De-Streaming

Resource: Sense-Making around Existing theories and Beliefs

I orea te tuatara ka puta ki waho

A problem is solved by continuing to find solutions.

Purpose *(Why you might use this resource)*

To explore the reasons for engaging with teachers' existing theories of practice and beliefs and attitudes, when leading professional learning about de-streaming.

Audience *(Could be one intended, or several)*

Classroom teachers

PLD facilitators

SLT

Key Points

- Theories of practice include beliefs about teaching, values, related knowledge, experiences, skills and practices – these all shape current beliefs about streaming.
- If theories of practice (beliefs) are not engaged it is likely to result in a superficial or limited response to the desired change. Participants need to understand the reason for change, and have a desire to do something about it.
- Sense-making involves exploring theories, surfacing beliefs, trying new approaches in a supported manner – over a period of time.

- Facilitators should expect that teacher theories are a necessary and integral part of practice that need to be engaged, debated and challenged
- One of the most powerful reasons that motivates change is seeing the impact on learners.

Links to key documents

1. Best Evidence Synthesis: Teacher Professional Learning and Development pp196-201 (See extract below)
2. [Teacher Professional Learning and Development: Best Evidence Synthesis Iteration (BES) | Education Counts](#)

Suggestions for Use (Ideas for facilitators about how this resource could be used/ Examples of activities/Important questions to consider)

Sense making (Surfacing beliefs, grounded in evidence about student achievement)

When working with school achievement data

- What is the picture for this school in terms of achievement? (Could be broad or focused in one area)
- Who is experiencing success? Who is not?
- Why do you think this is happening?
- How are students grouped? Why?
- Introduce alternatives to streaming practices supported by research
- Try alternatives, and at the same time – what to notice from learners

Using student and whānau voice

- What are the experiences of our learners?
- Who is having a positive experience and who is not?
- Why do you think this is happening?
- How are students grouped /experiencing learning in the classroom? How do they feel about that experience?
- Introduce alternatives to streaming practices
- Try alternatives, and listen to response from learners and whānau.

Extract from:

Teacher Professional Learning and Development (Best Evidence Synthesis) pp196-201
Timperley, Wilson, Barrar and Fung (2007)

10.3 Issue 3: Teachers' existing theories

During the synthesis process it became evident that many of the core studies that reported substantive outcomes for students also reported some kind of engagement with teachers' existing theories of practice during the course of the professional learning opportunities. At final count, 20 studies made specific reference to such engagement. Other core studies did not make it clear if theories were engaged, but it appears that in a high proportion of the supplementary studies with no or low impact this was not the case. In some of these studies, teachers were provided with opportunities to learn but the content and activities were left largely to their own discretion. In others, teachers were taught (and expected to implement)
a set of behaviours considered by the providers to constitute effective teaching practice. When
the professional development related to curriculum goals with a relatively narrow focus (such
as spelling or phonemic awareness), ensuring that teachers implemented a particular set of behaviours appeared to be sufficient to impact on student outcomes. In this section, we examine why engaging their theories of practice appeared to be important when asking teachers to address complex curricula, and what the implications of this might be for those providing professional learning and development.

By 'teacher theories of practice', we mean personal theories that consist of particular beliefs and values; related knowledge, skills and practices; and desired outcomes.

Teacher values and beliefs may relate to society and include, for example, the kind of community they wish to promote through education and/or the knowledge and skills considered to be of worth. Values may also be much more local or specific, relating, for example, to the teaching strategies believed to be effective for a particular group of students. By 'engaging' with theories, we mean examining current practice in the light of its outcomes for students and then constructing new theories, which, based on the available evidence, should lead to better outcomes.

As far as we were able to determine, construction of new theories usually occurred during the opportunities to learn that followed the initial 'front loading' of new ideas (see Figure 6.1). In the main synthesis, we identified a typical sequence of activities that consisted of a rationale or catalyst to engage, the presentation of the content of the new learning, and provision of a range of activities designed to help teachers translate the new knowledge into practice. This latter element appears to be very important: teachers need to understand the implications of new practice for existing practice.

