
1 Addressing Diversity in an Early Years 2 Mathematics Unit: a matter of design

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6 ABSTRACT PLEASE SUPPLY A SHORT ABSTRACT Si meliora dies, ut vina, poemata reddit, scire
7 velim, chartis pretium quotus arroget annus. scriptor abhinc annos centum qui decidit, inter perfectos
8 veteresque referri debet an inter vilis atque novos? Excludat iurgia finis, 'Est vetus atque probus,
9 centum qui perficit annos.' Quid, qui deperit minor uno mense vel anno, inter quos referendus erit?
10 Veteresne poetas, an quos et praesens et postera respuat aetas? 'Iste quidem veteres inter ponetur
11 honeste, qui vel mense brevi vel toto est iunior anno.' Utor permissio, caudaeque pilos ut equinae
12 paulatim vello unum, demo etiam unum, dum cadat elusus ratione ruentis acervi, qui redit in fastos et
13 virtutem aestimat annis miraturque nihil nisi quod Libitina sacravit.
14

15 A concern with diversity and difference is a hallmark of both Learning by Design (Kalantzis &
16 Cope et al?, 2005) and its forebear, multiliteracies theory (Cope & Kalantzis, 2000). Each theory
17 begins from the premise that learners are fundamentally different, one from another, and that
18 effective teaching and learning should acknowledge and work with these differences. Beginning
19 from the position of learner difference means that teachers need to be skilled in using a variety of
20 techniques, tools and modes of communication as well as the know-how to apply these tools and
21 techniques using a range of pedagogies.

22 The theory of Learning by Design offers teachers both a pedagogical typology and a design
23 framework – a sense-making structure for thinking through and organising a multiplicity of means,
24 without which a teacher's practice could easily become a grab bag of well-intentioned but
25 disconnected activities. However, the use of a variety of techniques, while necessary to
26 accommodate and engage student differences, may not be sufficient for deep learning. The theory
27 of Learning by Design suggests the impetus for deep learning lies in teachers carefully choosing,
28 orchestrating and sequencing activities into a coherent pedagogical design.

29 Learning by Design provides teachers with a professional metalanguage with which to name
30 their practices; a heuristic with which to identify gaps or habits in their ways of working; a
31 framework for both designing learning and guiding practice; and a lens for analysing, explaining
32 and discussing their designs and practices with colleagues. Learning by Design is also a broadly
33 inclusive typology of teaching practices and pedagogies, a set of organising ideas, and a way of
34 seeing, naming and reflecting on both designs and practices. Teachers who use this typology learn
35 to see and respond to difference with and through the lens of Learning by Design.

36 The theory also acts as a kind of professional provocation – it suggests that it is possible to
37 design learning that is inclusive of diverse students' needs and interests, learning which promotes
38 belonging and learner transformation. The theory of Learning by Design contends that the path to
39 inclusion, belonging and transformation is a product of thoughtful, premeditated design.

40 In this article, the above ideas are explored and elaborated via the practices of an early years
41 mathematics teacher. This case study is drawn from research undertaken for a three-year research

42 project involving 50 teachers in 10 schools: Learning by Design: creating pedagogical frameworks
43 for knowledge building in the 21st century (Australian Research Council [ARC] 2005-08 **ARE**
44 **THESE YEARS CORRECT? 2006-08 IN ANOTHER ARTICLE**).

45 **Background to the Case Study**

46 The ARC-funded Learning by Design project was an attempt to both understand and positively
47 influence teachers' pedagogical practices. The teachers in this project were asked to 'test' the
48 efficacy of Learning by Design by translating its theory of teaching and learning, via its pedagogical
49 design framework, into both designs and practices. The theory of Learning by Design positions the
50 teacher as a thoughtful, purposeful and deliberate designer of learning.

