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Educational Review

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/cedr20

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To cite this article: Helen Harper & Bronwyn Parkin (2024) A subversive pedagogy to empower marginalised students: an Australian study, Educational Review, 76:1, 116-131, DOI: 10.1080/00131911.2023.2175793

To link to this article: https://doi.org/10.1080/00131911.2023.2175793

Published online: 02 Mar 2023.

EDUCATIONAL REVIEW
2024, VOL. 76, NO. 1, 116–131
https://doi.org/10.1080/00131911.2023.2175793

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RESEARCH ARTICLE

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A subversive pedagogy to empower marginalised students: an Australian study

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ABSTRACT

This paper draws on Bernstein's educational sociology to illustrate how a language-focused "subversive" pedagogic approach (Martin, 2011) was systematically realised through classroom interactions. While educational inequalities are often addressed at the level of policy and budgets, this paper provides a perspective on inequality and differentiated student outcomes within the classroom. Our research context is Australia, where we have a seemingly intractable gap between mainstream educational outcomes and those of disadvantaged groups. We present a study on how teachers' conscious pedagogic choices worked to support marginalised students. The participatory research focused on a series of science lessons, conducted in a suburban primary school, with a high proportion of students of refugee background. We explain how, in collaboration with teachers, we reframed Bernstein's abstract notions of regulative and instructional discourses into practical, intentional pedagogic strategies. We describe how these strategies were named and implemented, how they became a shared heuristic for the research team, and the empowering effect they had on teachers and students. The study demonstrates the potential of bringing educational and linguistic theories into practice as classroom pedagogic dialogue, with the empowerment of marginalised students in mind.

ARTICLE HISTORY
Received 31 January 2022
Accepted 24 January 2023

KEYWORDS
Classroom interactions; equality/inequality; inclusion/exclusion; education; teaching/pedagogy

1. Introduction

Educational disadvantage and inequality in Australia, despite its affluence, remain issues of concern. A significant number of Australian students do not meet minimum standards in education, evidenced through the national testing regime (ACARA, 2021). The cluster of low achievement is sometimes referred to as the "long tail", indicative of an inequitable education system (Ainley et al., 2022). The "tail" is comprised of educationally marginalised students: a coalescence of demographic categories which have an impact on educational achievement, notably Indigeneity, geographical remoteness, low socio-

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economic status and English as an Additional Language (EAL) (ACARA, 2021; Harttgen & Klasen, 2009; Lugaz et al., 2009).

Inequality in schooling can be addressed in part by acknowledging and acting to rectify socio-economic or cultural disparities through broad governmental policy and budgets. However, while such initiatives are necessary, they are insufficient to ameliorate disadvantage. Our work considers educational marginalisation at a more fine-grained level, bringing attention to what happens inside the classroom. We look beyond official categorisations of students to attend to classroom pedagogy, which can be defined as the dynamic teaching and learning interactions between teachers, students and the curriculum (Bernstein, 1999). We are interested in how the classroom teacher actively addresses educational inequality with students who might otherwise feel that they are on the margins of classroom discussions or who are left ill-equipped to engage with academically-focused tasks. In both theoretical and practical terms, we want to know how these students can participate fully in classroom activities and successfully acquire new curriculum knowledge.

Our perspective is grounded in three intersecting theoretical fields: Bernstein's sociology of education (Bernstein, 2000), Hallidayan systemic functional linguistics (e.g. Halliday, 1995), and Vygotskian socio-cultural theory (e.g. Vygotsky, 1934/1986). These socially-oriented fields have been described by Hasan (2005) as exotropic because they complement and augment each other; they interact and are logically permeable (p. 130). Importantly, each field recognises language as the central means of cultural mediation, fundamental to learning and development. Student control of new language is central to academic success. These three theories therefore provide us with a sound basis for investigating the role of language in pedagogy, and for providing students with access to powerful language.

