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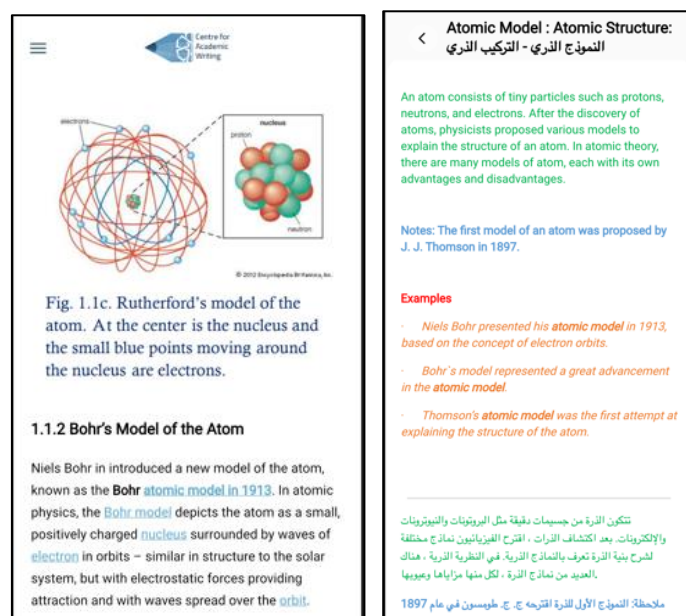
A Bilingual Corpus-Based Physics Dictionary for L1 Arabic Undergraduates

Dr Priya Mathew, based at Middle East College (MEC), Oman, and Dr Lee McCallum, at the University of Edinburgh, Scotland, set out to develop and trial a subject-specific dictionary app for L1 Arabic undergraduate students taking a basic Physics module delivered in English as part of a Foundation Programme at MEC to prepare them for degree courses in Electronics Engineering.

Why? Having studied in Arabic through secondary school, the students on this programme struggle to get to grips with the large amount of technical terminology in English they need to master. Existing dictionary resources don't quite meet their needs, with learner's dictionaries not covering the specialist terminology in enough detail and specialist dictionaries, typically aimed at L1 English speakers, being hard to access.

How? To try to address this need, the project team started off by creating a corpus of existing course materials. Working together with subject lecturers at MEC, they identified 45 key vocabulary items from the first chapter of the course handbook, then used their own corpus together with a larger general corpus (*enTenTen20*) to develop entries for these key terms, including simple explanations, Arabic translations, example sentences drawn from the corpora, along with diagrams and illustrations – often crucial in understanding scientific concepts. These entries were used to develop a mobile app in which users could follow links from the course handbook text to entries for the key terms. The app was then trialled with MEC students

Feedback: The feedback from both students and staff was generally very positive:



Atomic Model : Atomic Structure:
النموذج الذري - التركيب الذري

An atom consists of tiny particles such as protons, neutrons, and electrons. After the discovery of atoms, physicists proposed various models to explain the structure of an atom. In atomic theory, there are many models of atom, each with its own advantages and disadvantages.

Notes: The first model of an atom was proposed by J. J. Thomson in 1897.

Examples

- Niels Bohr presented his **atomic model** in 1913, based on the concept of electron orbits.
- Bohr's model represented a great advancement in the **atomic model**.
- Thomson's **atomic model** was the first attempt at explaining the structure of the atom.

تتكون الذرة من جسيمات دقيقة مثل البروتونات والنيوترونات والإلكترونات. بعد اكتشاف الذرات، اقترح الفيزيائيون نماذج مختلفة لشرح بنية الذرة وتعرف بالنماذج الذرية. في النظرية الذرية، هناك العديد من نماذج الذرة، لكل منها مزاياها وعيوبها.

ملاحظة النموذج الأول للذرة اقترحه ج. ج. طومسون في عام 1897.

All the focus group participants indicated that it was a relief to see some of the terms translated into Arabic. Some said they had studied these terms and concepts in school but were finding it hard to memorize the vocabulary and express the concepts in English.

They also collected useful feedback to help refine the app. For instance, the first version included both conventional example sentences and a set of concordance lines which were carefully curated from the corpus to give more examples of usage. The students, however, found the concordance lines hard to read and confusing, so they were dropped from the subsequent version. Overall, it became clear that this group of students focus much more on understanding meaning than language usage.

Future plans: As well as the positive reaction from students, the project has generated interest from staff in other departments. The team are already seeking funding to develop a similar app for the Logistics Management programme at MEC and they hope to use what they have learnt from this pilot project to take the concept further.