CAMBRIDGE
UNIVERSITY PRESS

Research Article

Forum

Designing *Vocabulous*: a Case Study in Classics, EdTech and English Literacy

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Abstract

This article examines the website *Vocabulous*, an innovative resource that combines Classics and English literacy. The aim of *Vocabulous* is to improve students' English vocabulary knowledge and skills using Latin and Greek root patterns. For example, the root 'scrip' meaning 'write' can help students understand that 'inscription', 'manuscript' and 'transcription' are all related to writing. Students use these roots to work out the meaning of unfamiliar vocabulary, so that by the end of the programme, they have the skills they need to decipher new words on their own. As Alex Quigley notes, 'over 90% of the vocabulary of academic texts in school has Latin and Greek origins and therefore teaching etymology has positive implications for learning and cracking the academic code of school' (Quigley, 2018: 71). This article discusses the pedagogy behind the site, the selection of Latin and Greek roots, the design of the questions (based on vocabulary acquisition research) and the use of animated videos to engage students. The article concludes by outlining the current *Vocabulous* trial with 10–13-year-olds in 50 schools across the UK, combining teacher testimonies with ideas for practical application in the classroom[1]. *Vocabulous* is funded by The SHINE Trust and is part of a research trial led by Professor Arlene Holmes-Henderson and Christ Church, Oxford. It will be available for school subscriptions from September 2023.

Keywords: Vocabulary, Root words, Literacy, Key Stage 2, Key Stage 3, Etymology, Morphology, EdTech

Vocabulous is an innovative online resource to aid targeted and explicit vocabulary teaching in English lessons at the transition from primary to secondary school (ages 10–13). *Vocabulous* uses Latin and Greek root words to teach word patterns. Students then use these patterns to work out the meaning of unknown words which share the same root. For example, the root 'scrip' meaning 'write' can help students understand that 'inscription', 'manuscript' and 'transcription' are all related to writing. Students each have an individual login to the site and complete quizzes to win stars and climb their class leader board. Teachers can see students' progress over time, export progress data and print off certificates to reward good work. There are ten badges to collect, 26 root words to learn and over 1,000 English words to conquer (Figure 1).

Vocabulous is funded by The SHINE Trust, an education charity based in Leeds. I applied for their Let Teachers SHINE programme while working full-time as a Latin and Classics teacher at Bootham School in York and while teaching Latin to state school students across the city through the Independent and State School Partnership (ISSP). I was delighted to be awarded £25,000 funding from SHINE to produce the site and originally planned to work with 10 local schools in 2022–23. When *Vocabulous* received almost

100 expressions of interest from schools across the country in its first month, SHINE awarded *Vocabulous* additional funding so that I could expand my trial to 50 schools around the UK and abroad (see Braddy, 2021, 2023). The site can be used by any teacher as part of English lessons, and no prior knowledge of Latin or Ancient Greek is required.

I am delighted to be working with Professor Arlene Holmes-Henderson, Professor of Classics Education and Public Policy at Durham University, to evaluate the impact that *Vocabulous* has on students' vocabulary knowledge, skills, and confidence at the transition from primary to secondary school, in a project funded by Christ Church, Oxford (see Oxford Faculty of Classics, 2022, p. 4).

Aims of the programme

The aim of *Vocabulous* is to improve students' English vocabulary knowledge and skills using Latin and Ancient Greek root patterns. Students use these roots to work out the meaning of unfamiliar vocabulary, so that by the end of the programme, they have the skills they need to decipher new words on their own.

I first conceived of *Vocabulous* during 2020, after months of online learning. At this time, I was producing online resources that were being used asynchronously by several schools and were benefiting a wide pool of students. I started to imagine producing an online resource that would bring some of the benefits of learning Latin to all students, not just students in schools where classical

Figure 1. Screenshot of the Vocabulous homepage, www.vocabulous.co.uk.

subjects are offered, and decided to focus my efforts on the influence of Latin and Ancient Greek on English vocabulary. Vocabulary learning is a key issue in education: the Oxford Language Report stated that 43% of Year 7 students were arriving at secondary school with a poor vocabulary that limited their learning (Oxford University Press, 2018, p. 4). In addition, 92% of teachers surveyed by Oxford University Press believed that the COVID-19 pandemic and lockdowns have increased this problem (OUP, 2020). In my experience, too few students will try to work out the meaning of an unfamiliar word, and too many will simply give up if they've not met the word before. *Vocabulous* helps by giving students explicit training in exactly *how* they can deploy their knowledge of root patterns to work out the meaning of unfamiliar vocabulary, giving them skills which they can apply to complex words in any subject area.

