Reviewer #1

Overall
This is an interesting and challenging piece which questions the comparability of different educational approaches in the EEF’s Toolkit. This is specifically in terms of how closely the studies in metacognition and self-regulation are related and how meaningfully they can be combined. This is an important issue. What the article misses, is that there may be value in looking for patterns across educational studies (using an approach such as meta-analysis) to draw comparative inferences. If studies in one field tend to show greater impact, is that not useful for practitioners to know? The key question here is what is the alternative? How else should studies be organized to provide an overview?

Does the title clearly describe the article?
Yes, with a nice classical allusion to a fire-breathing monster with a lion's head, a goat's body, and a serpent's tail. More could have been made of this metaphor.

Are the aims of the article clear?
No. It seems to have three aims. The first aim seems to be to criticize the coherence of the concept of metacognition and self-regulation, the second appears to be problematize the inferences drawn between meta-analyses (meta-meta-analysis), the third to offer a critique of specific EEF studies. Each point has some validity, but at present the logic is confused so the impact of the critique is diminished.

The argument and its overall logic needs further development to provide a coherent critique. One of the points of the article is that the broad definition and inclusive categorization of the Toolkit theme of metacognition and self-regulation is unhelpful. This is a valid point but could be made more directly.

Does the author offer a useful and interesting perspective on the topic they describe?
It is certainly the case that metacognition and self-regulation is a confusing concept which is ill-defined in the academic literature. However, the article seems to imply that the EEF is responsible for these central ideas of metacognition and self-regulation. These have a long history in educational and psychological research dating back to the 1970s. The definition of metacognition and self-regulation in the research literature is not fully coherent, this is certainly an issue, but the chimera is not the EEF’s responsibility. The Toolkit page on metacognition and self-regulation does provide a definition which would be a more productive starting point for the discussion (see below).

In response to the specific critique of EEF’s recent studies and their connection with metacognition and self-regulation, it is my understanding the classification derives from two sources. First the description of the programme or approach by the developers and second how the approach or programme is described in wider research. This classification can therefore hardly be described as ‘astonishing’. For example, Philosophy for Children is described by both Fisher (2007) and Georghiades (2004) as metacognitive and Improving Writing Quality is based on self-regulated strategy development (SRSD) and has a number of components
which involve both metacognitive and self-regulatory aspects (e.g. Graham et al. 2005). The breadth of the concepts is problematic as it makes it challenging to know precisely what to do, but this does not mean that the ideas are incoherent.

At the heart of all of these approaches is the common feature of making aspects of the learning more explicit and supporting the learner taking increasing responsibility for aspects of the learning process. There are a number of ways to do this, and overall they appear to be more successful, on average, than many other approaches. The valid point is perhaps that the devil is in the detail, so which aspect of the chimera do you focus on?

*Does the author demonstrate a thorough knowledge and understanding of the research?*

No. Whilst the critique of the concepts of metacognition and self-regulation is valid, the author does not draw on wider research about these terms and how they are used to describe aspects of learners thinking and to develop programmes and approaches to improve outcomes for learners.

*Have they used relevant, recent references?*

The use of a quote from Kevan Collins in an online video is a rather weak basis for launching for a critique of the EEF’s interpretation of the coherence of the classification of the research into metacognition and self-regulation. It would have been far more convincing to critique the definition given on the Toolkit page or even in the wider literature.

Criticism of a number of recent EEF studies blurs two issues. The first is whether they are sufficiently conceptually similar to be combined or to be meaningful in a single category. The second is whether the research studies are themselves plausible in terms of their findings (e.g. Philosophy for Children). These arguments are distinct and need to be articulated more clearly and more fully. Currently they appear as a peppering of criticism. For example what is the issue with *Let’s Think Secondary Science*?

*Are the references and citations correct?*

The mention of Thinking Talking Doing Science (Hanley et al. 2015) should be *Thinking Doing Talking Science*, and the reference is missing.

**References**


Reviewer #2

Overall
The topic is interesting, but the overall argument is not clear.

Does the title clearly describe the article?
Yes.

Are the aims of the article clear?
It is not clear whether the author is making a critique of the usefulness of metacognition and self-regulation in general, or the EEF’s use of evidence. Similarly, it is not clear whether the author is arguing against the use of meta-analysis in general, or the specific use of this methodology by the EEF.

Reviewer #3

Overall
The article is provocative, but essentially well-argued, and interesting as a prompt for debate.

Reviewer #4 (post-revision)

The article makes a useful contribution (albeit in a sensationalist way), but it attempts to secure itself in quotes which are used a little dubiously (there are other, better explanations of MC and SR on the Toolkit; I think the Dylan Wiliam quote is used a little selectively), and references to statistical significance which are of little relevance in cases where effect sizes are reported with confidence intervals.

Meta-cognition and self-regulation are different things, so criticism of the ‘lumping together’ of research is fair, but the assertion that the Toolkit indicates that a teacher will get 8 months’ progress is wrong and misleading.

The article is provocative and probably will spark a debate, which is fine, but it shoots from the hip rather more than I would like to see in Impact. While I’m all for provocative debate, I prefer mine to be a little more accurate and balanced than this.

Reviewer #5 (post-revision)

The author presents a critique of the work of the Education Endowment Fund (EEF) which contains interesting points that could be relevant to classroom teachers. It is useful to see such an interrogation, and this provides a welcome addition to the debate around research and evidence-informed practice.

The issues around meta-analyses are presented in a coherent and reasonable fashion, making pertinent reference to Dylan William. Further exploration of the papers about RCT employed by EEF would be needed from this reviewer in order to comment more fully on this aspect of the author’s article, but at first glance they seem reasonable.

However, whilst the content of the article as presented makes for interesting reading, which would be of relevance to classroom practitioners, there is something about the
tone of the piece which sits uncomfortably with this reviewer; it occasionally flirts too enthusiastically with attack rather than critique. For instance, the opening three paragraphs are engaging enough, but perhaps stretch the ‘opinion piece’ categorisation into the Clarksonesque. The dismissal of Philosophy for Children is another case in point, where critique of the paper is in danger of poetic hyperbole. In my own academic pursuits, I have been urged to be less journalistic, and I wonder if this author might benefit from the same advice.

Reviewer #6 (post-revision)
Greg is well known in the blogosphere for beating the drum for scientific rigour in evidence-informed practice. This article makes a number of valid points: the importance of digging into the evidence that lie beneath the headline findings, because they usually reveal a more complex picture than the headline suggests; whether meta-analysis is suitable way of comparing diverse research findings, and in what circumstances effect sizes are a valid way of doing comparisons of impact. So these are valid and important questions to raise.

I am ambivalent about this particular piece, however. It suggests that the EEF has misrepresented the research findings, and my experience of their toolkit is that it is generally careful to make explicit the limitations of the research. I note that EEF toolkit summary says that metacognition and self-regulation 'have consistently high levels of impact' and that systematic reviews have 'consistently found similar levels of impact for strategies related to metacognition and self-regulation', claims which seem to contradict his argument directly, and I would want to be sure that he is correct before publishing the piece. If he is, his argument is all the more valid. If not, we shouldn't publish. The EEF toolkit has done much to raise the profile of evidence-informed practice and we need to be sure we are on solid ground before questioning its integrity.

Reviewer #7 (post-revision)
I think that the article makes a broadly valid point but I have issues with its tone and approach. I am not sure that it is a fit for the journal.