to attend to.

- **Perspectives- student/Teacher**
- **Independence in the analysis**
- **How do the results align with wider evidence base.**

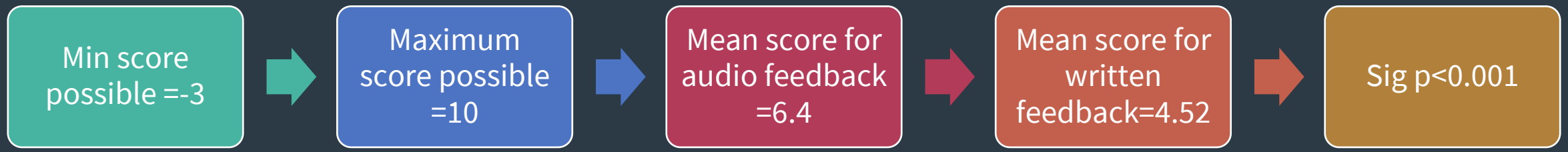
Results – Descriptive data



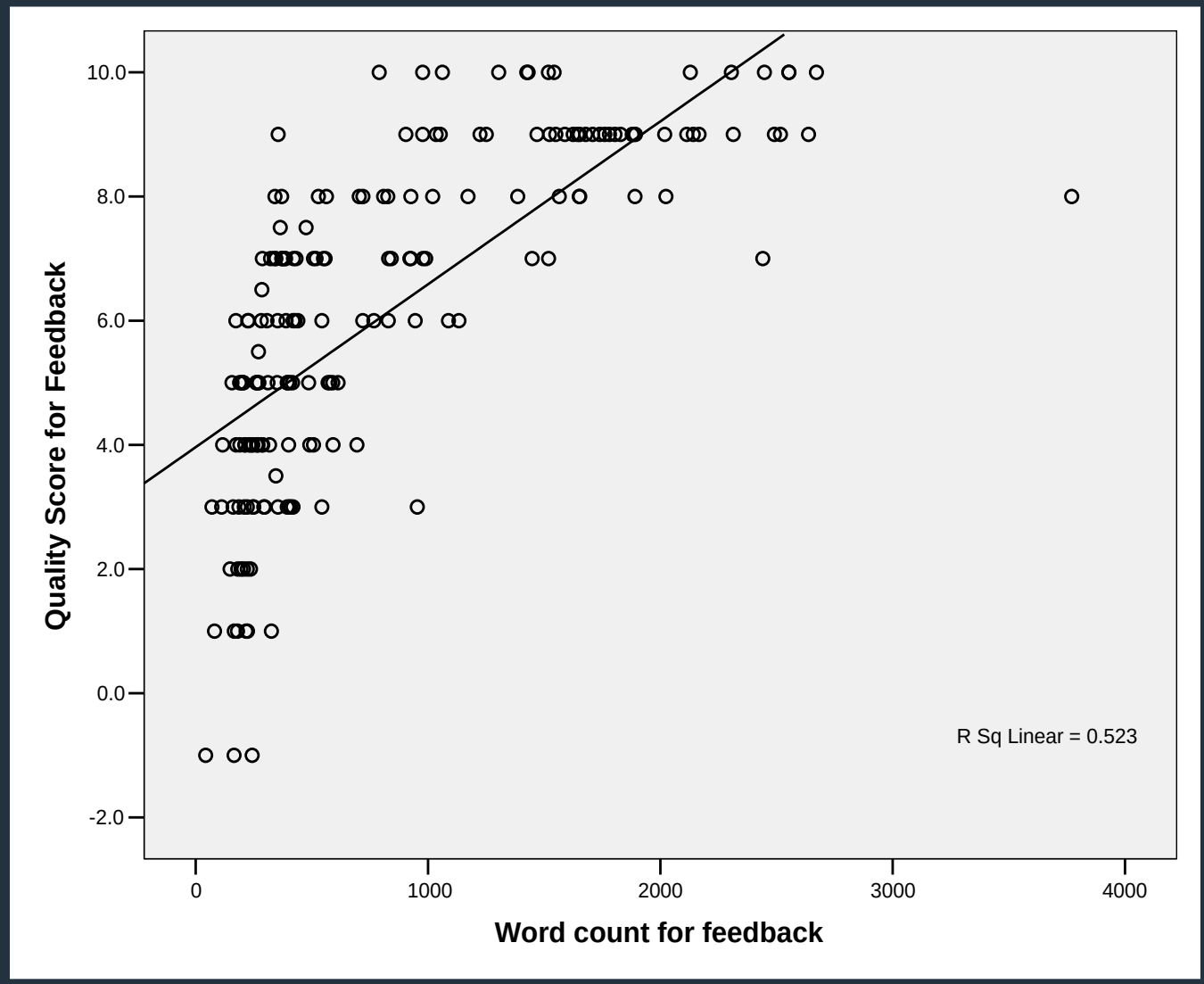
Results- Feedback Quality Scores



Feedback Quality Score



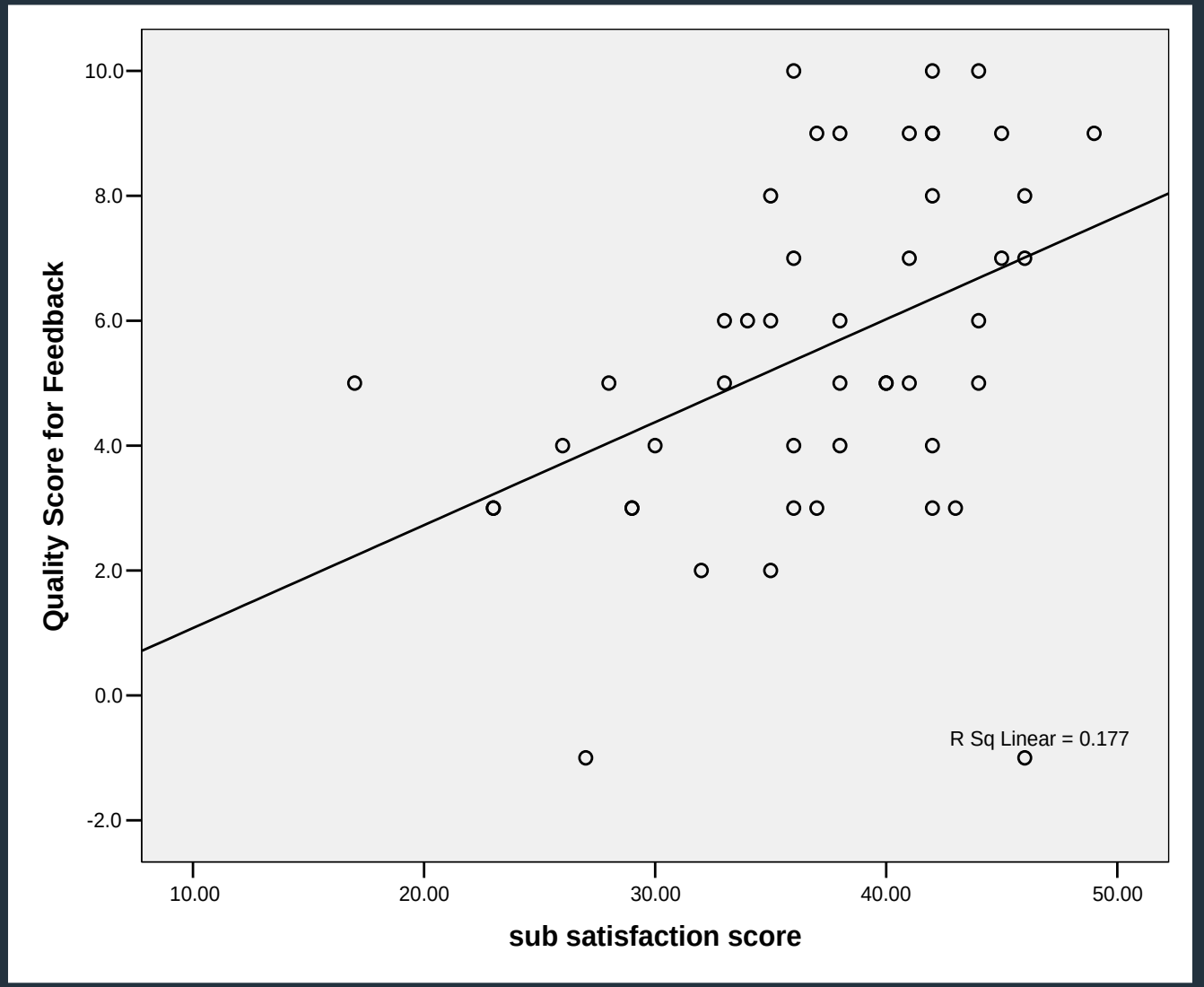
Results-Quality Score vs Word count



Sig correlation R=0.723 (p<0.001)