51 In order to test the efficacy of Learning by Design, teachers needed to learn the conceptual
52 language which underpins the theory, its multilayered meanings and significances, as well as how
53 to use this conceptual language to think about, organise and guide their planning and teaching
54 practices. Teachers also needed to learn how to use the pedagogical framework to set out and
55 document their designs. Moreover, they needed to develop a deep and sophisticated understanding
56 of the concepts, language and theory, as well as the skills to translate them into learning
57 experiences suited to their specific students and contexts. Without such depth of understanding, or
58 the capacity to translate the theory into practice, there would be little prospect of significant
59 impacts.

60 As researchers, we were looking for evidence as to whether and how using and applying the
61 theory of Learning by Design (and the associated pedagogical framework) impacted teachers and
62 learners while simultaneously facilitating, guiding and developing their understanding and
63 application of this theory. This meant that the researchers were immersed in the theory and
64 practice of Learning by Design for an extended period. While these direct experiences have
65 contributed to this author's understanding of the theory and application of Learning by Design,
66 they may also have limited his capacity to properly recognise its weaknesses and flaws. This
67 possibility should be kept in mind as the reader engages with this article.

68 Teacher A, whose work is the focus of this case study, is a mature-aged teacher. She was one
69 of the teachers in this three-year project. In this article, Teacher A's work and reflections on
70 teaching mathematics to 'a very diverse class of 20 children', aged seven to eight years old and from
71 low socio-economic backgrounds, is described and analysed in some detail. Teacher A used the
72 Learning by Design pedagogical design framework to think through and design her mathematics
73 unit. She also deliberately set out to investigate whether or not Learning by Design was making a
74 positive difference to her teaching and to the outcomes achieved by the children in her charge.
75 Teacher A chose four children with different abilities to track and document in terms of evaluating
76 the effects of her use of the Learning by Design pedagogies and framework. Tracking and
77 observing these four very different children provided Teacher A with an opportunity to deeply
78 consider the effects of her practice on her students and the role played by Learning by Design in
79 scaffolding this practice.

80 In this case study, the data has been drawn from Teacher A's perceptions of the impact and
81 effects of Learning by Design on her practice and on students. This data was collected via multiple
82 methods including: four multimodal research probes which Teacher A completed in 2006; a
83 learning journal she maintained during 2007; video recordings of eight research workshops she
84 attended in 2006 and 2007; interviews with her – one at the end of 2007 and another in mid 2008;
85 and video data from the classroom captured by Teacher A and subsequently presented at the 2007
86 E-Learning Symposium at RMIT University. Teacher A's presentation at this symposium was also
87 filmed and constitutes a further source of data. A final and important source of data was Teacher
88 A's design for the unit of work titled 'Understanding Simple Unit and Group Fractions', which is at
89 the heart of this study and at the heart of her symposium presentation.

90 The unit of work was designed inside the Learning by Design pedagogical framework, where
91 such designs are called 'Learning Elements'. Teacher A's Learning Element has been systematically
92 analysed in relation to her perceptions and observations and to the findings she presented at the E-
93 Learning Symposium. Teacher A's work has been chosen for this study from amongst 50 teachers
94 involved in the project because it crystallises and brings into sharp focus key points and themes

95 evident across the entire research project. Teacher A was also chosen because she has proved to be
96 particularly adept at analysing, articulating and representing her experiences, insights and
97 observations in multimodal ways – orally, in writing, and with images and film. In many ways,
98 Teacher A exemplifies the articulate, evidence-informed and tech-savvy teacher-designer-scholar of
99 the twenty-first century.

