Introduction and background

In recent years, the growth of English as a global language has led to an increased number of learners with English as an additional language (EAL), both in countries where English is the home language and in those where some or all of the curriculum is delivered through the medium of English. The effective education of EAL learners brings with it several challenges in terms of resourcing, time, and professional support. This study locates itself in the heart of the discussion by exploring the practices and perceptions of educators and learners within the context of secondary science in an English school. The school had a total of 1,324 pupils, of whom 17 per cent (225) were EAL. The research involved 3 observations of science lessons with a focus on the engagement of 3 EAL learners (one in each class), a focus group interview with 6 EAL learners in Year 7, 8, and 9, and semi-structured individual interviews, 3 with class teachers, and 2 with members of the school’s senior management team.

Key points

Overview of existing research

- The term ‘English as a Second Language’ (ESL) dates back to around 1950, when the country accepted immigrants from the Commonwealth whose children attended school.
- The numbers of EAL pupils in schools has increased significantly in recent years. By 2016, 1 in 6 primary school pupils and 1 in 8 secondary school pupils were EAL.
- Although there is an inclusive policy of mainstream curriculum policy in England, EAL learners face several challenges. The development of EAL as a language pedagogy has received an insufficient amount of attention within the mainstream curriculum. Leung’s (2016) analysis of the National Curriculum in England highlighted that only two visible sections of the curriculum document refer to EAL, its associated discussion being limited to just ninety-four words. She also found that content specification for EAL exists only in subjects such as English and science. The authors of this paper argue that the National Curriculum in England needs to be accompanied with clear guidelines and recommendations to help teachers cater for the needs of learners with EAL.
- The integration of both language and content at the planning stage remains an on-going challenge for many professionals, particularly those in secondary schools. Inadequate planning and limited resources may lead to EAL learners missing out on important English language instruction.
- Other EAL challenges highlighted by existing research include a lack of professional training offered to teachers and a lack of support on the part of school leadership teams.
- Research has explored ways in which EAL learners can be effectively supported. Sharples, Blatchford and Webster (2016) concluded that the presence of teaching assistants (TAs) is helpful in keeping learners with EAL engaged in activities.
- Chen (2019) identified 4 key components of effective EAL practice: a contribution of the learner’s first language in the classroom; frequent interaction with the class teacher; interaction with the learner’s peers; and a sense of belonging to the bi-multicultural society.
- Within the area of science, Smyth, Tharia and Gravelle (2009) examined the impact of group work and found that group work activities provide positive opportunities for learners with EAL to adapt to activities, first by observing other groups and second because in well-ordered practical work a teacher has the potential to interact with each group, by offering them individual and personalised support and understanding.
- Based on data analysis and international comparisons of EAL learners’ achievements, Hutchinson (2018) strongly argued for targeting the academic needs of pupils with EAL.

Results: Lesson observations

- In the Year 9 science lesson which was observed, the EAL learner, who had been in the UK for one year had a limited level of English competency.
- It was clear that this learner struggled in the lesson in a number of ways. She struggled to understand the topic (the central nervous system and neurons) because of limited vocabulary and a lack of subject-specific terminology.
- There were further difficulties with being able to orally respond to the TA’s questions about the task and engaging with the task set. There were further difficulties with a scaffolded writing task.
- However, it was clear that the TA was deemed to be providing effective support for the learner with EAL through focused questioning, clear explanations, and patience.
- The second observation was of a chemistry lesson with a learner who had been in the UK for 2 years. This learner was able to independently engage with problem-solving tasks related to a recap of covalent bonding. The teacher regularly praised the student’s effort and academic performance.
In this case, the skills of an experienced teacher played a significant role in engaging the learner. For example, the lesson organisation and the effective guidance provided helped all learners, including the one with EAL to flourish. This learner did not need TA support. However, as a part of her professional duties, the EAL coordinator kept a track of the academic progress of each learner with EAL in the school including the learner in Year 11.

