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Jennifer Charteris
Univeristy of New England, Armidale, Australia

Dianne Smardon
Univeristy of New England, Armidale, Australia

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Dimensions of Agency in Flexible Learning Spaces: Developing Assessment Capability

Jennifer Charteris
Dianne Smardon
University of New England

Abstract: In new generation schooling contexts, the interaction of human activity, space, and objects, co-produce spatialised practices. There is the fluid use and continuous re-design of learning spaces, where dynamic socio-material practices support the ongoing and negotiated development of curriculum, pedagogy and assessment. Links are forged in this article between spatialised practice and student agency. In Aotearoa/New Zealand there is a national policy impetus for all schools to move towards re-designed learning spaces. School leaders are challenged with a mandate to lead pedagogic change to develop assessment capability, in alignment with the redesign of education facilities. Informed by theories of space, the case study research investigates how school leaders conceptualise student agency within flexible learning spaces. School leader interview data are used to generate dimensions of socio-material agency with consideration given to practice. Assessment practices in flexible learning spaces can enable 'dialogic', 'curriculum', and 'spatial' dimensions of agency. Pedagogical practices that support agency in flexible learning spaces are a focal area for ongoing investigation.

Keywords: innovative learning environments, new generation learning spaces, student agency, socio-material, flexible learning spaces.

Introduction

In recent years, there has been significant investment in the educational infrastructure of universities, colleges and schools, where consideration has been given to the spaces in which learning occurs (Mulcahy, 2015). In keeping with international moves to leverage economic advantage through mechanisms of education, schools across Organisation for Economic Cooperation and Development's (OECD) countries have altered architecturally designed and spatial arrangements, sometimes quite significantly (OECD, 2013). Transformative shifts to develop new generation flexible learning spaces in schools (FLS) (Imms, Cleveland & Fisher, 2016), coupled with notions of the active 21st century learner (Benade, 2015), have resulted in student agency emerging as a critical aspect of schooling. It is timely to consider assessment practices that enable student agency in FLS.

Consideration of learning spaces has led to interest in spatialised pedagogical practice (Mulcahy, Cleveland & Aberton, 2015). Agency, and the capacity to be assessment capable, is a key dimension of spatialised pedagogy in FLS. According to Absolum (2006), "[a] 'capability has an internal structure that includes knowledge, cognitive skills, practical skills,

attitudes, emotions, values, ethics and motivation” (p. 22). All of these elements conjoin when students develop acumen in participating in their own and others assessment. There is a growing corpus of literature on teacher assessment capability (DeLuca & Johnson, 2017), where teachers have the knowledge and skills to “interpret assessment data to evaluate student learning and modify teaching practice” (Wyatt-Smith, Alexander, Fishburn & McMahon, 2017).

In an Aotearoa/New Zealand context, assessment capability includes not only curricular and pedagogical capability but also the intention, to engender assessment capability in students (Booth, Hill, Dixon & Hill, 2016). While there is a plethora of literature on self-assessment (Hadwin & Oshige, 2011), there has been less research in the area of student assessment capability that evokes the notion of learner agency (Charteris, 2016), a lacuna that this article seeks to address. When linked with assessment practices in schooling settings, the notion of agency can be interpreted as a means for enhancing student ownership and achievement through the learning process. Learning processes include the navigation of multiple facets of assessment. These facets can include engagement in dialogic feedback that prioritises learning conversations (Charteris, 2016), student use of achievement data to enhance their own learning (Marsh, Farrell & Bertrand, 2016), opportunities to actively monitor and regulate one’s own learning and co-regulate through interacting with capable others, (Allal, 2016); and learning through the provision of time (and space) to think (Hodgen & Webb, 2008), both collectively and individually.

We argue in this article that, with the influence of evolving educational spaces, agency is a socio-material phenomenon that is produced through spatialised practices in schools. These spatialised practices involve spatial literacy where there is “moment –by-moment customisation of classroom spaces, with use made of flexible furniture and a range of student groupings” (Charteris & Smardon, 2018a). Students develop an understanding of the affordances of FLS. They can understand the rationale for dialogic relations, engage in dialogic feedback (Charteris, 2016) and use space to enable them to co-regulate learning (Heritage, 2016). Students can exert an authentic influence on the taught and learned curriculum in the flexibility of these spaces; and they can purposefully manipulate space and innovate to support their own learning and the learning of others.