100 The Teacher as Researcher

101 In an interview at the end of the second year of the project in 2007, Teacher A was prompted to
102 consider how Learning by Design had impacted her teaching and her students. In her response, she
103 repeatedly talked about how all the children were engaged in the unit she was teaching and that
104 even a group of usually disengaged boys ‘wanted to be there ’til the end’. When asked to elaborate,
105 Teacher A said:

106 It’s empowering for me to teach in these ways and it is empowering for the kids to learn in these
107 ways. It’s really positive ... the response you get from the kids. When you have a class like this
108 one, they are usually quite hard to manage. The boys in particular are quite disengaged and to
109 see them for several weeks in a row want to be there and to be quite disappointed when they
110 were called out for a specialist program was just amazing. Those usually disengaged boys wanted
111 to be there ’til the end, they wanted to talk about it, whereas normally when they have learned
112 something they say, ‘Ah, yeah, I’ve done that.’ You know – been there done that – but now they
113 still want to talk about it – it’s a fantastic feeling to know that you have maybe found the key ...
114 Of course, it’s sometimes a little bit harder work but when you see the lights turn on it’s just
115 amazing.

116 Teacher A talked about the effects of the unit on a boy ‘with special needs’:

117 He even understands some of the basic principles where he didn’t before and for that little boy
118 the lights turned on. And this is with a boy who has poor memory skills and what he has learned
119 has actually stayed with him for five weeks now and that’s pretty amazing ... it’s just great.

120 The theme of whole-class engagement was common across many of the teachers involved in the
121 larger ARC-funded project. Each teacher had his or her own story of connecting with usually
122 disengaged children, of children wanting to come to class or working through recess or lunchtime,
123 and stories of particular children whose learning responses had been, for one reason or another,
124 extraordinary.

125 At a workshop in 2006, Teacher A, who was teaching older children at the time, made
126 reference to a boy whom she ordinarily had to cajole into writing – an extremely reluctant writer.
127 Teacher A noted that the boy was actively engaged throughout a unit of work she had designed,
128 however she was surprised to see him happily, and of his own accord, *writing*. Teacher A deemed
129 this to be so significant that she photographed the usually diffident boy independently writing to
130 give to the boy’s mother because his mother would ‘never have believed it possible’. Teacher A
131 supported this with reference to the boy’s mother ‘being over the moon with his progress – she just
132 couldn’t believe he was the same boy, and claimed he was even better behaved at home!’ Teacher
133 A was clearly pleased with this outcome.

134 Teacher A’s photograph of her reluctant writer appears to be the beginning, a point of
135 departure, for a more systematic and deliberate approach to collecting multimodal data, including
136 photographs and video recordings, as evidence of learner understanding and transformation. For
137 example, in her Learning Element titled ‘Understanding Simple Unit and Group Fractions’,
138 Teacher A’s first activity involves students working in groups with cubes and blocks ‘to construct
139 or show their understanding of fractions’. Teacher A advises other teacher-users of her design ‘to
140 photograph this part of the activity’ because ‘the photographs can be used for assessment, to
141 determine student involvement or for student portfolios’. This is a significant inclusion by Teacher
142 A because it implies that some shifts in student understanding can be more easily captured in the
143 photographs. The potential to capture this shift in understanding is dependent on the teacher
144 recognising a need to capture and document students at the beginning of something – before any
145 ‘teaching’ has taken place. This is doubly significant because school systems in the USA, Britain and
146 Australia are moving inexorably to evidence-based models of monitoring and tracking student

147 performance. Teacher A's simple advice also highlights the challenges teachers face in
 148 documenting and demonstrating shifts in student understanding and practice – particularly in the
 149 context of developing student multiliteracies and system-decreed 'essential learnings' and 'essential
 150 values'.

151 It became evident in her presentation at the 2007 E-Learning Symposium that Teacher A was
 152 using images and film as a deliberate means of documenting, tracking and analysing shifts in
 153 embodied student performance, explicitly linking this multimodal evidence to her use of the
 154 Learning by Design pedagogies and to her design goals. Teacher A's teaching was also purposefully
 155 multimodal as she organised students into groups to work with 'blocks, counters, paper and
 156 scissors' as well as 'Web-based materials and digital maths programs'. At her symposium
 157 presentation, she noted that her mathematics Learning Element involved a 'lot of hands-on work
 158 with concrete materials' and that this was 'to help manage diversity'. She saw this aspect of her
 159 design as being 'very, very important' because 'getting kids that touch and feel meant maths was
 160 actually real to them'. Teacher A noted that an observer might see this as being 'typical early years
 161 teaching but there is also a lot of pedagogy that goes behind what you see happening'. This is an
 162 important point which Teacher A makes because it demonstrates she is self-aware of her
 163 pedagogical focus and design intent. She is also signalling to the observer that deliberate pedagogy
 164 and intent sit 'behind' the surface of the activities she has designed.