In Australia, several approaches to teaching language and literacy have built explicitly on the theories of Bernstein, Halliday and Vygotsky. These include the Disadvantaged Schools Programme (DSP, 1994), Scaffolding Literacy (Gray, 1998, 2007), and Reading to Learn (Rose & Martin, 2012). They share a common motivation: social justice and emancipation for marginalised students. They also share a common focus on language development as the key to knowledge construction, on the importance of conscious attention to discipline-specific language in school, and the necessity of supporting students to gain control over valued vocabulary, grammar and texts. At first glance, this valuing of and attention to academic language, both written and spoken, might seem a hegemonic project, a process of removing "authentic" student voice where students are from minority cultures. However, the intention is not to dismiss students' own spontaneous English forms, but to recognise that the ability to make powerful vocabulary, grammar and textual choices in the context of schooling is an educational entitlement which teachers can and must support.

The approaches mentioned above can be described as "radical visible" pedagogies (Bernstein, 1990, p. 214) in the sense that they entail highly visible, or explicit, criteria for evaluating student progress. Student achievement is considered the responsibility of the teacher rather than a function of innate student ability (Bourne, 2004, p. 66). The visible and collective nature of these types of approaches, according to Bernstein (1990), results in them being "a radical realisation of an apparently conservative pedagogic practice" (p. 73). Such practices have subsequently been relabelled by Martin (2011) as

"subversive", because they "attempt to challenge social order by giving away the keys to knowledge" (p. 39).

In this paper, we draw on the notion of subversive pedagogies to report on a study of classroom interactions in which we, the researchers, worked with teachers of refugee EAL students to propose, enact and reflect on pedagogic strategies explicitly intended to include students in the academic discourse of science. Our aim was to articulate principles of a language-based scaffolding pedagogy, exploring moment-by-moment pedagogic choices with the teachers, and helping them to bring these choices to consciousness. Naming and categorising the pedagogic choices not only helped teachers to understand how a subversive pedagogy could be realised but also served as a heuristic, a tool to help teachers plan for and reflect on their own pedagogic practices and purposes.

2. The theoretical base

In addition to the "radical" or "subversive" pedagogies introduced above, Bernstein (1990) identified three additional and contrasting types of pedagogic approaches, namely traditional, progressivist, and critical approaches (p. 72). Teachers are influenced by theories and beliefs associated with the different pedagogic types, and accordingly make choices about how they manage students and the choreography of the classroom, using what Bernstein (2000) termed "regulative discourse", while simultaneously developing curriculum knowledge through "instructional discourse" (pp. 12-13).

Teachers' regulative and instructional choices impact on the interests of marginalised students in each type of pedagogy in various ways. In traditional, or "transmission", approaches, the teacher strongly controls the pacing and sequencing of the curriculum. Such approaches are frequently characterised as "conveyor-belt pedagogy … the empty-vessel approach" (Mehan, 1998, p. 254). The teacher is clearly the "sage on the stage" (Ravitch, 2007). In this pedagogic type, the teacher's instructional discourse includes explicitly stated learning goals, but the regulative discourse has little flexibility for learning negotiation or accommodating individual student learning needs.

Progressivist pedagogic approaches on the other hand are influenced by individualistic constructivism and a student-centred approach to learning (e.g. Brooks & Brooks, 1999; Dewey, 1929; Windschitl, 2002). Such approaches are typified by "discovery" learning, and the teacher's role is characteristically seen as "guide on the side" (Ravitch, 2007). Student engagement may be prioritised over deep understanding of the target discipline. The regulative discourse is often unclearly defined because the locus of control resides with students rather than the teacher. The instructional register may also be ill-defined or "masked"; target learning and valued ways of expressing knowledge remain invisible to students who are not already "in the know" (Bourne, 2004). The individualistic focus in both traditional and progressivist pedagogies means that success or failure is projected as the responsibility of the student. Both pedagogic types are likely to lead to differentiated learning outcomes, long-term stratification and the perpetuation of inequity.

Critical pedagogies, on the other hand, recognise the social nature of teaching and learning, eschewing the individualism of progressive and transmission pedagogies, and valorising cultural values and knowledge of minority groups. Such pedagogies are typified by the work of Freire (1972). Instruction may be inclusive of local community, minority languages may be recognised and maintained, and there may be a focus on

understanding and challenging the effects of colonisation and hegemony. Regulative discourses are widely variable, depending on who is teaching, and the instructional register is comprised of valued knowledge determined by the relevant cultural groups. Critical pedagogies affirm students' home cultures in vital ways and must be acknowledged as essential to an inclusive education for marginalised students. However, they are not sufficient to provide access to the wider curriculum and the powerful language required for school success.