Socio-materiality is a “matter of mutual social and material encounter”, where conditions are created for “learning to emerge in learning spaces as teachers turn to “material objects in full knowledge of the pedagogic possibilities that they open up” (Mulcahy, Cleveland & Aberton, 2015, p. 590). Agency has been theorised in a range of ways. There is the sovereign agency of determination theory, relational agency linked with sociocultural theory, and ecological agency which is a temporal form of agency that is embedded in social relations (Charteris & Smardon, 2018b). A consideration of socio-material agency in this paper enables us to think with space and the materiality of FLS. We consider how agency is co-produced through the spatiality of bodies in dialogue, enactments of curriculum and the creative production of learning spaces in classrooms. This enables us to see it as a form of relationality that is more than human; it is enacted in the emergence and interactions between humans, objects and the spaces they create (Fenwick, 2010).

In the following sections, literature on FLS (Blackmore et al., 2011;) and the social dimension of space and spatialised classroom practice are considered in light of student agency and assessment. We move between these theoretical ideas to analyse the perceptions of three Aotearoa/New Zealand Principals interviewed about their conceptions of agency and spatialised practice in newly designed classroom environments. Implications for dialogic’, ‘curriculum’, and ‘spatial’ dimensions of agency are considered in relation to the power relations in these spaces. With a mandate for Principals to embrace FLS, this research offers pathways for practitioners to consider how they can support forms of agency in schools, to

connect learners with the spatiality of contexts and enable them to extend their locus of control over what and how they learn.

Flexible Learning Spaces

Over the last decade space theorists including Soja (1989), McGregor (2004), Massey (2005), and Lefebvre (1991), have argued that space is socially produced and therefore manifests through the interface of both physical and social elements in the environment. In schools a conjunction of various factors contribute to what is perceived to be ‘new generation’; these influence evolving pedagogies in the socio-material spaces. Factors include: the innovations in classroom architectural designs (Imms, Cleveland & Fisher, 2016); the confluence of mobile technologies (Kim & Smith, 2017); an emphasis on the deprivatisation of teaching practice (Parr & Timperley, 2015); consideration given to 21st century learner capabilities where students are positioned as active decision makers (Mulcahy, 2015); and assessment for learning pedagogies that enhance learner autonomy (Willis, 2011) for differentiated, collaborative, authentic and personalised learning (Abbiss, 2015).

In FLS, typically there are both open and intimate spaces, with fewer walls and more glass than single cell classrooms. The spaces are “characterised by polycentric room designs, infused information and communication technologies, flexibility brought about by moveable walls and other agile interior elements, a variety of ‘student friendly furniture and ready access to resources’” (Imms, Cleveland & Fisher, 2016, p. 6). There may be a hub used as a central teaching and learning space that may be shared by several classes. Dovey and Fisher (2014) frame approaches to teaching/learning practices for the purposes of analysing the relationship between spatial forms and material structures (See Table 1.). They describe a continuum of group sizes, including large group presentations and four kinds of interactive activity in smaller groups, through to reflective activities of single students.

Continuum of spaces – linked with group size	Type of pedagogical activity
PRESENTATION 25-150 students	Students or teachers present to a largely passive group. Group size may vary from one class cohort to a full form or year. Such activities facilitate efficient communication of information.
LARGE INTERACTIVE 25-75 students	Activities that move seamlessly from large to small group and back; often organized in sub-groups of 4-6 that can be subdivided again into 2s or 3s. Facilitates peer-to-peer learning and team teaching.
MEDIUM INTERACTIVE 10-25 students	Activities with a similar flow of movement to the above, but with a smaller group size and generally one teacher.
CREATIVE INTERACTIVE 10-25 students	Interactive activities but with an emphasis on hands-on learning in addition to pens and keyboards, plus access to a range of resources that may include art materials, wet areas, laboratory or outdoors.
SMALL INTERACTIVE 2-5 students	This is the ‘breakout’ model of problem-based and peer-to-peer learning with small autonomous groups that may disperse and take responsibility for their learning.
REFLECTION 1 student	Singular activities that include reading, writing or hands-on research to meet learning objectives.

Table 1: A Typology of Pedagogies in FLS (Dovey & Fisher, 2014, p. 3)

Although it is debateable whether the design of these schooling spaces necessarily result in widespread pedagogic shifts (Bradbeer et al., 2017), there are new possibilities for student agency as a reflexively co-produced dimension in FLS (Deed et al., 2014).

Agency and Assessment Practices

There has been a growing interest in both teacher agency (Biesta, Priestley & Robinson, 2017; Gurney & Liyanage, 2016) and student agency (Birenbaum et al., 2015; Booth, Dixon & Hill, 2016). In this corpus of literature, agency has been conceived in a range of ways - linked with responsibility (Lam, 2016); the mobilisation of personal, social, and discursive resources (Davies, 1990); temporality and relationality as a phenomenon that occurs over time, and is embedded relations between actors and their environments (Biesta, Priestley & Robinson, 2017; Emirbayer & Mische, 1998). Agency is therefore more divergent than students' complicity in taking linear steps along a predetermined curriculum continuum or set of progressions. It is broader than a disposition that one can unequivocally possess or own (Miller, 2016).