165 If we return to the beginning point of Teacher A's somewhat naive act of photographing the
 166 reluctant writer, we might also recognise a further challenge. At the level of the individual student,
 167 this photograph only has meaning in the context of understanding that boy's story – his 'backstory',
 168 as they say in the movies. The photograph only has meaning because it represents a significant shift
 169 in *that* boy's story, a plot twist that has maximum relevance for the boy, his mother and the
 170 teacher. It may also represent a turning point in his relationship to learning – particularly his
 171 relationship to writing.

172 Creating and sustaining student engagement throughout the course of a unit of work is both
 173 essential to addressing student diversity and evidence that such diversity has been addressed – less
 174 than whole-class engagement means some learners are missing out. Teacher A believed that her
 175 use of different modalities helped address the diversity of her class, adding that 'the engagement of
 176 the whole class proved that their diverse needs were being met'. However, it is what happens
 177 during this prolonged engagement that determines the quality of the learning outcomes and the
 178 extent of learner transformation. In what follows, I explore how Teacher A created and sustained
 179 student engagement in her early years mathematics unit; how the pedagogies of Learning by
 180 Design scaffolded and supported her through the design and teaching of that unit; and how these
 181 pedagogies contributed to both teacher and learner transformation.

182 Teacher A began her symposium presentation by identifying the research questions she had
 183 independently set herself to address:

- 184 • Can Learning by Design add value to mathematics teaching?
- 185 • Can Learning by Design achieve student transformation in mathematical concepts?
- 186 • Can Learning by Design help to address student diversity in mathematics learning and teaching?

187 These questions serve to position Teacher A as a teacher-researcher, someone who is actively
 188 looking for and documenting evidence of the effects of shifts in her practice precipitated by
 189 Learning by Design and her involvement in the research project. Teacher A describes her students
 190 as having 'a diverse range of skills and knowledge' and that 'there are a large number of kids in this
 191 particular class with specifically identified academic, behavioural and social needs'. She says these
 192 needs 'tend mostly to show as kids not being engaged in the learning'. Teacher A points out in her
 193 presentation that her first challenge with using the Learning by Design framework to plan a
 194 mathematics unit was correlating 'my maths language with the concepts of Learning by Design –
 195 to ensure that all the knowledge processes were included and that there was a balance of activities
 196 in each process'. This concern for balance and a perceived need to include all of the knowledge
 197 processes is in part a product of the Learning by Design framework itself, which prompts teachers
 198 to consider and address each of the knowledge processes. Teacher A linked the need to consider
 199 each of the knowledge processes to being instrumental in how and why the framework was
 200 effective at addressing student diversity.

201 **Pedagogies That Work**

202 In the 2007 interview, Teacher A was firm in her view that the pedagogies of Learning by Design
203 'work'. When asked if she could explain how and why, Teacher A responded:

204 Because it makes the knowledge real for the kids. It makes it personal ... and transforming. It's
205 taking this bit of knowledge or skill, applying something else to it and allowing them to meld
206 those two things together so that they have a stronger basis for operating with that concept. I
207 think, for me, the most critical thing was in the fractions unit ... I taught the concept of 'wholes' a
208 lot more explicitly than I would normally teach it – far less focused on using worksheets and
209 stuff. It was done holistically right from the beginning through to really understanding fractions
210 and how they work, including the concepts of denominators and numerators. And to actually see
211 those kids apply those concepts to groups without any support ... Then you know it's working
212 because they have actually got the concepts and it was the concepts that were important.

