

In This Issue

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This section aims to provide a quick introduction to the research in this issue including some context, key findings and their relevance.

The challenges of applying theories about learning

There is a considerable body of literature in psychology on how people learn. In principle, the learning theories in this literature should be able to inform the design of curricula and other educational materials. Researchers in our Research Division wanted to understand whether this was happening, and if not, how this could be facilitated.

In their article in this issue, Dominika Majewska and Jo Ireland reflect on three recent studies exploring this area. They note several obstacles to the use of learning theories, such as the volume of theories to choose from, their abstract nature and some overlap between them in their characteristics. They also reflect on how the curriculum development literature often does not state whether learning theories influenced the development of materials.

Dominika and Jo conclude that collaborations between developers, educators and researchers would be valuable and that developers need guidance on incorporating learning theories when designing a new or revised curriculum. One step that Cambridge University Press & Assessment has taken to support this is the development of an [online resource](#) which provides details of a large number of learning theories.

Not all bad? Some positives from the pandemic

We all know that there were lots of negative effects of the COVID-19 pandemic on education and that other kinds of crises also disrupt education. When interviewing teachers during the pandemic, Filio Constantinou noticed a range of positive themes that also arose and was able to categorise these as relating to emotions and attitudes, behaviours, interpersonal relationships and ideas about how education could be reimaged.

A number of positive benefits related to technology. For example, teachers noted an increase in the supply of online educational resources and improvements in the usability of technology, which changed their teaching behaviours. In turn, this had an influence on their attitudes in that their professional confidence in using

certain tools increased. In various ways, the COVID-19 pandemic pushed forward the everyday use of technology in classrooms.

In terms of interpersonal relationships, the pandemic prompted an exchange of tips and resources between teachers, put teachers in more frequent contact with parents and provided parents with insights into teachers' work.

For the positive effects identified in this research, it could be useful to consider if they continued beyond the pandemic, and if not, whether there are ways that they could be facilitated on a longer-term basis, if sufficiently beneficial.

This research can potentially contribute to discussions about teaching strategies in both crisis and non-crisis circumstances. It is a reminder that just because something is usually done a certain way, does not mean it always has to be.

Could certain topics and skills be key in avoiding GCSE Maths resits?

Over a quarter of students in England do not attain a standard pass in GCSE Mathematics. Government funding conditions for schools and colleges require that these students retake their exams. This is intended to help provide a solid foundation for students' futures through additional opportunities to gain fundamental maths understanding and skills. However, there is concern that many students do not improve their grades when resitting, which is potentially demotivating and may contribute to disengagement with maths. How can this situation be improved?

Using data from foundation tier exams, Alejandra Miranda has found that geometry and algebra were the most challenging topics, and items requiring the use of problem-solving skills in context were also challenging. Students who achieved a standard pass (grade 4) performed disproportionately better than those who achieved the grade below (grade 3) in tasks involving routine procedures, multi-step solutions and interpreting results.

Extra teaching time spent on the topics and skills identified could plausibly support students who are at risk of not achieving a grade 4, either when taking their exams the first time or when resitting – but it remains to be seen whether this would have an impact in practice. In terms of teaching time, extra focus on some topics and skills could well mean less time for others. There may also be other barriers, such as students' beliefs about their own abilities in maths.

Alejandra's findings are relevant to current policy reforms in England, where there are plans to introduce a new level 1 maths qualification for post-16 students, with the intention that this would support knowledge development and rebuild confidence, moving students towards being ready to resit GCSE Maths exams.

Students getting low grades at A Level have good prospects

Access to competitive university courses in England often requires high grades at A Level. But are A Levels still worthwhile for students who get only lower grades?

Carmen Vidal Rodeiro and Tim Gill used national data on educational backgrounds, exam results, employment, earnings and benefits, to explore students' progress after completing their A Levels. Compared to students with high A Level grades (lowest grade C), students with lower grades (highest grade D or E) entered employment more quickly and less frequently progressed into sustained education. However, after a few years, differences between these groups in terms of likelihood of being in education and in employment became small.

In terms of earnings, students with lower A Level grades tended to earn more in the short term than those with higher grades, but less in the long term. These differences were not trivial, but those with lower grades still achieved quite good earnings. For example, 15 years after completing A Levels the median daily earnings for those with a best grade of D was around £80, compared to a little over £100 for those with A Level grades of C or above.

The findings suggest that A Level qualifications are still valuable to students even when they achieve lower grades.

Teachers would like more training in data literacy

Among various other types of student data, teachers routinely use assessment data for purposes such as tracking student progress, informing teaching decisions and predicting future performance. Annie Vincent, Nicky Rushton and Chris Jellis used a questionnaire and interviews to investigate teachers' views about data literacy skills. Most teachers felt that data literacy was important and reported that they had at least some responsibility for using data within their role.

Data literacy skills were reportedly gained through experience or through input from colleagues. Most teachers were keen to receive more data literacy training. Notably, teacher training frameworks in England do not explicitly mention data literacy or data analysis. Teachers are required to have achieved a minimum grade in GCSE Maths, which may be a starting point for relevant skills, but some data literacy skills go beyond the GCSE Maths curriculum.

There are potential implications for schools and colleges in terms of being aware of teachers' data literacy skill levels and providing support where needed, and for assessment providers in terms of ensuring that data is provided in easy-to-understand formats and accompanied by guidance, if necessary.