Latin and Ancient Greek make up the foundations of around 60% of English vocabulary, and in some fields, such as science and technology, this figure is closer to 90% (Green, 2008). Quigley (2018) notes that 'over 90% of the vocabulary of academic texts in school has Latin and Greek origins and therefore teaching etymology has positive implications for learning and cracking the academic code of school' (Quigley, 2018, p. 71). The 26 roots that make up the *Vocabulous* programme give rise to almost 1,000 English words. By learning these specially chosen roots, students will have access to a large number of words in English, and particularly to the polymorphemic Tier 2 or 3 words that typically appear in secondary school textbooks and exam questions (see Beck *et al.*, 1987, 2013). As well as teaching key roots, *Vocabulous* distils one of the main benefits from learning Latin or Ancient Greek, which is morphological awareness, or the ability to break down words into prefixes, roots and suffixes, and brings this benefit to students as part of their English lessons. Students of ancient languages develop excellent morphological awareness, as they learn to break a word down into its constituent parts to work out meaning. Each Latin verb, for example, can be split into a root, a tense and a person ending, which combine to give the whole word its meaning. Every time a student of Latin or Ancient Greek approaches a new word, they automatically start to break it down and search for what's familiar, and this is a valuable skill that helps them work out something new using pre-existing knowledge. *Vocabulous* uses this principle of morphological awareness and applies it to English vocabulary, teaching useful word parts (or

morphemes, such as roots and prefixes) and showing students how they can use these parts to work out complex new words in English.

This combination of root knowledge and morphological awareness is key for students to be able to expand their own vocabularies in the future, after finishing the *Vocabulous* programme. By the end of the programme, students will have the skills they need to break down English words into their constituent parts and use these parts to figure out a word's meaning. An example would be the word 'portable', which can be split into the root 'port' and the suffix 'able', combining to describe something that *can* be *carried* (Figure 2).

This morphological knowledge can then be transferred to other words which share the same root or suffix, such as 'transportation' or 'describable'. *Vocabulous* works at transition from primary to secondary school, with students aged 10–13, to equip them with the skills they need to approach their academic studies with confidence.

Designing *Vocabulous*

When designing *Vocabulous*, I identified the Latin and Ancient Greek roots that led to the most frequently used and therefore most useful English words by collating comprehensive lists of roots and calculating the ones with the most derivatives. I then decided which derivatives should be taught explicitly in the programme, and which could be worked out deductively using knowledge of the root. For example, from the root 'scrip' meaning 'write', *Vocabulous* explicitly teaches 'description', but then expects that students can use their knowledge of the root and this one derivative to work out the meaning of other, related words, such as 'describes', 'describable' or 'nondescript'.

Once I had created a list of the Latin and Ancient Greek roots that led to the most English derivatives, I had to be selective about which ones were to be included in the programme. One issue with using all the roots on the list was that some of the roots have too many variations. For example, the Latin verb *facere* ['to make/do'] leads to by far the most English derivatives, but the roots that come from *facere* are multiple, including 'fac', 'fec', 'fic' and 'fy'. I therefore decided that it was not a suitable root to teach in *Vocabulous* as students would need to learn too many root variations. I purposefully selected roots that had at most two different variations, such as 'scrip' or 'scrib' or 'sens' or 'sent', to maintain clarity for students.

Figure 2. Video teaching the word 'portable' and breaking it down into root and suffix.

In designing the order of the roots and derivatives in the programme, I consulted the SUBTLEX-UK database, which analyses English word frequency by looking at subtitles on UK television (see van Heuven *et al.*, 2014).[2] This database analyses over 200 million word uses to produce a list of around 330,000 words in order of their frequency on television. I then identified where the derivatives from my 26 chosen roots were placed on the list and was able to give each root a 'score' as to how frequently derivatives from each of the roots were used. 'Port', meaning 'carry', came up as the most commonly used root, with the word 'important' being the most frequently used derivative on the list. 'Monolithic' was the least commonly used word, from the prefix 'mono' meaning 'one', so 'mono' is the final item to be taught on *Vocabulous*.