213 Learning by Design really pushes you to question what you are doing. I keep asking myself,
214 'What's the big question here? What is it that they really need to know? What's going to make a
215 difference for them in their learning that they can actually take away and then use again?'

216 Reviewing and analysing Teacher A's unit of work 'Understanding Simple Unit and Group
217 Fractions' reveals a design which is deliberate, detailed and explicit. This is, in part, a consequence
218 of the design prompts provided by the Learning by Design pedagogical framework – teachers are
219 prompted to identify their learning objectives. In the introduction to the unit, Teacher A has added
220 a section titled 'Set-up and Using Circle Time'. Like a conductor setting the tempo and metre of a
221 musical arrangement, Teacher A sets out and foregrounds the socio-spatial arrangements of
222 students which she recommends for the unit:

223 This Learning Element is based on cooperative learning approaches. Teaching and learning will
224 be facilitated if student desks are arranged in small groups (4 to 6 students), so that students can
225 discuss their ideas and understandings ... To facilitate discussion and reflection each lesson uses a
226 Circle Time approach.

227 Teacher A sets out in some detail how teachers can use Circle Time and for what purposes. At her
228 symposium presentation, Teacher A explained that she uses Circle Time 'because it encourages lots
229 of discussion so the kids can actually develop their own concepts and theories'. However, these
230 concepts and theories are scaffolded and prompted throughout Teacher A's design. In her Learning
231 Element, Teacher A provides an image to illustrate and evoke the socio-spatial setting of Circle
232 Time. Part of the circle is shown with one child speaking and others around her listening intently.
233 A hallmark of Teacher A's designs is the detailed notes, explanations and visual cues she provides to
234 support other teachers' understanding and to scaffold their uses of her design. She frequently uses
235 images to highlight important socio-spatial aspects of her practice. These features make Teacher
236 A's designs relatively easy to access and understand, despite the often sophisticated character of the
237 activities and their arrangement. Teacher A pointed out that the purposeful arranging, sequencing
238 and scaffolding of these activities is crucial to the success of the design:

239 Having good, engaging activities is great but it's not enough. What's really important is how you
240 organise and arrange those activities, so that each one leads to the next, continually creating a
241 base for what is coming and taking advantage of what you have already done. You have to set
242 things up so that the kids are carried along on the learning ... you have to set up and sequence
243 activities so that the kids can make sense of what they are doing and, more importantly, succeed
244 as learners.

245 This connection between purposeful design and successful learners identified by Teacher A was
246 another common theme in the larger research project.

247 **Teacher as Designer**

248 Teacher A begins her unit with an activity which she labels, using the nomenclature of Learning by
249 Design, 'Experiencing the Known: drawing on prior knowledge and experiences'. This activity calls
250 on the students to use a variety of materials – blocks, counters, shapes, cut-up pieces of paper – to,
251 as Teacher A puts it, 'show their understanding of fractions ... what they already know'. At the E-

252 Learning Symposium, Teacher A showed an image of four children working with play dough. She
253 noted that ‘the evidence in this picture, if you look closely, clearly shows that the kids didn’t
254 understand that fractions have to be equal parts and this was common across every single group.
255 They did not understand this key idea’. Teacher A described how she questioned the students
256 closely about what they had done with the play dough and challenged them to explain what they
257 had made and why:

258 Most said ‘I made a half’ or ‘I made a fraction’. They weren’t able to explain or articulate that in
259 mathematical terms or in any more complex language than that, so they couldn’t explain what
260 they meant by a half.

261 As well as finding out what the learners already know, Teacher A is gathering baseline data to track
262 shifts in learner understanding of the concepts she is teaching. Teacher A described how she then
263 facilitated a number of sessions ‘that were basically focused on learning new information’. Teacher
264 A had students continuing to use the manipulatives – paper, blocks and counters – to address two
265 key questions:

- 266 • How do you know this is a whole/half/quarter?
- 267 • Why is this not a half/quarter?