Student agency has been identified as an inherent element in sociocultural classroom assessment practices, where there is both individual and collective agency with learners utilising one another's strengths and sharing the "responsibility for learning" (Willis & Cowie, 2014, p. 33). Much has been written about the spirit of assessment for learning, as an engagement with a philosophical rationale that prioritises student agency (Charteris, 2016; Heritage, 2016) and assessment capability (Booth, Dixon & Hill, 2016).

Agency can be seen as reflexively co-produced in FLS (Cleveland, 2016). In his examination of learner centred constructivist middle year's education models, Cleveland (2016) deferred to the notion of reflexivity over flexibility. "Reflexive spaces are physical environments that both inform pedagogical encounters and are informed by pedagogical encounters via a bi-directional relationship between physical environments and inhabitants" (Cleveland, 2016, p. 45). Reflexivity evokes the notion of space and how users may "participate in activities, while still enabling them to fine tune physical settings to meet their pedagogical needs... [thus teachers and students can be provided] with environmental cues that support their mastery of the use of space" (Cleveland, 2016, p. 45).

While recognising the importance of assessment practices, agency is broadly defined here as the '*socio-materially mediated capacity to act*'. Agency is produced through a range of spatial and material features in FLS. These features include the relationality afforded through enactments of curriculum, the arrangements of physical spaces, and the relations between human and nonhuman objects in schooling environments. The theoretical framework above signals that assessment for learning and student agency, although not new on the scene, are important aspects of FLS. The background and context of the study are now introduced, along with the research method, to detail dimensions of agency and give consideration to implications for practice.

Background and Context

The New Zealand/ Aotearoa government use the term innovative learning environment (ILE) in keeping with OECD literature (OECD, 2013) to describe FLS. They define them as "the complete physical, social and teaching context in which learning takes place" which are "capable of evolving and adapting as educational practices evolve" (New Zealand Government, 2016, para 14). Although the sweeping moves to implement FLS

across Aotearoa/New Zealand schools have been met with some resistance (Smardon, Charteris, & Nelson, 2015), there has been significant investment in building design and consideration given to pedagogies associated with FLS. The Ministry of Education (2015a) have aligned property funding in the Strategic Plan for Education 2015–2019 with the OECD (2013) initiative to develop FLS. Because this policy impetus (to remodel classroom design to align with a pedagogic vision for 21st century learning) has a profound influence on teaching and learning in New Zealand schools at this time, this study into assessment and agency in FLS is timely.

The expectation of change to classroom design and associated pedagogies has seen schools knocking down walls between classrooms, combining two or more classes into one, increased collaboration in teaching, and shifts towards ‘modern learning pedagogy’. This pedagogy combines elements of increased collaboration within and across schools, ubiquitous technology integration, promotion of student voice, the deliberate targeting of student agency, a deployment of Assessment for Learning practices, and curriculum integration (Charteris, Smardon, & Nelson, 2017). Abbiss (2015) makes that point that the “movement for future-oriented learning and innovative learning environments is helping to change the face of education, teaching, and learning in New Zealand schools” (p. 3).

The Case Study

The data reported in this article comprise a qualitative component of case study research (Yin, 2009), which investigated moves to FLS (Ministry of Education, 2015a, 2015b) and schooling practices associated with student agency. All primary and secondary schools across New Zealand were contacted and invited to participate in an online survey. In all, there were a total of thirty-eight school Principals who responded to the request for a follow-up interview. In the research, which was conducted in accordance with University ethics procedures, these 38 school Principals were asked about assessment practices and student agency in their contexts. The key question that guided this research investigated how school leaders conceptualise student agency within FLS.

All of the Principal interviews were recorded and the data were transcribed. A qualitative data analysis software program, NVivo, was used to store and organise the data. The data was initially open coded for any reference to agency or participatory engagement in the transcribed interviews – this was a process of organising the data into relevant categories rather than reducing it (Urquhart, 2013). Undertaking axial coding (Charmaz, 2014), the authors then separately examined the data to elaborate on the initial categories in order to generate fine-grained examples of agency linked with assessment practices in FLS. We then collaborated to discuss, refine and reduce our categories, working with the literature on agency and assessment to alight upon dialogic, curriculum and spatial agencies as themes for this article.