Other studies report an equally effective approach that involved problematising teaching practice in relation to student outcomes and engaging teachers' theories about effectiveness throughout the professional learning opportunities. One example of this approach was a New Zealand study that aimed to develop better pedagogical relationships between Māori adolescents and their teachers. Teachers' theories came under scrutiny as the assumptions that underpinned their reading of classroom dynamics were challenged by students' stories of what it was actually like for them. Starting from this challenge to their existing theories, teachers worked together with the professional development providers to construct new understandings of the kinds of relationships needed in their classrooms. Ongoing support helped them to develop such relationships.

10.3.1 The need for theory engagement

In our search for an explanation for the importance of theory engagement, we went beyond the literature on professional development and consulted the literatures on cognition, the social psychology of change, and policy. Given the broad base of this literature, generic terms were normally used for those being asked to change their practice. Spillane et al.80, for example, use the term 'implementing agents'. For the purposes of this synthesis, we are assuming that the implementing agents are teachers and that the change messages are those being promoted in the professional learning opportunities; we adopt these referents for the sake of clarity.

Several reasons appear collectively to account for the greater impact of professional development that engaged (rather than bypassed) teachers' theories of practice. The first relates to the nature of teaching itself. Teachers do not need to be reminded that teaching is a complex activity. At minimum, any effective teaching act requires teachers to integrate their understanding of the content to be taught with decisions concerning how to best present that content to that particular group of students. There is no simple recipe; every context is different. Policy environments differ, what constitutes valued knowledge differs, communities, teachers and students differ. It is into this complex environment that teacher educators attempt to inject messages about change and improvement.

Given this complexity, the challenge for providers is to present professional development messages in ways that make sense to the teachers they expect to influence. As Spillane et al. (2002) claim, "Sense-making is both necessary and unavoidable" (p. 162). Sense-making is not simply a matter of professional development providers making their messages clear to teachers (as appears to be the case when they expect teachers to enact a specific set of behaviours). Nor is it about leaving teachers to make their own professional judgments without first having had the adequacy of their existing theories challenged. Sense-making is a complex process involving interaction between an individual's existing cognitive structures (knowledge, beliefs, and attitudes), the situation in which they practise, and the

providers' messages. De-contextualised messages about change do not take this interplay of influences into account.

In a detailed study of teachers' reactions to feedback following classroom observations, Parr et al. demonstrated how teachers' beliefs influenced their interpretation of providers' messages.

In another study, by Spillane et al., feedback offered an ideal opportunity for theory engagement and sense-making. The two sessions that engaged teachers' theories led to immediate and substantive changes in practice. Following sessions that bypassed their theories, the teachers did not act on the feedback they were given, either because they disagreed with the observers' judgments about their practice or the worth of the alternative practices advocated, or they had no idea how to integrate the alternative practices into their existing practice.

In a Californian study, Coburn described how situations, particularly the social interactions taking place within them, led to the same messages about reading instruction being interpreted in different ways by different teachers, even within the same school. Informal alliances exerted an equal or greater influence than formally constructed networks. The implication is that situation, far from being a mere backdrop to providers' messages, is a constituting element of the sense-making process. As noted in the introduction to this synthesis, Putman and Borko assert that:

The physical and social contexts in which an activity takes place are an integral part of the activity, and the activity is an integral part of the learning that takes place within it. How a person learns a particular set of knowledge and skills and the situation in which a person learns become a fundamental part of what is learned. (p. 4)

Another issue in the sense-making process is what is referred to by Kennedy (1999) as 'the problem of enactment': teachers need to translate what is learned into their particular teaching context. This United States study involving the video analysis of teaching practice

and beliefs demonstrated how decisions about lesson content and process were subject to many influences other than the messages of those who wished teaching practice to change. In their moment-by-moment decision making, teachers made trade-offs that had the effect of filtering, diluting, and changing the implementation-as-intended of standards-based teaching practices. It was not that the teachers disagreed with the principles of the reform ideas, it was that they had difficulty enacting them in their classroom situations. Part of the difficulty was that the messages were interpreted by teachers in terms of their own theories about effectiveness. The principle of making knowledge accessible to all students, for example, was interpreted as encouraging student participation. Often this participation was achieved at the expense of another principle, increasing the depth of intellectual engagement. Teachers needed to engage much more deeply with theory and its implications for practice in order to know how to make knowledge accessible in the form of intellectually demanding tasks.