Another key element of the design of *Vocabulous* is its use of videos. From my own teaching, I know first-hand how engaged students are when watching a short video, and that videos provide an effective visual and audial input into a lesson. I produced around 300 videos for *Vocabulous* that teach new roots and their derivatives. Each video shows the morphology of the word it is teaching, breaking it down into prefix, root and suffix. For example,

'produced' could be broken down into the prefix 'pro', the root 'duc' and the suffix 'ed'. The videos also give an example of the word in context, so students can see how the word is used in a real scenario. This helps their understanding of the word and means that they are more likely to remember it in the future. The style of the videos is fun and visually attractive, with bright graphics, animation and original music, to capture students' interest. After watching a video, students are immediately asked questions about what they have just seen. By asking questions straight away, students are quickly engaging with the new content, actively using the root and practising using it in different scenarios. This gives them a more thorough understanding of the root and its application, which aids retention (Figure 3).

The design of the questions is informed by research into vocabulary acquisition, to ensure that key skills are being taught and practised (see for example Beck *et al.*, 2013; Carlisle, 2000; Deacon *et al.*, 2015; Goodwin and Perkins, 2015; Quigley, 2018). For example, I formulated the questions so that some of them ask students to identify word parts or morphemes, to ensure that they are practising the skills of breaking words down and gaining
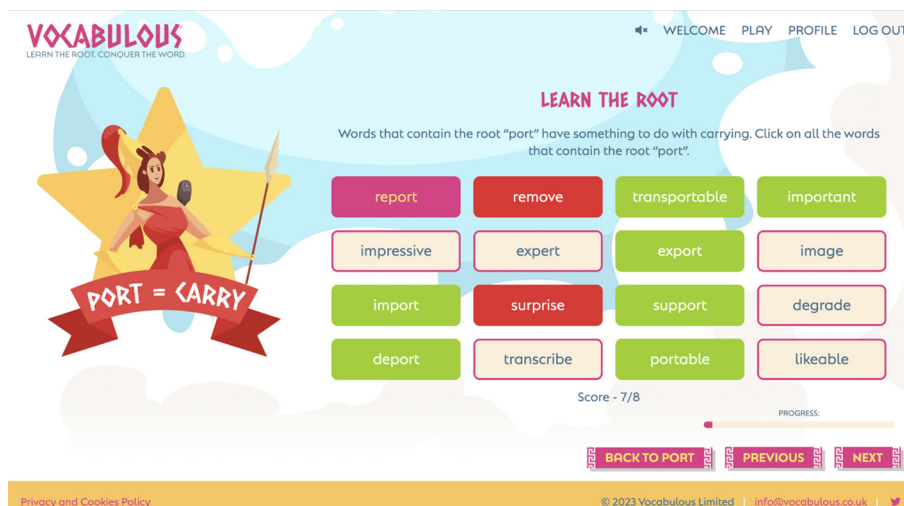

Figure 3. Learning module asking students to identify the root 'port' within derivatives.
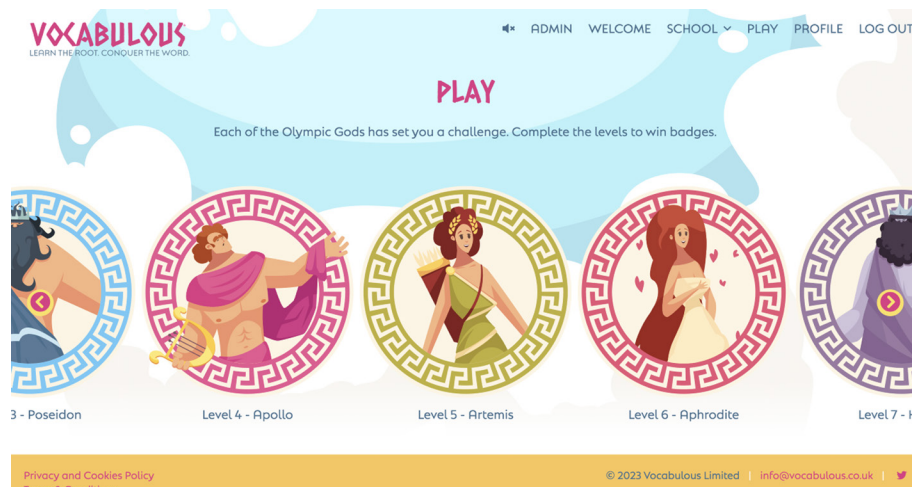
Figure 4. Ten levels named after Greek gods and goddesses.