For the purposes of this article, data is drawn from the coded interview material of three Principals (pseudonyms provided) with FLS in their schools. These three Principals were selected for the three case studies in this article on the basis that they provide a sample of comments that best highlight forms of agency that were present in the dataset. The classrooms in their schools had either been redesigned or purpose built to establish hubs or open learning areas. Their comments were selected on the basis that these Principals best describe the particular dimensions of agency located in the data and provide insight to a range of conceptualisations of assessment related agency. Illustrative examples from the interview data are provided below to give consideration to the nuances of agency in FLS and in particular to flesh out emerging dimensions. The inductive analysis of this case study enables

an examination of the practices articulated by Principals in innovating with learning environments that value student participation. In developing the analytical framework to generate dimensions of agency in FLS we used the following question to guide us. *What agentic practices that are linked with assessment for learning are articulated in the Principals' accounts of flexible learning spaces?*

During their interviews Principals were asked to describe both AfL practices in their schools, what agency is and how students enact agency in FLS in their schooling contexts. We now present our findings to illustrate the dimensions of agency that emerged from the data as described by the Principals.

Dimensions of Agency- A Presentation of Findings

Through our analysis of the Principal data, we were able to conceptualise dialogic, curriculum, and spatial agencies which enable assessment practice in FLS. These are interrelated constructs and we have teased them apart for the purpose of this paper. These agencies are dimensions that make up the broader construct of socio-material agency. They are defined and described below with samples drawn from the Principal data to illustrate them. These agencies are co-produced in the physical and spatial designs of FLS and enacted through FLS pedagogies (See Table 1.) (Dovey & Fisher, 2014). Consideration is also given to how the Principals linked agency with power in the FLS.

Dialogic Agency

Dialogue comprises an important component in the promotion of robust feedback practices (Black, Harrison, Lee, Marshall & Wiliam, 2003; Charteris & Smardon, 2013; Dann, 2015). We define dialogue as an event in a “shared, relational space” that emerges when people are able to switch perspectives and take on new world views (Chappell et al., 2019, p. 298). Through dialogue, students provide information for teachers on where they are at and clarify their own next learning steps through thinking collectively with peers. Dialogic agency is defined here as the opportunity for action through co-constructed engagement in dialogue, where students and teachers collectively respond to each other's' voices. The materiality of classroom spaces enable these interactions (Dovey & Fisher, 2014). Dialogic agency is where students can both collectively articulate as they are learning, and in some instances participate in reporting processes where they articulate what they have learned.

Kim is Principal of a school for students from Years 1 to 8. An urban school, built in the last decade to an innovative design with learning hubs and flexible learning spaces, there is a strong emphasis on assessment capability. She describes how agency involves students articulating what they need to enhance their own learning. Students are assessment savvy and can ask for assessment data so that they can monitor their own progress. A running record is a reading assessment usually used by teachers to identify patterns in student reading behaviours. (It determines error, accuracy, and self-correction rates.) Kim says that the learners recognise their own learning progress and voice their expectations for the teacher.

I think [student agency] is about students having a voice to know where they're going, how they're going and where to next. So, having the knowledge that they know what their next learning steps are and having that power to actually influence in dialogue –saying, “Actually, I think I need a running record. I found these books, these are looking okay for me. I think I might need to be pushed to green”, you know, even at year one level. Encouraging that. Then by the time they

reach year seven and eight being proactive and going actually, I need to opt into this workshop for Maths...(Kim)

The provision of exemplar resources that develop student assessment literacy and enable student agency, is a key feature of assessment for learning. When students understand how these artefacts are created they can in turn demonstrate agency by engaging in dialogue with family and caregivers.

There's exemplars that are sitting behind what it looks like to be at a certain level -on the smaller steps through. ...So, what does it look like if I can do one to one counting? There might be a little video vignette so the parents can see it as well as the child so the dialogue is happening at home as well as school, rather than just nine to three. (Kim)

Sam is a Principal of an urban College with students from years 7 to 13. In recent years there has been significant roll growth with new senior school buildings built to accommodate the increase in student numbers. Currently with just over 1000 students, the roll is expected to double in coming years. Sam points out that when students exercise dialogic agency it may be threatening for teachers who may not be used to being challenged about what they know and believe. There are horizontal power relations although teachers are usually the final decision makers and, in that respect, can exercise power.

When you are dealing with students who have their own agency and you are giving them more autonomy, they and you are developing reflective communication skills. Students will let you know, and some teachers might be a bit afraid of that, but actually you want students to be discerning in their thinking where they make good decisions and critique and challenge -in appropriate ways of course... What we find is that our students say 'Well, why not?', 'I would like to do this', 'I am thinking about..' ... So you have to create conditions that allow them to do that. If you want them to be able to share, engage, talk and debate or whatever...well then you have got to put them together. You have them sitting around table. You've got to have the noise. You've got to have the argument. It's not clean and neat and tidy -you don't learn it in a book or anything. You actually have to do it, and you practice it, and you get better and better and better, better at it. (Sam)

Timothy is Principal of a rural school for students in Years 1 to 8 that has a heritage of over 100 years. The roll is currently approximately 350 students. Timothy has seen one of the walls in a 1960s block removed in order to create two classes into a single space. There is also a purpose-built hub space for younger learners, which includes a big, shared space and four adjacent breakout rooms. Timothy comments that peer feedback is strong focus in the FLS where students engage in dialogue.