By contrast, the goal of a subversive pedagogy is to provide access to curriculum and language in visible, explicit ways. Teachers' regulative choices are conscious, but highly flexible and contingent on the level of students' familiarity with the motivations and context for learning activities; teachers take time to ensure that students understand why the activities are part of the curriculum (Gray, 1998). In a subversive pedagogy, instructional choices are planned to support the handover, that is the transfer of control from teacher to student (Bruner & Watson, 1983, p. 60), of powerful discipline knowledge and language. This notion of handover is underpinned by the social psychology of Vygotsky (1978, 1934/1986), who recognised the essential role of social interaction and language development in the process of teaching and learning. The Vygotskian tradition has given rise to the notion of "scaffolding pedagogy", where the teacher's role is to lead and accompany the student beyond what they can already do, towards new levels of development (Parkin & Harper, 2018, 2020; Wood, 1988; Wood, Bruner, & Ross, 1976). In an effective scaffolding approach, teacher and students share an explicit learning goal, and the teacher makes moment-by-moment choices as part of classroom dialogue, providing a contingent level of support when needed, and withdrawing support when it is no longer necessary. A scaffolding approach thus contributes to a subversive pedagogy through principles of goal sharing and teaching-learning negotiation.

The instructional discourse in a subversive pedagogy serves not only to make learning goals explicit but also to draw students' attention to the authoritative language of the given discipline. Hence, Bernstein's attention to language and meaning-making is strengthened by a theoretical perspective developed in parallel by Halliday and colleagues from the school of systemic functional linguistics (e.g. Christie, 1999; Halliday, 1993; Martin, 2011). Their project of social justice and equity through "socially responsible linguistics" (Martin, 2021) has a goal of extending students' capacity to communicate using subject-specific language and to gain control over valued vocabulary, grammar and texts in each school discipline. The work of educational linguists provides a fine-grained description of the purposes of communication in science, the text types which match those purposes, and the lexico-grammatical resources used to communicate scientifically (e.g. Halliday & Martin, 1993; Martin & Veel, 1998).

Our questions about how to enact subversive pedagogies are not well addressed through quantitative experimental studies and meta-studies. These studies aim to improve educational outcomes by refining pedagogy (Hattie, 1992; NRP, 2000; Rose, 2006; Rowe, 2005), leading to "evidence-based" pedagogic packages. Such solutions are attractive at policy and governance levels because they are apparently clear, simple, and fundable: a "quick fix". In literacy research for example, evidence-based approaches often focus on discrete, isolated skills. An example recently deployed in remote Indigenous contexts in Australia is Direct Instruction (Barbash, 2012; Clinton & Dawson, 2017), emphasising phonemic awareness, phonics and decoding skills.

When it comes to turning around the educational disadvantage of diverse students, with their different world views, histories and identities, such "constrained", easily measurable skills are only a beginning. It is the "unconstrained" skills needed to make meaning from the texts valued at school that are often overlooked (Paris, 2005). These include text comprehension and production in each academic learning area, both oral and written, a vast and expanding field of knowledge that is an ongoing challenge for the work of teachers. Meaning-making, specifically to construct knowledge through language and other semiotic modes, is the domain of subversive pedagogies.

In the current educational climate, it is easy to dismiss such approaches as lacking an evidence-base. For example, the effects of teachers' regulative and instructional choices on student outcomes are not easily quantified. Rather, to understand a subversive pedagogy as it is realised in the classroom, we must understand how the pedagogy develops from theory to enactment.

Morais (2002), discussing the application of Bernstein's theory in science education, explained that abstract theories require translation into concrete propositions and models, and further work from researchers and teachers if they are to be enacted in the classroom (e.g. Gray, 2007; Rothery & Stenglin, 1995). Morais (2002) described the essential reciprocal relationships between three layers of sociologically-focused educational research. (1) Strongly conceptualised and abstract theories with "the power to diagnose, describe, explain" lead to (2) consequential "propositions" of how the theory might be realised in (3) "pedagogic texts and contexts" (pp. 564–565).