The third observation involved a chemistry lesson with a Year 12 learner who had been in the UK for 3 years. She listened attentively to the teacher during the main teaching exposition and actively engaged in the given assignments that involved group-work and group discussions related to enthalpy change and Hess’ Law. It is noteworthy that this learner was observed helping her native speaking counterparts during group work lesson when they sought her assistance.

Results: Focus group interview

Six learners with EAL took part in the focus group interview.

Most of the participants (n=4) said that they learned English better through reading in the classroom and outside of it, although they also learned by listening and talking to people.

According to the participants, the typical challenges they encountered when learning science through English included spellings and the meanings of words, the pronunciation of words, and understanding. One participant mentioned the challenge of ‘asking other people what the words mean’.

When asked about what kinds of support they were provided with by teachers and the school, participants identified several things including one-to-one sessions, dictionaries and vocabulary lists.

Most interviewees agreed that teachers encouraged them to read. They also felt that particular subjects such as maths, science, and physical education (PE) were easier to study. In contrast, English was regarded as a harder subject because of the expectation that they would engage in more writing activities. One participant reported that: ‘I don’t have a favourite subject. French, it is really easy. I don’t like English; I don’t like writing’.

When asked whose help they sought when they had language problems, 4 of the 6 participants said that they asked for the help of their peers, with only a couple of participants mentioning either their teachers or their parents.

Results: Individual interviews

Individual interviews were carried out with 2 subject teachers (science and languages) and with 2 members of the senior management team.

According to the teachers, the typical challenges that learners with EAL face include dealing with (scientific) words, writing skills, general vocabulary, and understanding written tasks. One science teacher (also a member of SMT) pointed out how ‘English-speaking students find the Latin structure of science words quite complicated and when they start to understand the structures and roots, prefixes and suffixes, and their links to some Latin, particularly with human biology and anatomy, it can be quite challenging’.

The teachers identified a wealth of support strategies which can be divided into 3 groups. The first is people-related, including TAs, teachers, the EAL coordinator, and peers. The second is provision which encompasses professional training, one-to-one sessions and speaking practice. The third group is resources, i.e., vocabulary lists, extra time, and dictionaries.

Some specific techniques like modelling, sentence starters, and providing a scaffold or framework were suggested by the SMT language teacher as being effective for supporting learners with EAL; this is in comparison to the science teacher who suggested that learners with EAL responded well to pictures.

The subject teachers highlighted that the TAs and the EAL coordinator were essential for facilitating quality EAL provision. However, it was acknowledged that this provision was dependent on government reforms as sometimes funding could be limited for EAL support in the school.

Discussion

This research has highlighted the complex nature of science words regardless of learners having EAL or having English as a native language. This emphasises the idea that the learning and teaching of vocabulary needs to be prioritised in relation to EAL provision, as it is complex and needs to be tailored to the learner’s level of capability.

The authors argue that this issue can be positively addressed by embracing Wellington’s (2002) suggestion of dividing the scientific words into various types of categories, e.g., naming words, process words, concept words, and subject specific words. By doing this, science teachers can become more aware of the language they use in classrooms.

The authors identified the need for training both the school leaders and the SMT science teacher lead offered clear ideas about effective practices associated with vocabulary and writing for learners with EAL. These included adapting the teaching materials in accordance with the individual needs of learners with EAL and sometimes allowing usage of the student’s first language while describing specific terms, in order to compare them with the English equivalent.

Findings from this research highlight the importance of positive cooperation between the EAL coordinator and class teachers in responding to the needs of learners with EAL, either by providing one-to-one sessions, or through individualised support during science lessons.

In most cases, the spelling of words and the understanding of written tasks were the most common challenges for EAL learners. Findings from this research suggest that the challenge of writing may demotivate learners. To combat this, Wellington (2002) proposed that teachers do not correct learners’ written errors, instead suggesting that these are identified and discussed during a face-to-face meeting, providing written feedback ‘after-the-event’.

Cameron and Besser (2004) suggested that schools need to ensure that EAL learners have extensive opportunities to encounter and work with a range of genres of written English, e.g., fiction, non-fiction and poetry. They can also be helped by teachers offering them set units of language linked to a key focus that can be used across the curriculum.

The full paper can be downloaded from:


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