Results- Feedback Quality Score and Student satisfaction

Sig correlation
R=0.421 ,p=0.003



Student satisfaction score

01

Min score possible =10,

02

maximum score possible =50

03

Mean satisfaction score for audio feedback= 39.3

04

mean satisfaction score for written feedback was 34.2

05

P=0.01

Results-time to complete feedback

MEAN FOR AUDIO =10.4 MINS

MEAN FOR WRITTEN= 20 MINS

P<0.001

P-Put into Practice

Put into practice

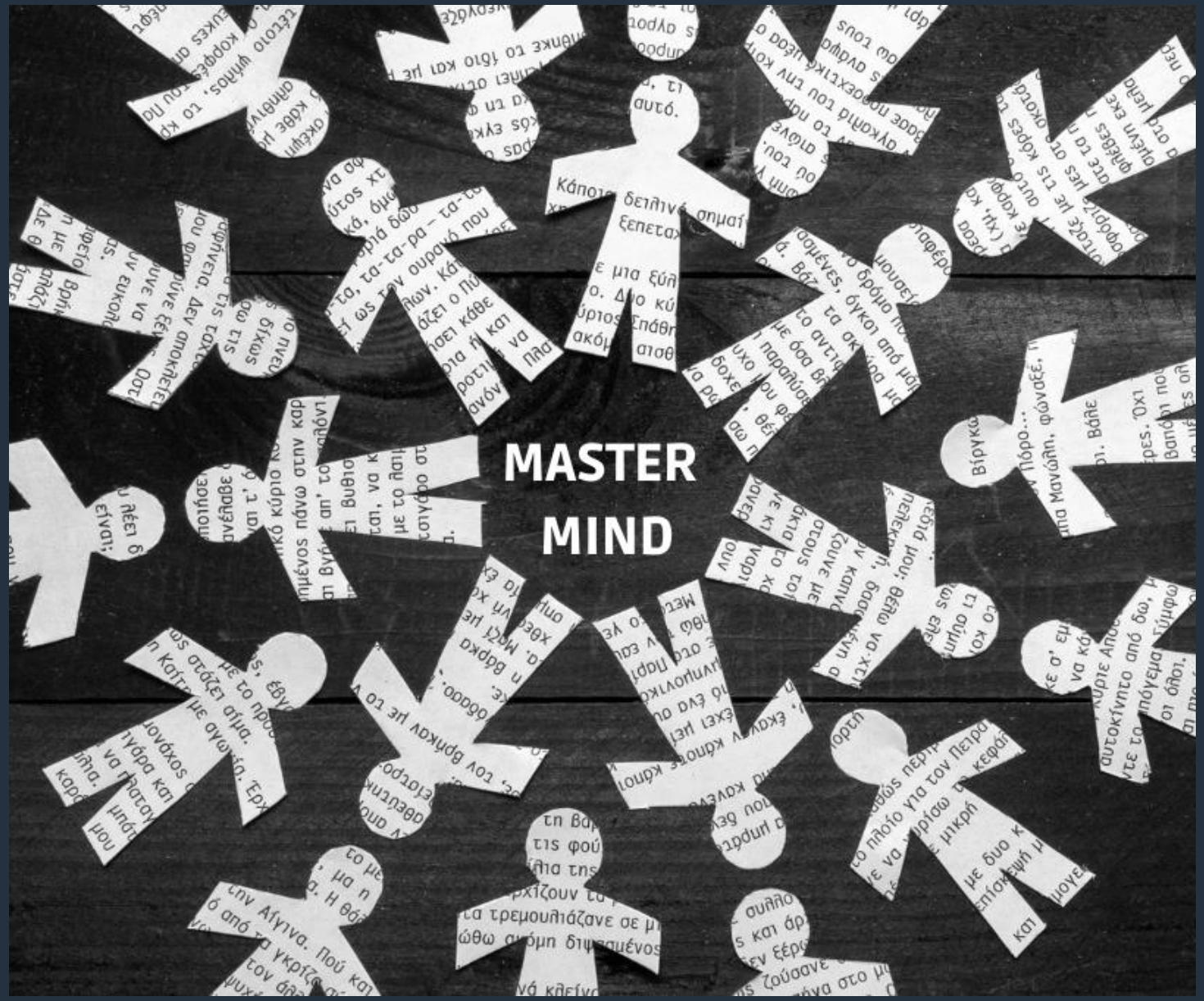
Spread the word about the results

Use implementation science

Your turn…..

Mastermind Approach

- On your tables you should have flip chart paper and pens
- In your small groups you have 5 mins to individually chart an educational research proposal using the 4Ps as your headings