Our research draws on the intersecting theoretical fields discussed above to create a proposition of how a subversive pedagogy can be realised in a specific classroom context. We are aided by Gray (1998), who argued that Bernstein's regulative and instructional pedagogic discourses in disadvantaged settings must aim to achieve the following purposes:

In the regulative discourse, the teacher:

- orients students to the motivations, beliefs and values of the discipline in focus
- regulates student participation in classroom operation while at the same time maintaining positive affect, so that all feel welcome and involved.

In the instructional discourse, the teacher:

- builds meaning cumulatively through the negotiation and sharing of knowledge and topic-valued language as the topic unfolds across lessons.

It is clear that managing these pedagogic purposes simultaneously is complex, challenging, and places a high cognitive demand on the teacher. We identified a need to define a set of explicit pedagogic strategies that can be used systematically in the service of these purposes, and that can help teachers to enact an effective subversive pedagogy.

3. The study

In our participatory research study, we aimed to translate the theories introduced above into propositions (Morais, 2002) that underpin a subversive and principled language-

based scaffolding pedagogy, realised as moment-by-moment pedagogic choices. Our main proposition was that bringing to consciousness and naming a set of explicit pedagogic strategies would support teachers so that they in turn could support marginalised students towards successful learning.

To do this, we collaborated with two Year 6/7 teachers to plan for, practise, name and reflect on various pedagogic strategies. The two teachers co-taught one large class in a suburban South Australian primary school, taking turns as lead and support over the course of the day. The majority of students were from diverse non-English speaking backgrounds. Many were refugees who had only recently graduated from a year of intensive English, and were still in need of language support in their learning. For this reason we can characterise them as students at risk of marginalisation. Both teachers had exceptional experience and proficiency in using a literature-based scaffolding pedagogy (Gray, 2007), and were recommended for participation in the project by their principal. The project provided an opportunity for exploring and extending researchers' and teachers' understanding of scaffolding principles beyond the teaching of subject English, and into subject Science, a subject of crucial significance in the twenty-first century. One of the researchers had been working with the teachers for a decade, so there was a high level of mutual trust, and a shared acknowledgement of the teachers' experiences and their established positive relationships with students (Feldman, 1999).

Our research questions addressed both pedagogy and its impact on students' learning of target language:

1. In what ways did a set of planned pedagogic strategies help the teachers to manage the regulative and instructional pedagogies in a principled way, such that positive affect was maintained while academic learning took place, and what refinements can be made?
2. What handover of the target subject-scientific language in the instructional register is evident for a range of students?

The lessons addressed the topic of lunar eclipses. Before the teaching began, we negotiated the target content knowledge and scientific language with the teachers. We developed alignment about the research questions, our shared purpose and processes, students' learning goals, and criteria for evaluating students' progress. Over the course of one week, we observed, photographed and took notes during the daily video-recorded science lessons. Each lesson was subsequently transcribed in full for close linguistic analysis of the teacher and student talk in the regulative and instructional registers.

Crucial to the research was a review and planning session after each lesson with teachers and researchers reflecting jointly on the lesson. These sessions featured deep sustained conversations focused on refining existing knowledge, making tacit knowledge explicit, and linking this knowledge back to theory (Patuawa et al., 2022). Through the conversations we aimed to build the teachers' "adaptive expertise", positioning them as active partners in their professional learning, able to identify problems and draw on their professional knowledge to enact strategies as solutions (Jarrett et al., 2021; Timperley, 2015; White, 2021). In particular, we discussed the teachers' interactional choices, and trialled the translation (Morais, 2002) of Bernstein's regulative and instructional discourses into strategies that teachers could name and implement in a systematic and intentional

manner. We explicitly worked with Gray's (1998) three purposes of pedagogic instructional and regulative discourses noted above, seeking to characterise them in succinct, easily recalled terms. The outcome of these conversations was an increasingly systematic set of pedagogic strategies which continued to be refined across the week.

To collect data about the handover of scientific language, students representing the range of language proficiencies in the class were selected for pre- and post-topic assessments, using an oral retell of a topic-specific text (Harper & Parkin, 2017; Parkin, 2015). These recordings were transcribed, and a detailed linguistic analysis conducted to identify specific lexical and grammatical changes. Written topic-specific texts were collected post-study to further analyse student language proficiency. Further evidence of student learning came from recorded oral presentations. Short interviews with students at the end of the week provided data on student perspectives about the teaching.