268 She advises users of her Learning Element to lead students through a discussion about the materials
269 from which fractions can be made, suggesting they should be able to list the materials used in the
270 previous class and common foods like cake and pizza. In this way, Teacher A builds bridges from
271 the students’ earlier experience and from their lifeworlds into new information and new
272 experiences. She uses the manipulatives with the children to ‘explore making halves and quarters
273 and trying to make fractions from a variety of different shapes and pieces’ and to address the key
274 questions she has set for the activity in embodied ways. In the pedagogical language of Learning by
275 Design, the students are quite literally ‘Experiencing the New: immersing in new information and
276 experiences’. To underscore the effectiveness of these activities, Teacher A, in her next slide,
277 showed three photographs of individual students, which she described as showing

278 evidence of the students’ greater understanding of fractions as they explored and discussed the
279 materials and fraction concepts – you can see that the two girls are actually making equal halves
280 and, as they reached that level of understanding, we were able to draw the right language from
281 them, the mathematical language which we discussed and built on.

282 Teacher A pointed out that she uses ‘a wide range of modalities in “Experiencing the New”
283 including Web-based materials and digital maths programs to consolidate, extend and practice new
284 understandings in different contexts and to cater for the students’ diverse needs and learning styles’.
285 She noted that ‘every single student was engaged and actively participated in discussions around
286 these particular types of learning’. She added that what this demonstrated was that ‘using a range of
287 multimodal approaches catches students’ imagination and keeps them involved in the learning’.
288 She further added that ‘there was never a minute when these kids were not actively involved in
289 every single lesson – it was really exciting’.

290 Careful examination of Teacher A’s Learning Element reveals that every activity is also
291 carefully orchestrated and arranged in terms of pedagogical intent, use of participative and
292 collaborative tools, and via the socio-spatial dynamics she creates. Teacher A’s use of
293 multimodalities is underpinned by ‘Think–Pair–Shares’ and small-group work; the use of
294 cooperative learning reporters – ‘You will have time to go and talk to students on other tables to
295 see what they have done’; the use of large-group and Circle Time discussions; explicit and specific
296 explanations to students about what they are doing and why; and formative, summative and
297 revisionary check-ins and checkouts. ‘At the end of the lesson’, Teacher A advises users of her
298 Learning Element, ‘in a circle, assist the students in developing a concept map about fractions’.

299 Every activity in Teacher A’s design is marshalled and harnessed according to her pedagogical
300 intent via the scaffolding of the Learning by Design knowledge processes and supported by
301 participative, inclusive and collaborative tools and through the use of multiple modalities.

302 Teacher A noted that in ‘Experiencing the New’ she also made use of traditional fraction
303 activities ‘that any primary school teacher would be familiar with such as cutting and folding paper
304 and completing worksheets’. She noted that ‘every activity was aimed at building and consolidating
305 understanding and to gradually move students from concrete representations to visual and

306 eventually to more abstract representations of fractions'. In this brief explanation, we glimpse
307 Teacher A's thoughtful and deliberate use of multiple modes to engage students and build
308 understanding – each activity carefully selected because of its pedagogical character and capacity
309 for 'building and consolidating understanding'. Teacher A added that these different modalities also
310 helped her to 'gather data to measure the students' learning about fractions and to see how they
311 were going'. Teacher A's use of these different modalities to gather data and to track performance
312 suggests an appreciation of the affordances of various modalities which literally allowed her to 'see
313 how they were going'.