10.3.2 Mediating competing theories

Robinson and Lai explained how important it is to engage teachers' prior understandings in any change situation. According to them, teaching practice can be thought of as a problem solving process: how to manage and engage students, how to teach particular content, and how to do it all within the available time and resources. These problems are resolved—usually on the run—in accordance with an integrated theory of action based on a coherent set of beliefs, values, and practical considerations. This problem solving is mostly tacit and routine, not conscious and deliberate. Professional learning that seeks to change practice needs to help teachers understand their own underpinning theories of action and examine what is tacit and routine so that these theories and practices can be evaluated and decisions made about what should be changed. Without such engagement, it is unlikely that new learning will be adequately integrated with existing theories. The consequences of this range from non-implementation to adaptation-beyond-recognition.

Some adaptations of new practice simply end up layered on top of existing practice. Such adaptations result when teachers believe that they are implementing new practice but, due to limited understanding of what this means, they implement only superficial features or procedures, leaving the core of existing practice intact. This process is referred to by Bransford et al. as *over-assimilation* and is identified in many studies that were not included in the body of this synthesis because teaching practice did not change. Firestone, for example, found that mathematics teachers reported substantive changes to their teaching practice in line with standards-based reforms when, in reality, they changed some structural conditions (for example, did more group teaching), but continued to use their existing teaching strategies. From a theory engagement point of view such adaptations are to be expected if teachers' theories have not been engaged in ways that equip them to make principled comparisons between existing and new practice. Adaptations will inevitably be made as teachers respond to their particular contexts. The issue is not that teachers should 'do it right' but whether they have sufficient understanding of the principles to recognise the differences between the old and the new.

Conventional analyses of implementation problems have typically concluded either that the messages were unclear or unrealistic or that teachers were unwilling or unable to change. More nuanced understandings of the issues, based on, for example, sense-making theories, have recently emerged. Putting the evidence from our core and supplementary studies together with the theories outlined above, we suggest that the challenge is to mediate competing theories at the interface between the change messages (coming from the professional development providers) and the myriad agendas that teachers must cope with in their practice situations. It can almost be taken for granted that providers' theories and teachers' theories will be different and in competition with one another. Every teacher's practice is grounded in a theory about how to be effective, based on their experience and their knowledge of the practice context. The more experienced the teacher, the more likely it is that their theory will be coherent. Indeed, 'novice-to-expert' progressions typify the

expert as one who has a holistic grasp of relationships within a particular context and is able to fluidly and efficiently solve problems as the need arises.

If providers did not have different theories of how to be effective, they would not be asking teachers to change. Given this, competing theories should be expected and accepted. It follows, then, that during the process of professional learning both providers and teachers need to engage with the others' theories concerning what constitutes desirable practice and the beliefs on which that practice is based.

10.3.3 Definitions of success

A theory competition approach does not assume the superiority of either the providers' or the teachers' theories; instead, it assumes that the worth of particular teaching theories and practices needs to be negotiated. It is, however, quite possible to reach agreements that have no greater value than the original theories. One way to increase the probability that negotiation will result in better outcomes for students is to make these the criteria against which success will be judged. Does the negotiated theory make a difference to students in terms of these outcomes? Cooperative learning, for example, is based on principles of social justice and inclusion. Yet Ross reported that the students of teachers who felt highly efficacious in implementing cooperative learning strategies following professional development were less willing to offer and seek help than their counterparts in other classes. The definition of success, therefore, needs to go beyond implementation of particular practices or measures of teacher confidence. Theories and associated practices need to be rigorously evaluated in terms of their impact on students.