4. Illustrations of classroom interactions: enacting a subversive pedagogy

In this section we outline Gray's (1998) three pedagogic purposes and the related teaching and learning strategies articulated in collaboration with the teachers in our study. This fine-grained view of classroom interactions exemplifies how a subversive pedagogy can be intentionally realised in the classroom, highlighting opportunities for students to be included and supported while also successfully engaged in pursuing academic goals. Considerable skill and effort are necessary for a teacher to consciously and intentionally employ these strategies. Taken in isolation, single strategies may seem commonplace or self-evident, but, in context, they require teachers to focus on the moment-by-moment unfolding of the lesson, and simultaneously to monitor student responses and uptake to inform their choices about the next step.

4.1 Orienting students to the motivations, beliefs and values of the discipline: "Sharing the learning purpose"

One way to frame the regulative discourse for teachers, and to think about orienting students to the relevant discipline is through the phrase "Sharing the learning purpose". The phrase implies not only that all students will share an understanding of what the class will do next, but, just as importantly, that they know why. That is, teachers help students to situate the new learning in light of the motivations and knowledge system of the target discipline, as well as more immediately in the context of prior learning (Gray, 1998, 2007; Vygotsky, 1934/1986).

Within this general idea of sharing the learning purpose, our study defined several specific pedagogic strategies. In the first strategy, which we named simply **share the goal,** the teachers took time to explain the learning intentions (Hattie, 2021) of the topic and the lesson. This was necessary to mitigate the risk that students unfamiliar with the discipline might comply without understanding or purpose.

In a related strategy, the teachers prepared new learning by systematically reiterating, consolidating and broadcasting prior learning, understanding that learning exists in the context of what has come before and what is to follow. We named this strategy **look**

back, look forward. In the following extract, for example, the teacher looked back to the previous lesson's work, checking for handover about the solar system and planets.

Teacher So everybody, we are moving on today. We have been doing a lot of work about the universe, space, the solar system, orbit, and rotations of planets in particular. What are the three major things that we are talking about that are going to help us describe lunar eclipses? I think you can tell me …
Student Sun, Moon and Earth.
Teacher Sun, Moon, and Earth, absolutely, those are the three key ones.

The teacher followed this exchange by "looking forward", sharing the goal for the next part of the topic, specifically the lunar eclipse.

Teacher So for today, … we're going to do a little bit of learning and then create some information to explain a lunar eclipse.

A third strategy was named **mark the boundary.** New learning requires students to recognise and mark the shift, or boundary crossing, from commonsense into discipline-specific thinking (Bernstein, 2000). In the following extract, the teacher marked the boundary by situating note-taking as the activity of scientists, and by using scientifically-valued technical vocabulary ("explanation", "phenomenon").

Teacher So … remember that's what scientists do: they take notes to help them remember the things they think they might need … , in … their explanation about a particular phenomenon.

A final strategy in sharing the learning purpose was to **focus attention.** Shared attention between teachers and students cannot be assumed but is necessary for mutual understanding (Shteynberg, 2018). For example, teachers can consciously draw students' attention to the salient features of a video or text, as in the following extract, where the teacher focused students' attention on video images and told them exactly what to observe.

Teacher So … I'll press play in a moment, so we're going to see that white line, which represents the orbital path … So I want you watching that side of the orbital path over here, and I want you to see what happens as time passes.

4.2 Regulating student participation in classroom operation: using classroom interactions for inclusion

Managing student participation in classroom interactions is another aspect of the regulative discourse. Teachers need to **maintain positive affect** in the classroom (Lochner, 2016; Vandenbroucke et al., 2017), while at the same time managing and adjusting classroom dialogue so that students gradually appropriate new knowledge and language. In our study we planned for and observed a number of simple pedagogic strategies to maintain positive affect, mediating the respectful invitation of students into the academic discourse. These strategies included:

- **Using "we"**. The teachers' use of the first person plural ("we"), rather than third person singular ("you"), implied that learning was a joint effort, and positioned themselves as part of the learning community, rather than standing apart:

Teacher If we're estimating, do we just guess? No, we really think about it, don't we?