We work on raising the quality of feedback between peers. Given that maybe up to 90% of feedback in a class is between peers, then that's a very powerful factor. I think that is sitting at the heart of some of our changes too. Long gone are the days of a class sitting in silence. We want a hum in classes, where you've got students increasingly working together. (Timothy)

Agency is therefore produced through class dialogue, as students provide dialogic feedback (Charteris, 2016) through co-regulated learning opportunities (Heritage, 2016) in the socio-material spaces of FLS. Curriculum agency is the second dimension dealt with here that emerged in the Principal data.

Curriculum Agency

It has been widely acknowledged that historically students exercise little agency over the school curriculum (Biddulph, 2011; Rudduck & Flutter, 2000). With requirements for teachers to meet standards, prepare for high stakes testing and ensure curriculum coverage, it can be difficult to conceptualise how students can enact curriculum agency. Curriculum agency is where students have an input into curriculum so that it serves their interests, their preferences, and it encompasses their voices (Biddulph, 2011). Although there is overlap with dialogic agency, with students talking about their learning and using curriculum artefacts, like exemplars (as in the example from Kim above), curriculum agency specifically addresses how students are able to determine curriculum directions and enactments, in order to have influence and make meaningful contributions to the planned and taught curriculum to effect learning. Aspects associated with curriculum agency include: consideration of the “knowledge, ideas, experiences and interests that students bring into schools”; “ongoing conversations between students and teachers about the school curriculum”; the deliberate use of disciplinary knowledge “as a resource for curriculum development and knowledge building”; a shared responsibility for knowledge building and community knowledge where “ideas provided by individuals contribute to the collective goal and are of value to others”; and assessment is “embedded and transformative” with students reviewing and evaluating their progress with reference to a curriculum framework (Biddulph, 2011, p. 383).

Curriculum agency can look different in different schools with different conceptions of it amongst school leaders. Timothy described how schools are enabling students to have input into timetabling, engage in collaborations and undertake personalised programmes. They can have input into what, how and where they learn.

There are schools that are dabbling in student group-based learning and students sort of taking control of their timetables, and [there is] increased personalisation... but it certainly looks very different in different schools, it's probably on a real continuum I suppose what one person would configure as agency would be very different to others. (Timothy)

Timothy goes on to elaborate that students can engage in decision making that is based on their own needs. They have scope for curriculum agency in relation to content, delivery and the nature of their group work. Timothy describes this as a shift in the locus of control with students agentic in activating each other's learning. Rather than a handing over of power, Timothy describes how power can be shared in the between students and teachers.

I mean that's huge in terms of the change in what teaching and learning looks like... It's just increasingly focused on the learner and actually on empowering them to drive their own learning and give them license, rather than some of the controls that teachers used to have around content or delivery or group -- even groupings. [They are] defining groupings -students actually self-select their own groupings around skills. And then harnessing your students as teachers and so in their classes there are 58 teachers in there. So, I guess the pedagogy changes where the locus of control is shifting away from one or two teachers historically and starting to harness the talents in the class. (Timothy)

Underpinning these practices is student assessment capability, as students can co-construct learning when they have knowledge of curriculum goals, what they are aspiring to achieve and how to get there. Discipline knowledge and expertise in curriculum design, and its brokerage, influence student agency. Sam describes how students make decisions about what and how they learn. Sam points out that students need to be at a particular stage to be permitted freedom to make substantive decisions pertaining to the learned curriculum.

It's really students making choice about their learning isn't it. Seriously... not just whether I will do exercise A first or B first. It's actually deciding, making decisions about what they are going to learn.... They make a decision as to how to do it. Now, you can't just do that straight away... you've got to give them the skills and they've got to be at a certain stage in their learning to be able to handle that sort of freedom. But once you allow students to have their freedom they're off! It's being able to make decisions about their learning, real decisions about their learning not just low level stuff, we're talking deep, deep, deep stuff, does it make sense. (Sam)

In commenting that teachers have to “give them the skills”, Sam is coupling “freedom” with teacher permission giving. Acknowledging Sam’s reservations regarding student skill development, we highlight that students may be held back from being agentic, if teachers are not prepared to power share or perhaps are not recognising possibilities for student agency, and are not prepared to match the opportunities that they provide with the potential capabilities of their students. Relinquishing some of the curriculum planning responsibility to students can be risky (Biddulph (2011), especially where there are pressures for students to be equipped for high stakes assessment. However, the curriculum is ultimately the teacher’s responsibility, and it would require a radical shift in education policy, and schooling generally, for this to change (Biddulph (2011).

