



MECHANICAL ENGINEERING WITH PROFESSOR LAURENCE KENNEY AND DR ALEX DICKINSON

TALKING POINTS

KNOWLEDGE

1. What is prosthetics?
2. What is a LMIC?

COMPREHENSION

3. What are the reasons why the need for prostheses is typically highest in LMICs?

APPLICATION

4. What questions do you think the interviewers in Jordan and Uganda might have asked?
5. Charities have to be careful about how they spend their limited funding. How do you think Alex's team might have approached Exceed Worldwide when suggesting a collaboration?

ANALYSIS

6. What are the similarities and differences between the challenges faced regarding prosthesis use in Uganda and Jordan?

7. Why do you think the design of body-powered prostheses has not changed much over the last century?

8. Alex mentions that clinical data has to be stored in a "secure and ethical way". What do you think he means by this, and why is this important?

EVALUATION

9. How might Alex and Laurence evaluate the successes of their projects? What measurable characteristics might be markers of success, or points for improvement?

CREATIVITY

10. Type 2 diabetes can be caused by an unhealthy diet. If untreated, it can lead to a need for limb amputation. It is predicted that the rising prevalence of processed foods in some LMICs will ultimately lead to a greater need for prostheses. Imagine you are leading the Health Department of a LMIC and see this trend emerging. What steps might you take? On what aspect would you focus?

ACTIVITY

Both Alex and Laurence's projects depend on collaboration across different academic disciplines and non-academic sectors.

For each of the below, write a first-person paragraph as if you were in the position named, talking about your role in the project, the attributes that help you fulfil this role, and what you gain from the project.

Use the information in the article and your own judgement to think carefully about what these perspectives are likely to be. The first one has been completed as an example.

LAURENCE'S PROJECT

• Interviewer

"I was trained to give semi-structured interviews in Jordan, to gather information about the experiences of amputees and what they wanted to see in terms of prosthetics design and supply. I passed on recordings of the interviews to the social scientist for thematic analysis. I grew up in Jordan and speak fluent Arabic, which helps me engage with the interviewees at a personal level and encourages them to open up. I was paid for my time, learnt a new skill that will help my future employment prospects, and took satisfaction from knowing my contribution will help make a positive difference."

- Social scientist
- Health psychologist
- Mechanical engineer
- Médecins Sans Frontières (MSF) regional operations lead
- International Committee of the Red Cross (ICRC) field volunteer
- Prosthetic limb user

ALEX'S PROJECT

- Computer scientist
- Biomechanical engineer
- Clinician
- Exceed Worldwide field worker
- Cambodian government official
- Prosthetic technician
- Prosthetic limb user

MORE RESOURCES

- Alex's project falls under the work of the People Powered Prosthetics research group. Find out more about the group's work around the world and its innovative findings here: peoplepoweredprosthetics.com
- Laurence's work is part of the Fit 4 Purpose Prosthetics project, which works in Uganda and Jordan to make prosthetics more accessible and useful. Find out more here: www.fit4purposeprosthetics.org
- This video gives an overview of the history of prostheses and how they have changed over time: www.youtube.com/watch?v=0CpiQdgV81g

Find out more about the charities Laurence and Alex have worked with:

Médecins Sans Frontières (MSF):
www.msf.org.uk

International Committee of the Red Cross (ICRC):
www.icrc.org

Knowledge4Change:
www.knowledge4change.org

Exceed Worldwide:
www.exceed-worldwide.org