Mastermind Approach

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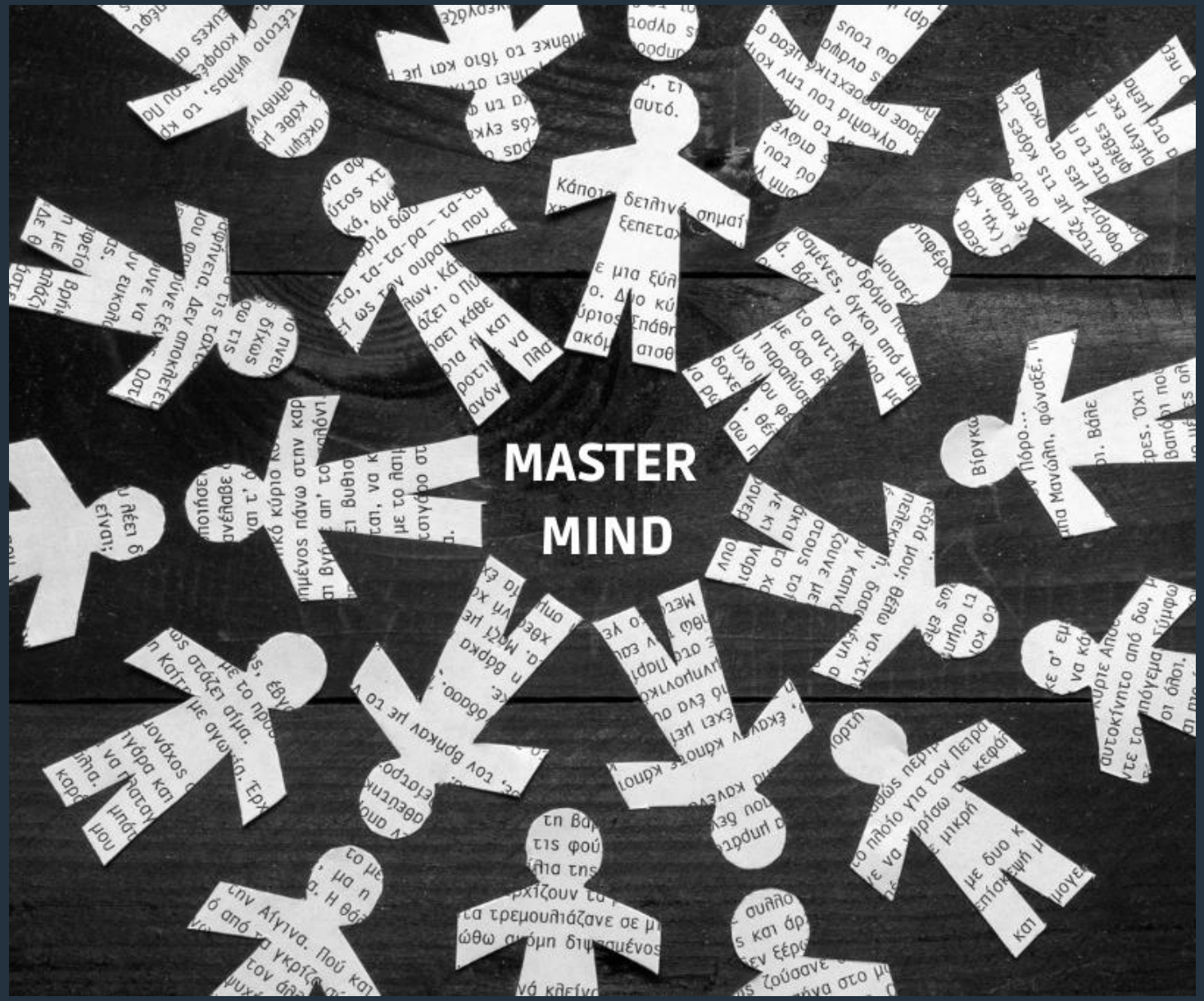
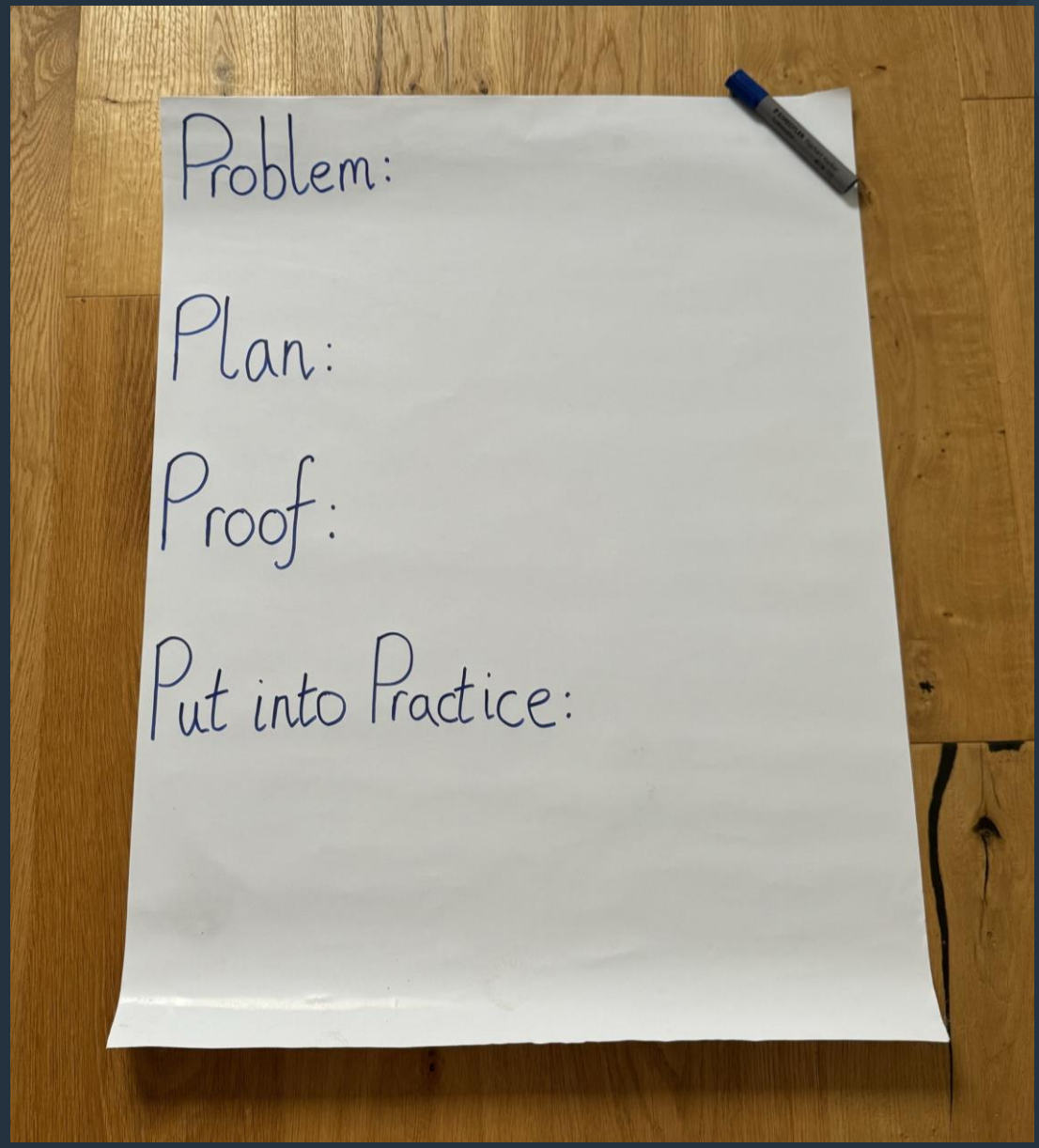