Like Timothy and Sam, Kim highlights the importance of making curriculum progressions accessible for students so that they can locate themselves on a continuum and can goal set accordingly.

I think [assessment capability] is quite interchangeable with student agency. Assessment capable is knowing the progressions, knowing the explicit next little steps, my next goals and how I'm going to get there. And, I think our progressions that we've unpacked are really child focused and child accessible, as well as parents accessible. We have lots of people who have English as the second language in our classes and so, you know, that's really important to make the goals clear, concise and achievable. And I think our learners can see that. (Kim)

Kim shares the interconnection between curriculum and spatial agency (discussed below). She notes that students determine what they need to learn at certain times of the day and how they are going to do it, whether they attend a guided teaching session that targets a particular objective/skill or whether they learn with peers or find a space individually.

The older children, they just go off and they can say 'right I'm not needed in this workshop', 'I'm going to go and do my learning by myself', 'I'm just going to pop over here' or 'I'm going to go with my group of peers who are working on the same thing'. 'We are going to hop into a breakout room to do that learning'. So, it's quite autonomous. So I think that's a really good thing. (Kim)

Spatial Agency

Spatial agency is co-imbricated within the materiality of FLS, it involves both deliberate manipulations of space and the influence of spatial design on relationships. Blackmore and colleagues (2011) describe pedagogical responsiveness in FLS as spatialised practice which involves the fluid and flexible re-design of learning spaces, alongside ongoing evaluation and reconsideration of curriculum, pedagogy and assessment. Fluidity is an affordance that enables a reconfiguration of power relations in classrooms and, in particular, the ways of being for both teachers and students. McGregor (2004, p. 3) writes, “[s]patiality is the production of space through the interaction of the physical and the social. This

recognises that, while much of our world is constructed through social relationships, these are materially and technologically embedded”. There can be scope for creativity and a sense of student ownership in the use of the materiality and space, and the possibilities for social relationships afforded there. The nature of the material spaces influences group sizes and the types of pedagogies enacted (Dovey & Fisher, 2014). While this is not necessarily different from previous conceptions of learning spaces, there are expectations for students to make decisions, create opportunities and move within the continuum of space in differing group sizes (Dovey & Fisher, 2014).

The Principals describe how students are able to use the different spaces available to them Sam describes how students are fluid in their use of space, repurposing it to assist their learning.

They want a big space quickly, they've got a big space quickly. If they want small one, they've got a small one. They just change things around. They might... have a big meeting together or they might roll everything back... and you often see students do the types of activities that traditionally you might have to go outside and do, they might need to measure things out or to lay things out. They just create a big space on the ground because they've got this big space - which is the equivalent to four classrooms and their corridors... They can do that just at the drop of a hat -get up and move around and do whatever. (Sam)

Like Sam, Kim describes a range of ways that students create learning spaces for themselves. She describes how a teacher asks for input from students into where a guided teaching lesson should take place. Reportedly, she encourages the students' fluid use of the space.

I'm always surprised... The children are so inventive in the ways that they use the furniture. They create cave spaces ... for children who need quiet time. They create cave spaces under tables and they can turn their chairs into desks. Or they might lie from toe to head down some steps and do some writing in their writing books. They learn where they feel the most comfortable too. And so a lot of the time if you're doing like guided reading sessions or small group Maths lessons you will hear the teacher say (especially for new entrants) where would you like to learn and the children would get to choose the space in the hub. (Kim)

Cave spaces, although described positively here by Kim, may provide opportunities for students to evade teachers' surveillance and avoid the prescribed learning, in particular if they do feel not connected with the program offered at school. Some schools we have encountered adopt the Gradual Release of Responsibility Model (Fisher & Frey, 2013, p. 3) (Figure. 1) and/or use the notion of licenses to scaffold 'responsibility'. We view that although this model may be useful, it should be critiqued on the grounds that it conjures up an image of an individualistic 21st century child who is primed and 'responsibilised' (See Torrance, (2017) for more on this notion).