- **Managing behaviour respectfully**. Marginalised students may express their discomfort by quiet compliance, or by loud distractions. Responding to student behaviour in an annoyed, sarcastic, or irritable manner can destroy any positive affect or collegiality in the classroom. Instead, the teachers affirmed and thanked students, and often ignored low-level distractions to be followed up later.
- **Acknowledging student contributions and student experience**. Marginalised students are understandably fearful of failure, so that answering questions or offering suggestions may be high risk. The teachers in the study acknowledged and broadcast student contributions:

Teacher	Well done! Did everyone hear what Ronnell said? Let's say it with Ronnell.

Questioning plays a significant role in supporting students to demonstrate new knowledge and independent use of new language. The Initiation–Response–Evaluation (IRE) questioning sequence is ubiquitous in Western schools, and a fall-back discourse strategy for many teachers (Wells, 1993). Particularly at the beginning of a new topic, when there is little shared understanding, such "display" questioning is high risk for marginalised students who may not understand the premise of the question, leaving them to "guess what's in the teacher's head" (Freebody et al., 1995; Parkin & Harper, 2020). At this early stage of learning, this may just confirm for many students their "failure to know" (Gray, 1998). Our collaborating teachers practised a significant modification of the IRE sequence, a respectful and supportive questioning strategy developed by Gray (2007) from his work with Indigenous students in remote Australian schools. When a new topic was introduced and shared knowledge was scant, they did not ask a direct "wh-" question. Instead, they preceded the question with **a cue**, or preformulation (Gray, 1998), that flagged the purpose and context of the question so that all students could answer successfully.

Cue	Teacher	So here we had the Moon on the other side of the Earth from the sun and we could draw a line straight through them. Important thing to look at is the position. Sun, Earth, and Moon.

The cue was followed by a simple teacher question, a successful answer from the student, and a teacher evaluation:

Question	Teacher	What is that indicating?
Answer	Student	The Earth's creating a shadow over the Moon?
Evaluation	Teacher	Absolutely.

The sequence concluded with an **elaboration** or reconceptualisation of the student answer (ibid). This teacher move added important topic information, broadcasting and sharing the significance of the answer, and introducing new target vocabulary ("casts a shadow", "blocked").

Elaboration	Teacher	This part just in here– see that sunlight that's shining here? Then it hits the Earth … And you're absolutely right, it's indicating that … the half of the Earth that's facing the Moon and not facing the sun, that is in darkness because it's night-time, and the, the Earth **casts a shadow** onto the Moon. So the Moon's light **is being blocked** by the Earth, isn't it?

Over time, across lessons and many activities, this teacher-provided explanation shifted to a student-provided explanation, and the teachers adjusted their language to enable more contributions from students. They began by informally **thinking out loud**, giving students the kudos of enlightening the teacher when they were able.

Teacher So yesterday we were talking about–actually, can you refresh my memory?

Once students had gained control of both new concepts and language, and knew what the teacher was looking for, teachers reduced the level of questioning support. At this point students could **successfully respond to I-R-E questions** with no supporting introductory cues:

Teacher And how do you know that's a lunar eclipse? And why isn't it the sun because the Sun's the red thing, isn't it? So, Ezra, how, how did you know this is a lunar eclipse and how come it's not the sun?
Student Um, because the sun's light is being reflected by the moon.

4.3. Building meaning cumulatively: making sense

As well as managing students' participation in the classroom discourse, our collaborating teachers used various strategies for building meaning cumulatively, as the topic unfolded across the lesson sequence. Explicit attention to language is, of course, essential to English learners. However, the intentional and careful use of multiple modes of meaning-making amplified the opportunities for students to make sense of the new language. The teachers represented scientific meanings through their own talk, and developed meanings with the help of a range of visual and concrete modes, carefully developing language with each new activity. We referred to these meaning-making strategies generically as **making sense**.

A specific sense-making strategy was to **move between concrete and abstract**. Concrete materials and images are an essential part of building scientific knowledge, and the teachers intentionally moved between 3-D models, video, role play, diagrams, and concrete materials. Most importantly, they consciously chose consistent language to represent and anchor knowledge construction.