morphological awareness. Other questions ask students to work out the meaning of a long (and presumably unseen) word by using just its root. For example, they have learnt that 'scrip' means 'write' so they can work out that 'superscript' must mean something to do with writing, which leads them to the definition, 'written above the line'. Later, more challenging questions ask students to read sentences with gaps and use the context of the sentence to select the most appropriate missing word, which is honing reading comprehension skills. Students are not simply encouraged to learn definitions, but to recognise patterns and use problem-solving skills to work from pre-existing knowledge to new understanding. Students practise using these skills every week, so by the end of the programme, they have formed habits and are equipped with strategies to approach unfamiliar vocabulary. They can apply these strategies when faced with new words in any subject lesson, in textbooks or even examination questions.

Vocabulous in action

Vocabulous is currently being used in 50 schools around the UK with students aged 10–13. In the first 6 months of its trial, over 200,000 quizzes have been completed on the site and over 2 million questions answered. The site is designed to be used once a week over a year, or once a fortnight over two years, and can be used in-class, at home, or a blend of the two. Surveyed teachers at one school noted that 'it can be used as a lesson starter to get them engaged at the start of the lesson or set as a homework task' and that because it can be used as 'an independent learning tool, it teaches them to self-motivate' (Year 7 teachers in Bushey).[3]

Teachers unlock one root each week so can pace their students' progress through the site, and students collect stars for every quiz they complete, which 'acts as an incentive for children to push themselves' (Year 6 teacher in Manchester). There are 26 roots for students to learn, structured 'in a clear and effective sequence' (Year 6 teacher in Nottingham), with 'a nice range of activities' and 'lots of reinforcement of knowledge' (Year 7 teacher in Bushey). Roots are split into ten levels, each named after a Greek god or goddess (Figure 4).

On each level, students learn two or three new roots and then complete a badge; the badge section at the end of each root is designed to recap all previously learnt roots. The key to the badge sections is not that they remember every derivative that they have come across in the programme so far, but that they remember the roots, and that they practise using the skills they

have learnt to work out complex words. Improving students' vocabulary is the key aim of *Vocabulous*, but it is also 'helping with their spelling and understanding the etymology of words which helps with their reading comprehension' (Year 6 teacher in Nottingham).

Teachers have said that the site is 'a very easy to use and engaging tool for students' (Year 7 teacher in Bushey) and 'is clearly and attractively designed' (Year 7 teacher in Yarm). Teachers can see their students' scores, how long quizzes are taking them, how they are improving over multiple attempts and when they completed each quiz: 'It is useful to be able to see leader boards to get an idea how far the class is progressing' (Year 7 teacher in Bushey). Teachers are provided with information sheets to ensure that they have the knowledge they need to support their students with learning Latin and Greek roots. They can download 'root of the week' posters, root bookmarks and extension worksheets for each root.

Of the 50 schools who are currently using the site, six primary schools and six secondary schools are participating in the research project. The schools involved are using the website for the academic year and completing pre- and post-trial assessments to analyse the change in pupils' progress. The research team is also visiting participating schools to talk to students and staff about their experience of using the site. Findings from this research project will be published later this year.

From September 2023, *Vocabulous* will be available for school subscriptions, which will give schools access to the site for a year. It is hoped that lots of schools will use *Vocabulous* as part of their English teaching to give students vital literacy skills via gamified Latin and Greek word roots.

Notes

1 See www.vocabulous.co.uk.
2 The database can be accessed at http://crr.ugent.be/archives/1423 (accessed 13 July 2023).
3 All quotations in this section are teacher testimonies, drawn from a feedback questionnaire completed in March 2023.

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