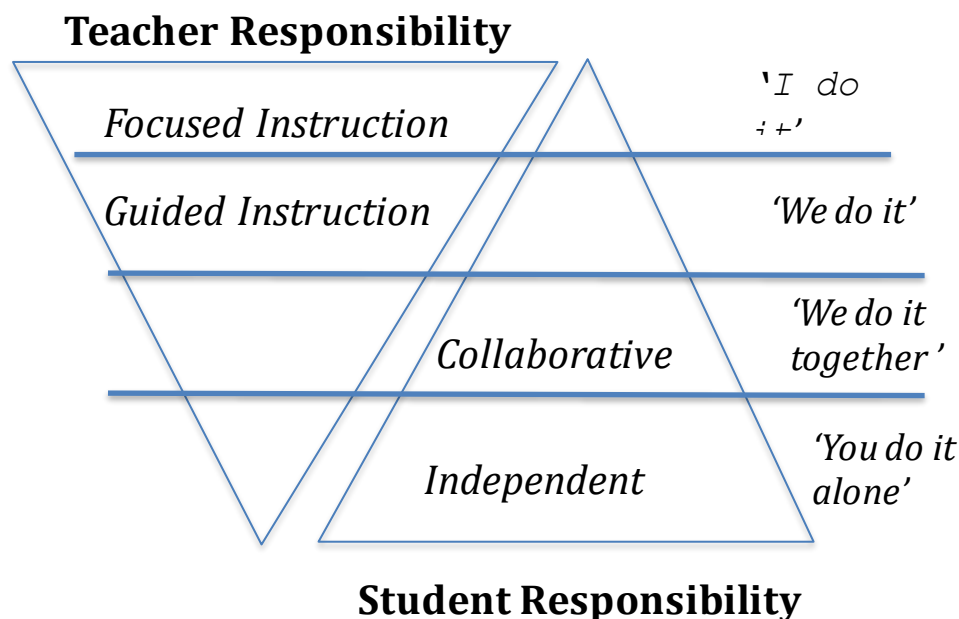


Figure 1. Gradual Release of Responsibility Model (Fisher & Frey, 2013, p. 3)

In a similar vein, Timothy describes a scheme of trust licenses, which enable negotiated scope for students to avail themselves of the features of the space.

They have pretty much autonomy around where they work... Wherever possible the nooks and crannies are opened up in terms of learning spaces... So, there are areas where kids can go to work independently. There are areas where they can go to work with a buddy. There are bigger areas where they come together as a group. Quite a number of their kids, probably half of our school, are on a trust license type scheme. Our older students have full license, have got full rights to be able to work in a number of areas that are a long way away from class... Kids on various stages of those licenses have got greater scope... So, a lot of students now –they are not just learning in their class, lot of the areas outside of classes are opened up to work in as well. (Timothy)

Power sharing is intimated in Timothy's comment, where there are rights and trust granted through a scheme. It appears that the teachers hold the power in the issuing of these licenses and this can be seen as a form of streaming so that some students are privileged and others are never to be trusted. It is therefore questionable whether all students are able to exercise spatial agency as some who have high learning needs or challenging behaviours may be required to stay in the teacher's proximity.

The practices pertaining to dialogic, curriculum, and spatial agencies were not consistent in the data across all of the principals interviewed. This is not surprising, as the principals were at different stages of FLS development and our analysis of the interviews suggested that agency was enacted in different ways in the schools. As we have written elsewhere, "restructuring schooling processes does not necessarily guarantee reculturing and there can be teachers' resistance where they reorganise physical environments with flexible furniture to approximate single cell environments" (Charteris & Smardon, 2018a, p. 25). Not all teachers may understand how agency can be fostered in students through assessment practice and further they may not see it as a priority in their classrooms, referring to retain established practices. It may be challenging to engage in pedagogies that require teachers to rethink the power relations in classrooms that go beyond tokenism. Having provided accounts of in the Principal's comments, we now turn to discuss implications of agency for practitioners and students working in flexible learning spaces.

Dimensions of Agency in Flexible Learning Spaces

Alongside spatial redesign to meet the projected needs of 21st century learners (Benade, 2015), there has been increased interest in practices that enable student assessment capability as participative pedagogy (Willis, 2010). Agency is inherent in assessment where learners take action, collaboratively and individually to enhance their own and others' learning. Agency is apparent in the Principal reported data in their accounts of ways that students are agentic in determining types of pedagogical activity (Dovey & Fisher, 2014). The analysis of agency above suggests that dialogic, curriculum, and spatial agencies are dynamic aspects of assessment practice. When read in combination, socio-material agency is produced through the physical spatiality of classes and the pedagogical actions of students and teachers. The confluence of these agencies offer a fresh consideration of spatialised pedagogy and related assessment practices.