314 This is significant because it demonstrates that Teacher A is knowingly and deliberately
315 creating the conditions via which she can track performance and gather evidence of learning and,
316 by implication, monitor and evaluate her own performance:

317 The evidence from my project is that the knowledge processes, incorporating multimodal
318 approaches, provide opportunities for students to achieve deeper learning – learning from which
319 they could generalise. Learning by Design helped me to address diversity in teaching maths. In
320 every single one of the eight lessons, every single student was engaged for every single minute of
321 those lessons and the evidence is that they were learning the whole time. This was supported by
322 the use of a broad range of modalities and, importantly, the students had access to different
323 means of expressing their understanding, including visual, concrete, abstract and verbal. It
324 allowed all students, including those with specific needs, a way to participate and benefit from
325 the learning.

326 Teacher A went on to describe the way in which she questioned herself about how she achieved
327 these outcomes:

328 Is this just better teaching? Is it because I slowed down and really looked at it? Is it because we
329 did hands-on stuff? But then I decided it wasn't one thing or another, it was the whole of the
330 approach. I decided it was because of Learning by Design, because if I hadn't been doing
331 Learning by Design, I very much doubt that I would have got to the analysing or the
332 conceptualising that we did. I would have focused on skills – these are the skills you need, here
333 are the experiences that are going to give you the skills – but nothing about how you analyse or
334 conceptualise those experiences and connect them with a theory. That's usually the bit that's
335 missing, the conceptualising and analysing.

336 When asked if she was initially sceptical about how these pedagogies could be applied in
337 mathematics, Teacher A responded emphatically:

338 Totally! Totally! ... The fact that it came from multiliteracies suggested that it was more about
339 developing kids' literacies, and people don't think of numeracy as a literacy. However, I really
340 wanted to try it with maths, pure maths, and I was really sceptical even at the end ... But when I
341 sat down to figure out how I would explain what I had done to someone else, and began to
342 analyse it, I realised it was these two things – the conceptualising and the analysing – that the kids
343 were doing that made the difference. And the interesting thing is, I have to go back and change
344 the Learning Element [her Learning by Design teaching plan] because those parts aren't clearly
345 expressed in the Learning Element, but they were very clearly expressed in the way I taught it.

346 This meant that Teacher A could critically reflect on her own work and recognise and address
347 perceived gaps in her original design, as well as knowing where the impetus was for its success with
348 students:

349 For me it's a planning tool that suits my way of thinking because I am really interested in quality
350 learning and intellectual understanding – I'm not interested in teaching just for the sake of filling
351 in space. So ... if what I teach is valuable to me, I teach it better. If it's valuable to me, the kids
352 actually see that and we make it explicit to them, we make the value explicit. For the kids, the
353 focus on multimodality is very engaging – we teach in ways that meet a whole diverse range of
354 needs because we are not so focused on sitting with a book and a pencil.

355 Teacher A has clearly moved beyond the realm of anecdotal stories with compelling evidence of
356 learner transformation afforded by her considered application of multiple pedagogies and
357 purposeful use of multimodal methods.

358 In this brief case study, we see evidence of a teacher who has successfully adopted Learning
359 by Design as both a design scaffold and as a professional metalanguage, which she confidently uses
360 to consider, explain and discuss her practices. Teacher A's work and her observations and responses
361 suggest that it is possible, using the Learning by Design pedagogical framework, to design learning
362 that is engaging and inclusive of diverse students' needs and interests, learning which promotes
363 belonging and learner transformation. Teacher A's example lends weight to the conclusion that
364 effective teaching is a matter of design.

365 **References**

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369 Victorian Schools Innovation Commission & Common Ground.

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372 **PETER BURROWS** is ... **PLEASE SUPPLY A SHORT BIOGRAPHY AND A POSTAL**
373 **ADDRESS** Iste quidem veteres inter ponetur honeste, qui vel mense brevi vel toto est iunior anno.'
374 Utor permissio, caudaeque pilos ut equinae paulatim vello unum, demo etiam unum, dum cadat
375 elusus ratione ruentis acervi, qui redit in fastos et virtutem aestimat annis miraturque nihil nisi
376 quod Libitina sacravit. (peter.burrows@rmit.edu.au).