Your project idea- 5 mins

- Briefly outline:
- **The problem-** why it needs investigating
- **The Plan-** what approach will you use,
- **Proof**- what data will you produce or what output measures will you use?
- **Put into Practice**- How will you implement the findings



Power of the collective-

- Each person then has 2 mins to describe their proposed project, 3 mins for input from the rest of the table.
- Make notes under each heading about the feedback you have received.

Finally

Each table will nominate 1 person to do a 2-min elevator pitch about their research proposal.

Your time starts now……

And finish……

Let’s elevate…

- The time it takes for the elevator to go from ground to the executive floor to pitch your idea.
- 2 mins only
- Start with the **problem**- why it is important, why you need to investigate it,
- Follow with what you **plan** to do.
- Why you plan to collect specific data to develop the **proof**
- Finish with how you will **put** the results **in to practice.**

NIHR Incubator for Diagnostic and Therapeutic Radiotherapy

- Partners are Society & College of Radiographers (SCOR), University of Cumbria, University of Exeter, Sheffield Hallam University, Imperial College Healthcare NHS Trust, The Royal Marsden NHS Foundation Trust, The Institute of Cancer Research and Council for Allied Health Professions Research.
- We have a Steering Group, with members from across the UK and different levels represented.
- Launched in January 2024. Appointed Programme Co-Ordinator Anna Lidgate.
- Radresearch@imperial.ac.uk