Professional learning opportunities, therefore, need to equip participants with the skills to test and verify theories, for without such skills teachers are unable to judge the worth of prior or new practice. How do they know that their students are benefiting or not benefiting?

Implementation of desired practices, regardless of who is advocating them, is no guarantee of better outcomes for students.

10.3.4 Resistance

Teacher resistance to change is often portrayed negatively. It is true that if student outcomes are poor, teacher refusal to engage in improving practice is problematic. But as noted above, not all change achieves the desired outcomes. When this is the case, resistance may well be in the best interests of students.

Resistance can be framed in terms of competing theories about how to be effective. In a study by McNaughton et al., teachers' theories about reading comprehension were based on ensuring that students used particular strategies, and praising and encouraging them when they did. In their interactions with students, teachers did not comment on the appropriateness or accuracy of their responses. One strategy involved predicting what was likely to happen next in the text. Teachers encouraged and reinforced use of this strategy by responding with praise, such as "Good prediction" and "That was clever", regardless of whether the prediction made sense. Students' comprehension of text remained low despite the teachers' conscientious efforts.

In this situation, the researchers introduced a competing theory. They suggested that students' predictions should be linked explicitly to the text and their accuracy checked. They advocated that teachers should focus on these behaviours in their responses and not commend predictions regardless of accuracy or context. After discussion of the competing theories, many teachers changed their practice, making sure that students checked the text before arriving at a prediction. Because the teachers made changes to their practice based on an understanding of the principles of the competing theory, there was no resistance. The rate of focused teacher responses went up from an average of once in 120 minutes to an average of once in 7–8 minutes. Students' comprehension of text improved accordingly.

A problem these researchers encountered early in the process was that some teachers took theory testing as a personal or professional attack. Spillane et al. explain this response partly as a strategy for preserving self-esteem. Professionals want to believe that they have performed well in the past and are hesitant to concede that their efforts may have been misdirected. This is most likely to happen when particular practices are central to their professional self-concept. Typically there is a power imbalance between providers and teachers and this can inhibit the open expression of teacher theories. There is no easy solution to this problem, only ongoing theory engagement and checking of student outcomes.

10.3.5 Sequence of change

Sense-making is not a linear process. Although most core studies reported some kind of theoretical introduction or challenge to teachers' existing theories, the in-depth engagement needed for changed practice did not necessarily occur at this time. Such engagement appeared to require iterative cycles involving presentation and understanding of new theories, changes in practice, and changes in student outcomes. In the studies that provided sufficient detail, the process was more akin to a journey than an orderly sequence of events.

