

## **Towards an understanding of fidelity within the context of school-based health education**

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## **Abstract**

Schools and schooling have long provided a tempting site for the delivery of public health strategies that address and promote young people's current and future health. However, an emerging concern regarding the mobilisation of public health interventions within school settings has been the failure of school teachers to deliver such programs with fidelity. For educators, these notions of fidelity stand in stark contrast to the tenets of student-centred teaching. In seeking to explore these tensions further, this paper draws upon a collaborative health education project conducted with schools and teachers from Queensland, Australia. Findings from this project reveal the complexity associated with curriculum implementation in school settings, where diverse resources including timetable allocations and teacher expertise mitigate the achievement of program fidelity. In our efforts to explain the findings emerging from this project, we have drawn on the conceptual reference points of Basil Bernstein's theory of the pedagogic device to reveal the predictable misalignment of the health and education sectors' expected outcomes of school based health initiatives. In conclusion, we argue that our exploration of issues pertaining to fidelity demonstrates the need for health and education sectors alike to conduct their work according to a clear articulation of the realistic, educative role that schools can play in promoting healthy living.

**Keywords:** health education, fidelity, schools, health literacy, Bernstein

## **Introduction**

Public health research and literature consistently raises concerns regarding the impact of health education programs within schools (Basch 2010, Marks 2010, Mohammadi, Rowling and Nutbeam 2010). Increasingly, such concerns have drawn attention to notions of poor fidelity of program implementation, whereby the implementation of an evidence-based health intervention in school settings fails to match the original design conditions and protocols (Ennett et al 2011; Dusenbury et al 2003). This emphasis on fidelity however, has been questioned by education and health scholars who have suggested that intentional adaptations may not be counterproductive and strict adherence to fidelity may compromise and suppress teachers' capacity to enact the principles of their profession (Achinstein and Ogawa 2006; O'Donnell 2008). In this paper we directly engage with this conundrum to demonstrate the limitations of employing public health notions of fidelity within the education system. In so doing we draw on findings from a health education research project that was purposefully designed to explore those factors that mitigate the high expectations of fidelity in relation to school based health education [SBHE]. In our efforts to explain the findings of this project, we turn to the conceptual reference points of Basil Bernstein's pedagogic device to reveal the predictable misalignment of the health and education sectors' expected outcomes of school based health initiatives.

### **Tensions operating at the Health-Education sector interface**

In this first section we contextualise the increasing importance of program fidelity within the health and education sectors' contrasting perspectives on the design, implementation and evaluation of SBHE (McCuaig, Coore and Hay 2012). Since the emergence of mass schooling, both institutions have readily acknowledged that schools and schooling provide a unique site for the 'inoculation' of a captive audience of young people against future ill-health (Kirk 1998). For many the teaching and learning of health related knowledge and skills

provides an essential strategy to achieve a maximal influence on the health behaviours of young people (Rowling, Booth and Nutbeam 1998), with many countries, such as Australia, delivering health related knowledge and skills through mandated programs of Health Education and/or Physical Education (HPE). However, despite the best efforts of health and education authorities, current school based health initiatives have consistently fallen short of expectations, with many critics drawing attention to issues of competing policy agendas, paucity of trained health educators, lack of resources and significant gaps between the policy and practice of health promotion within school settings (Basch 2010, Marks 2010, Mohammadi et al 2010, Leow, Macdonald, Hay and McCuaig 2012). These critics have pointed to tensions operating at the health-education sector interface, tensions which impact upon the design, delivery and evaluation of SBHE.

Although health promoters have demonstrated an increasing engagement with educational theory to guide practice (St Leger 2006), school leaders and teachers continue to perceive health and education goals as comprising competing agendas (Mohammadi et al 2010). Indeed, research demonstrates that from an historical and contemporary perspective, SBHE initiatives typically privilege health promotion language, focussing on ‘specific, short-term interventions that produce ‘visible’ changes in pupils’ health related behaviours’ (Inchley et al 2006, p. 66). Such approaches often contradict the purposes and language of schools which are grounded in the building of general knowledge, skills and attitudes (St Leger 2006, Jourdan et al 2010). As Mohammadi and colleagues (2010) argue, ‘sustaining interventions and sustaining their positive outcomes is likely to be more achievable in circumstances where schools can identify benefits that fit with their core business of education’ (p. 249).