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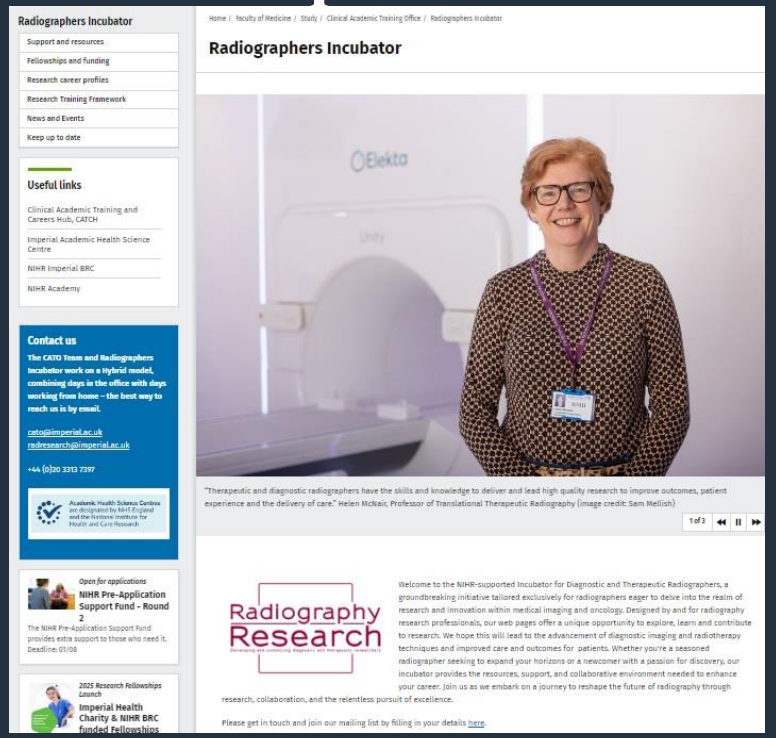
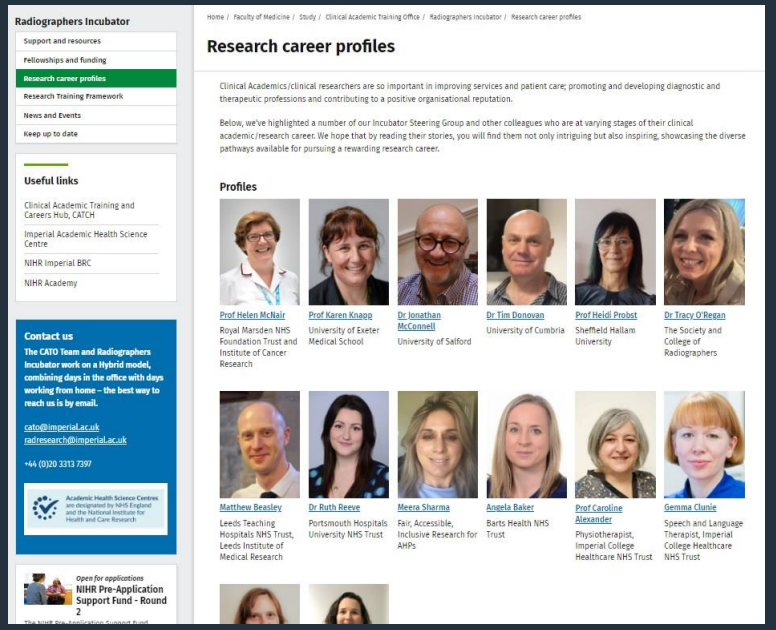
NIHR Incubator for Diagnostic and Therapeutic Radiotherapy



Website – www.imperial.ac.uk/radiographers-incubator

- Wealth of free resources for aspiring and experienced researchers.
- Guidance with regards to Fellowships and Funding.

- Research Career Profiles – from experienced Profs to PhD students.
- News and events page.
- Newsletter sign up form.



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NIHR Incubator for Diagnostic and Therapeutic Radiotherapy

- Designed and launched a Clinical Research Training Framework, designed to assist with developing clinical research careers.

It can be automatically downloaded from our website.


Radiography Research

Developing and connecting diagnostic and therapeutic researchers

Welcome to our first newsletter!

Prof Helen McNair (Incubator Lead) and Anna Lidgate (Programme Co-ordinator)

We are RadResearch, the NIHR-supported Incubator for Diagnostic and Therapeutic Radiographers. We provide a new initiative tailored exclusively for radiographers, like yourself, eager to delve into the realm of research and innovation within medical imaging and oncology. Designed by and for radiography research professionals, we offer a unique opportunity to explore, learn and contribute to research.

We were delighted to meet so many of you at UKIO Liverpool last month, and look forward to seeing more of you at future events. We plan to send regular newsletters, updating you with our plans and events, highlighting any upcoming areas of interest.

We are keen to hear from you about what information is useful, so please get in contact. And please share this newsletter with your colleagues and networks.

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- Launched RadResearch Newsletter in July. It will contain news, events and useful information and sent every other month.

Go forth and research….