Teacher We've seen the video telling us about the atom. Samara made this 3-D model as another way of representing the same information. See, here is the nucleus …

To accept and encourage marginalised students in sticking with everyday vocabulary to represent scientific knowledge ("tell me in your own words") is to maintain an inequity gap, potentially denying students the opportunity to develop and practise powerful and authoritative scientific language. In our study, the teachers **built academic vocabulary and grammar,** introducing technical vocabulary to accompany hands-on activities, and introducing unfamiliar "written-like" grammar through class constructions of written texts.

Teacher (Explaining a diagram of the eclipse) On the moon, we don't see the sun's light reflected, so it is shadow, it's dark, or not having light getting to the moon. So we use the words "cast a shadow".
Teacher (Negotiating a written text with the class). -ing, yeah. We're going to say, "Casting". We're going to say, "Casting a shadow". Because that's something that scientists do, they use -ing to show that things are happening continuously.

When scientists construct meaning through language, they do not only use abstract terms and complex grammar. They also consolidate and elaborate meanings through everyday and commonsense language (Martin & Maton, 2017). We adopted Martin's (2013) term, **powering up, powering down**, to refer to this back-and-forth use of language, between abstract/technical, and everyday/commonsense.

In this next extract, the teacher used the powered-up term "direct alignment", and powered down to explain what it meant.

Teacher	And so what does direct alignment mean everyone? It means that you could draw a line through the centre of each of these shapes.

Later in the same lesson, the teacher again used a powered down expression "this line that goes through the centre of each of these three things", leaving space for the students to supply the powered-up technical term.

Teacher	So this line that goes through the centre of each of these three things shows us that these three things, the Earth, moon, and the sun are in …
Students	… direct alignment.

New and unfamiliar learning takes a mental toll on marginalised students who have to work hard to make sense of it all. In the study, the teachers **managed cognitive load** in a number of ways. First, they ensured that the spoken, visual, and written modes of meaning-making coherently supported and enhanced learning for students, rather than overwhelming them by presenting too many different messages at once. They also used shared class notes on a whiteboard so that all salient information was accessible to all. As one student said: " … if you don't remember out of your own brain, you could refer to the notes. That's what they're for". Finally, the teachers differentiated their levels of support. For example, in a writing task, the teacher first modelled for the whole class how to write the target text, then some students wrote a text independently, while others regrouped with the teacher to jointly negotiate their written text.

In naming the various strategies we grouped them according to their pedagogic purposes. Table 1 represents a heuristic for teachers to recall the strategies and the overarching pedagogic purposes they serve.

Table 1. Summary of pedagogic strategies employed for a subversive pedagogy.

Lens 1: Sharing the purpose	**Lens 2: Sense-making (building academic meaning)**
Share the goal	Move between concrete and abstract
Look back, look forward	Build academic vocabulary and grammar
Mark the boundary	Power up, power down
Focus attention	Manage cognitive load
Lens 3: Using classroom interactions for inclusion	
Maintain positive affect: use "we"; manage behaviour respectfully; acknowledge student contributions; draw on student experience	
Contingent questioning when learning is new: tell, remind and open up, cue students in, value-add	
Contingent questioning when learning is underway: Use oral cloze, think out loud, use question tags, share the learning	
Contingent questioning when students have good control: single out students, raise the bar, ask "why"; facilitate long spoken turns.	

5. Outcomes

In answer to our research question about whether handover of target language was evident, our quantitative measures of student appropriation of new, valued scientific text, grammar and vocabulary, both oral and written, showed positive results in the short term (Harper & Parkin, 2017). Students demonstrated a shift from everyday vocabulary to the use of technical terms, such as "umbra", "refracting" and "penumbra". There was an increase in the targeted grammatical structures used both orally and in written form, such as the use of dependent clauses of purpose, reason and time. These are examples of an expanded language repertoire, enabling students to sound more authoritative and "written-like". We acknowledge that a longer study would be necessary to monitor for more sustained and cumulative language learning.

