

# FutureEd 2023

## The place of educational neuroscience in the early career framework for teacher education and development.

*Church House, London, 21<sup>st</sup> June 2023*

### Summary of discussions

#### Introduction

The value of educational neuroscience (frequently referred to as ‘cognitive science’, the ‘science of learning’ or similar phrases) in informing teaching and learning has over the last 10 years been increasingly recognised. Within the context of the education system in England this recognition has been emphasised by its inclusion in the Early Career Framework (ECF)<sup>i</sup> for teacher education and development. In addition, Ofsted included understanding how people learn and cognitive science in the principles behind their research reviews<sup>ii</sup> used to underpin their Education Inspection Framework (EIF)<sup>iii</sup>. Whilst this is to be very much welcomed, there is still much to do in terms of developing the relationship between the underpinning research, the pedagogical practice and the policy frameworks.

FutureEd 2023<sup>iv</sup>, aimed to explore these relationships with particular reference to initial teacher education (ITE) and the ECF. In particular, the 4 presentations<sup>v</sup> and round-table discussions focussed on 3 questions:

1. How can the interactions between researchers, policymakers, teachers and other practitioners be improved?
2. To what extent should ‘science of learning’ be a core element of ITE and ECF and how might the various concepts be prioritised?
3. How does educational neuroscience inform our understanding of barriers to learning in order to maximise inclusivity for learning?

Inevitably the discussions ranged widely and there were many points of overlap in terms of the ideas and issues raised at different times during the event. The summary that follows cannot do justice to the quality of the discussions nor the enthusiasm of the participants in attempting to address the challenges. However, it outlines key themes which arose in relation to the over-arching questions.

#### Summary of discussions

##### 1. How can the interactions between researchers, policymakers, teachers and other practitioners be improved?

- a. Underpinning all the discussions was the need for a significant increase in conversations and **co-operation between stakeholders at all levels** both ‘horizontally’ and ‘vertically’. For example, the different policy makers need to improve the consistency in their policies so that frameworks (such as the ECF and EIF) and interpretations of them are not in conflict with the “science”. Similarly, the development of policies needs to involve stakeholders at different levels who have the appropriate expertise in order to build “bottom-up” as well as “top-down” solutions.

- b. There is “no one size fits all” and demand for ‘ready-made solutions’ should be resisted. Rather existing models of co-operation should be rigorously reviewed and, as appropriate, adopted or discarded in order to meet the needs of the stakeholders. This would lead to **building networks, hubs and communities of practice** that include expertise in educational neuroscience alongside that of pedagogy, subject specific understanding, translation of research, policy-interpretation and implementation.
- c. Greater **emphasis on understanding learning** in order to build curricula and pedagogy that are better informed by the lessons drawn from research alongside recognised good practice and the context in which learning and teaching are taking place. This would include more effective use of on-line activities and other technologies in combination with more ‘traditional’ practices.
- d. Understanding learning and how it takes place is a complex challenge but too many structures at all levels tend to re-enforce the ‘silo effect’ so that lessons from one area are not shared with others. This is particularly true for **funding of research and developments that are multi-disciplinary and cross-sector**. Steps are needed to address this and similar issues.

**2. To what extent should ‘science of learning’ be a core element of ITE and ECF and how might the various concepts be prioritised?**