The initial catalyst for sense-making through theory engagement differed from study to study (not all identified such catalysts). In one, it was the introduction and negotiation of the meaning of a powerful theory that was in competition with teachers' existing theories. In others, it was an analysis of current practice and the introduction of competing theories that asserted greater effectiveness for alternative practices. In yet others, an analysis of what students did or did not know challenged teachers' existing theories. Sometimes teachers changed their theories only after introducing practices advocated by providers and seeing the impact on student outcomes. In other situations, it was the realisation that current
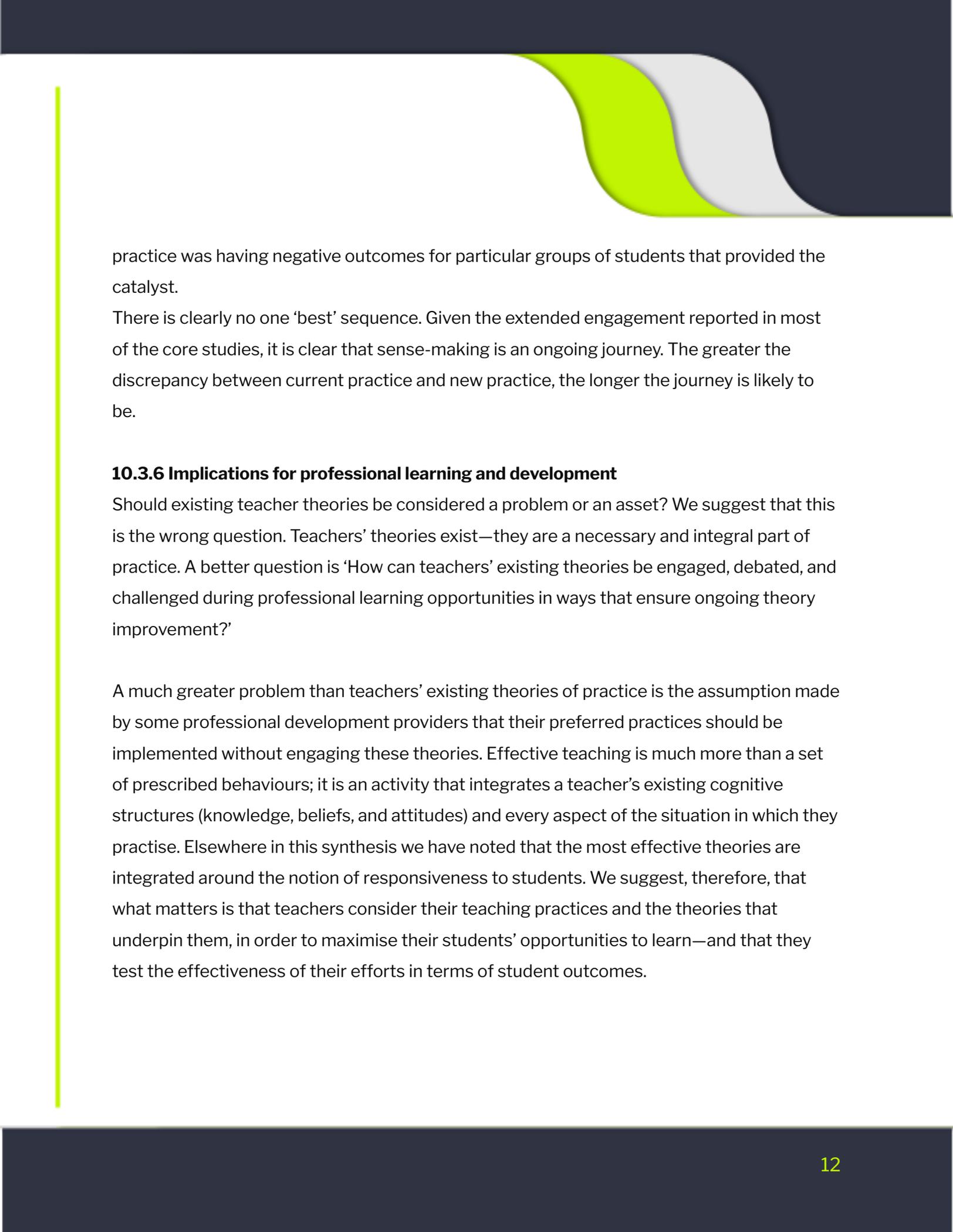
practice was having negative outcomes for particular groups of students that provided the catalyst.

There is clearly no one 'best' sequence. Given the extended engagement reported in most of the core studies, it is clear that sense-making is an ongoing journey. The greater the discrepancy between current practice and new practice, the longer the journey is likely to be.

10.3.6 Implications for professional learning and development

Should existing teacher theories be considered a problem or an asset? We suggest that this is the wrong question. Teachers' theories exist—they are a necessary and integral part of practice. A better question is 'How can teachers' existing theories be engaged, debated, and challenged during professional learning opportunities in ways that ensure ongoing theory improvement?'

A much greater problem than teachers' existing theories of practice is the assumption made by some professional development providers that their preferred practices should be implemented without engaging these theories. Effective teaching is much more than a set of prescribed behaviours; it is an activity that integrates a teacher's existing cognitive structures (knowledge, beliefs, and attitudes) and every aspect of the situation in which they practise. Elsewhere in this synthesis we have noted that the most effective theories are integrated around the notion of responsiveness to students. We suggest, therefore, that what matters is that teachers consider their teaching practices and the theories that underpin them, in order to maximise their students' opportunities to learn—and that they test the effectiveness of their efforts in terms of student outcomes.