These three dimensions of socio-material agency (curriculum, spatial and dialogic agencies) have been present in schools for decades in varying degrees. A student centred curriculum, where children could significantly influence the direction of their learning process, was evident in the Summerhill initiative of the 1960s. Spatial redesign was in style with the use of open spaces with multiple teachers in the 1970s. Dialogical approaches to curriculum were in vogue in the 1990s. However, it is in FLS that the three dimensions of socio-material agency can come together. It is through the use of flexible furniture, digital technologies, bespoke teacher professional learning (Charteris & Smardon, 2018a) and purposeful spatialised pedagogy (Mulcahy, Cleveland & Aberton, 2015) that various forms of agency may be scaffolded, supported and valued and students can build assessment capability (Absolum, 2006). Socio-material agency emerges in the relationality between humans and humans, humans and objects, and humans and spaces.

Leveraging the dimensions described by the Principals, we argue that dialogic, curriculum, and spatial agencies are produced through reflexivity in FLS. The materiality of classroom environments can be reflexive spaces that enable assessment practices and, in particular, opportunities for dialogue and student initiative and participation. For instance, peer feedback and collaboration, and solitude for reflection and self-assessment, are enabled by both the affordances of creative and small interactive spaces (Dovey & Fisher, 2014, p. 3) and the use of technologies. The materiality of FLS produces bi-directional relationships between material environments and those teaching and learning within them.

As we have written elsewhere (Charteris, Smardon & Nelson, 2016; Charteris & Smardon, 2018a), the emphasis on combined groups of students and teachers in open spaces, requires advanced skills in collaboration and this is an element that needs to be carefully supported through targeted teacher professional learning and development. Willis (2014) observes that "designing a learning space meant not only making a physical learning space... but also negotiating new cooperative patterns of interactions, meanings and future actions in the social and pedagogic-relational spaces of the school in preparation for new learning spaces" (Willis, 2014, p. 13). The implementation of assessment practices that enable dialogic, curriculum, and spatial agencies may require significant change in teaching practice, with implications for school leadership and professional learning.

In schools, spatial designs can support students' socio-materially mediated capacity to act. Both redesigned classrooms and new builds create properties of "openness and flexibility" yet, more significantly, they offer "materialising processes" in which both school personnel and objects take part. (Mulcahy, Cleveland & Aberton, 2015, p. 584). These materialising processes can "catalyse changes to socio-pedagogical cultures" (Cleveland, 2016, p. 46) and, giving consideration to the data above, encourage agency. This involves a

shift in the relational dynamics between teachers and teachers (Charteris, Smardon & Nelson, 2016) and as suggested here, between teachers and students.

Further Research

The Principal data in this research is in alignment with Imms and Byers' (2017) study that found the arrangement of the physical learning spaces can influence students' perceptions of learning. Reflexivity is a particularly salient feature of these environments (Cleveland, 2016), with particular relevance to possibilities for student agency. As the data for this study was drawn exclusively from Principals, it is uncertain if teacher and student data would suggest similar dimensions of agency. Further studies into the nature of agency in flexible schooling spaces are warranted.

Issues can be raised in regard to when dialogic agency is conflated with voice. Silence can be an enactment of agency – as resistance, non-compliance or disinterest and an inclination not to speak. Recognition of the agency of silence involves the refusal of the silence disempowerment/voice empowerment binary (See Parpart, 2010 for further detail on this artificial dichotomy). This could be a useful area for further investigation- particularly if we want agency in schooling to transcend a focus on mere compliance with teacher and curriculum demands.

There may be differences in scope for curriculum agency across the primary and secondary schooling sectors. There could be research into whether there are different ways that students in these different sectors are able to enact curriculum agency. High stakes external assessment for credentialing may impact on what is possible with senior students.

The negotiated capacity to move beyond the immediate range of the teacher can be afforded through both clarity in assessment for learning practice (Absolum, 2006) and affordances of technologies. There may be issues with students who do not fit this model who, for a range of reasons, may not be permitted free-range of the space (a trust license). Further research could give consideration to the way that students are monitored, tracked and profiled in FLS and the implications for different groups of students.

Conclusion

It is important for students to develop the skills to understand where they are in a progression of learning, where to go next, and what their ensuing steps are to close the gap between where they are and where they want to go. Through co-regulation, where there is an appropriation of self-regulation strategies (Allal, 2016), students can clarify their next steps to close the gap between where they are at and their learning targets. Yet, it is also argued here that there are socio-material considerations for imbrications of agency in FLS. These considerations are brought to the fore with moves to redesign or repurpose-build schools to align with visions of 21st century learning. It is uncertain if, and how, spatial changes through the development of FLS will realise policy makers', designers', school leaders', teachers' and school communities' envisaged possibilities for pedagogical change. Nevertheless, it is noteworthy that there are dialogic, curriculum, and spatial dimensions of socio-material agency that can be enabled through assessment practices in flexible learning spaces.

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