- a. The inclusion of ‘**science of learning**’ as part of ITE and ECF was very much **welcomed** but concerns were expressed that the frameworks could lead to a restricted view of learning. Furthermore, and more worrying, the current versions were leading to a narrowing of interpretation. For example, ‘retrieval practice’ appears to be frequently implemented as a series of ‘quizzes’ focusing only on ‘recall’, rather than developing wider processes of learning. **A more nuanced approach is required** in order to take account of the range of circumstances and contexts in which learning takes place.
- b. Attention needs to be given to the **impact of brain maturation on behavioural and emotional changes in children and young people** as well as the effects on cognitive development. This requires understanding the effects of things such as sleep patterns, stress and more general mental well-being on student learning and behaviour resulting from changes in levels of neurotransmitters in the brain.
- c. In thinking about ITE and ECF it is important to remember that the “**science of learning**” **applies to the teachers as well as the students** they will be teaching. This needs to be taken into account in planning and implementing teacher education programmes. Time and resources need to be made available so the trainees and ECTs are able to take on board the ‘science of learning’ and consider its implications for them and their teaching. In particular, they need support in engaging with, building on, consolidating and applying their understanding of learning to their own teaching and the school contexts in which they find themselves.
- d. Whilst it can be argued that “tips for teachers” are useful they are restrictive and not recommended. Teaching and learning are extremely complex processes and understanding of them develops over time informed by research, professional conversations, personal experience and the context of each transaction. Therefore, it is important to **engage trainees and ECTs in an on-going process of reflection and flexibility of thought** in addressing each situation.

### 3. How does educational neuroscience inform our understanding of barriers to learning in order to maximise inclusivity for learning?

- a. More attention should be given to the importance of a better understanding of the needs of ALL pupils rather than simply relying on 'labels' which are then 'translated' into statements of need. Although helpful in some ways 'labelling', doesn't necessarily provide a true picture of a pupil's cognitive profile. Thus **maximising "inclusivity" needs to be planned to take into account what pupils can actually do** as opposed to 'what we think' pupils can and cannot do. This needs to take account of the range of neurodiversity that exists across groups of pupils.
- b. There is an argument for revisiting the available pedagogies used because particularly **successful strategies often work for pupils with a variety of needs**. The emphasis should be planning for inclusivity, rather than it being an 'after thought', taking into account physical and mental conditions as well as continuity of experience.
- c. Addressing the issue of **maximising 'inclusivity for learning' raised many fundamental questions** that require further consideration ranging from the philosophical,
  - *Do 'we' have a shared understanding of what 'learning / education' is and for?* through
  - *Is inclusivity just about "SEND" pupils or should it cover all pupils?* to
  - *Are politicians and the profession brave enough to 'change' the system in order to accommodate greater inclusivity?*
- d. A consistent theme during discussion of the challenges was that **any process for maximising inclusivity should be a 'team' effort involving pupils, family, schools, agencies, researchers and policymakers**. The big challenge remains i.e. how can such teams be built in a way that enables them to be effective.

### Closing discussion

The closing discussion pulled together some of the threads that ran through the day into a further question, "Can the introduction of educational neuroscience / science of learning increase the status and effectiveness of the profession and education?" Clearly there is no easy or clear-cut answer but by addressing it and other such questions there is the **opportunity to re-evaluate current practice** through a different lens which is evidence-based and explores more clearly:

- what is wanted from our education system
- how to get the best evidence to inform discussions and programmes of change
- the role of new technologies including AI (artificial intelligence)
- what we understand by concepts such as inclusivity, high quality teaching and learning
- the risks of making changes and of over-extending the science in such a way as to take things worse.

To finish on positive note, **it is clear that there is an enthusiasm for exploring such issues and working to make a difference**, however small, resulting from insights gained from the recent developments in educational neuroscience / science of learning.

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## Endnotes / references

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<sup>i</sup> [Early career framework - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/early-career-framework)

<sup>ii</sup> More details can be found in two documents:

- (a) Education inspection framework: overview of research January 2019 (url: [Research for education inspection framework \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/401111/research-for-education-inspection-framework)) which has a section on Research on memory and learning
- (b) Principles behind Ofsted's research reviews. March 2021 (url: [Principles behind Ofsted's research reviews and subject reports - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/principles-behind-ofsted-s-research-reviews-and-subject-reports)) which states "This important body of work [cognitive science] has informed our thinking in developing our EIF, and we believe it is hard to develop a high quality of education if we do not take the way pupils learn into account."

<sup>iii</sup> [Education inspection framework \(EIF\) - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/education-inspection-framework)

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