We asked students to put voice to their experience. Students particularly reported their sense that the teaching was highly supported but challenging. For example, one student who had recently moved from the English Language Centre said:

> For me that style of learning is different, but it also helped me a lot with trying new things and learning. Before I did this … I didn't know about the lunar eclipse, and with the teacher starting off easy and making more complicated and taking notes, it made me learn more, made me learn more about lunar eclipse.

The second question, about the use of the regulative and instructional registers, is the question most pertinent to this paper. The pedagogic strategies became both a product of, and a resource in our work with teachers. They provided common language in our collaborative planning: we could identify and discuss one strategy at a time, which would then become the focus of a lesson. This was an important way to prevent teachers from feeling overwhelmed by the complexity of their moment-by-moment choices. The strategies also became a lens through which we observed teacher practice and its impact on marginalised students, once again breaking down the complex interactive context so that our attention became more focused: drawn to smaller, salient features of classroom talk, one feature at a time.

It was confirming that the teachers also valued the strategies. One teacher commented:

> I used [these] mainly between and before lessons to check the structure of the upcoming lesson was appropriate … when I was feeling like I wasn't prepared or just getting stuck then I would refer to this to help me ensure I was covering what I needed to.

It was also evident that teachers became increasingly conscious of and consistent in their own language choices, and the need to foreground language for the benefit of the students. Reflecting on the language-focused pedagogy, one teacher also commented:

> Student engagement is extremely high as all students are given the language to allow them access to the meaning of the language and hence a deeper understanding of the topic … it is also easy to see that students take great pride in being able to talk like an expert about the science content. The language is being retained by more students than in previous topics and the students' ability to use the language with associated diagrams/models/equipment demonstrates understanding of the topic.

6. Conclusions: towards pedagogic change

In this paper, we have argued for a view of educational inequality that examines interactions between teacher and students. We acknowledge that bigger systemic factors impact on educational inequality, such as infrastructure and socio-economic status, but ultimately, in the context of classrooms, teachers need pedagogic strategies for including and building academic success with students at risk of marginalisation.

The pedagogic strategies described above exemplify how teachers can realise a subversive pedagogy through their everyday teaching and learning negotiation. Our proposition was that defining strategies that address regulative and instructional purposes could help teachers to understand how a subversive pedagogy can be enacted. In our study, our work in naming and categorising the strategies came to serve as a heuristic, a way of helping teachers reflect on their practices and pedagogic purposes. Importantly, these are not a grab bag of strategies, but are sequenced and intentional. While some strategies may seem commonplace in isolation, when used in combination and systematically, they help teachers attend to both the regulative and instructional discourses, and to maintain an inclusive, positive dialogue that supports students to appropriate new language and academic knowledge. The strategies can of course be used with any group of students, not just the marginalised, but their power is in the depth of inclusivity and visibility of learning goals that can be attained through the careful regulative and instructional choices.

We have also argued for the importance of classroom-based research, in collaboration with practising teachers. Our study is small and focused on the practice of just two teachers; however, the strength of this approach is that we draw on the skills of quality teachers who can enact theoretical perspectives in a complex classroom environment. If we are to further build the power of subversive pedagogies, we should continue to draw on practice and to design specific kinds of interactions. As researchers alone, we cannot do this; nor can we simply impart "routine expertise" (Timperley, 2015): ready-made solutions to teachers without the support of observation and reflection. Our approach to research is one way of mediating between big theoretical paradigms and classroom teachers.

In a global context, we recognise other countries have more pressing priorities for ameliorating disadvantage; however, we hope that the pedagogic approach discussed here is a contribution for teachers in other education systems who want to realise a subversive pedagogy. If teachers are assisted in interpreting and systematically enacting theoretically robust principles in their classroom practice in a reflexive manner, there is great potential for disadvantaged students to be brought in from the margins, and to be successful in accessing the academic language to which they are entitled. Our question is always, despite the discomfort of pedagogic change, what happens to the long tail of low achieving students if we do not challenge ourselves to make sure they are included?

Acknowledgements

We gratefully acknowledge the work and collegiality of our teacher collaborators.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This study was funded by the Primary English Teaching Association of Australia.

Ethical approval

Ethical approval for the research was granted by the University of Adelaide (H-2016-129) and access to the school was granted by the South Australian Department for Education and Child Development. Written consent was obtained from the school principal, teachers and parents.

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