These tensions are clearly evident in the expressions of concern regarding the capacity of schools and their teachers to implement SBHE programs with fidelity (Ennett et al 2011, Clarke et al 2010). For example, a recent study exploring the implementation of an evidence-based substance use prevention curriculum under real world conditions (ie typical school operations), positioned teachers as program providers who posed a significant barrier to adherence and contributed to program contamination (Ennett et al 2011). In conclusion, the researchers noted that,

Reasonably high expectations [of fidelity] are appropriate and necessary if curricula are to have their intended effects on youth substance use. Our results suggest that until higher levels of adherence to content and delivery strategies can be achieved, expectations must be tempered...Perhaps most importantly, we need research that examines why providers [teachers] do not deliver curriculum as intended (p. 371).

As this example demonstrates, fidelity in the health education and promotion literature typically refers to the degree to which a program is implemented as planned (e.g. Dane and Schneider 1998, Summerfelt 2003, Dusenbury et al 2003). Dane and Schneider (1998) identified adherence, exposure, quality of delivery, participant responsiveness and program differentiation as five domains of fidelity. Translating these domains to school-based public health initiatives, Ennett et al (2011) nominated adherence and exposure as the core domains of fidelity, describing ‘adherence’ as the delivery of specified content and use of specified delivery strategies, and ‘exposure’ (or ‘dosage’) as the number of lessons taught, the amount of each lesson covered and adherence to a prescribed schedule.

Fidelity is positioned within the health promotion literature as central to achieving the objectives of a particular initiative, serving as both a condition of quality and a means of accountability. In the United States, increasing demands for performative measures in the

pursuit of quality and the provision of accountability have been a consistent feature of the neoliberal education project (see Ball 2003). Within this policy and social context, the notion of curriculum and teacher fidelity has become increasingly prominent. For example, O'Donnell's review of the fidelity literature (2008) highlighted that 'federal mandates such as the No Child Left Behind Act (2001) have stated that teachers must use only research-based teaching methods and select programs "proven" to be effective' (p. 35). Notably, education stakeholders invested in this approach have drawn on the fidelity principles of the health promotion and public health spheres to inform what fidelity in education might look like (e.g. O'Donnell 2008, Vartuli and Rohs 2009, Furtak et al 2008).

Schools however, are complex spaces and the potential realisation of fidelity in these spaces is inextricably influenced by this complexity. The complexities of the education context and their influence on what can be expected in terms of fidelity have been noted by those invested in the promotion of fidelity in schools. For example, Vartuli and Rohs (2009, p. 503) recognised that

The educational setting has different issues and contexts than does the public health setting. Classroom complexities, including teacher characteristics (e.g., teacher resistance; multi-levels of teacher training, education, and preparation); family characteristics (e.g., socioeconomic status, level of education) and involvement; children's characteristics (e.g., special needs, social skills, academic abilities, gender); classroom characteristics (e.g., social climate, materials, support); and school characteristics (e.g. peer influence, size of the school, grade levels, resources) have to be taken into consideration in curriculum fidelity studies.

However, despite the articulation of these complexity factors, success for Vartuli and Rohs (2009) is still determined by the extent to which the curriculum 'was adhered to and delivered

with the same consistency and precision in every classroom' (p. 506). Also missing from this description of schooling is a recognition that the purposes of schools are, in many ways, different to the purposes of health institutions. As noted earlier, the purposes of schools are likely to influence the way in which schools and their teachers view, understand, interpret and implement SBHE initiatives.

Additionally, for educators the notion of teacher fidelity fails to align with the central tenets of contemporary teaching and learning theory and practice (Achinstein and Ogawa 2006). For example, student-centred philosophies of teaching and learning emphasise the need for school teachers to adopt and adapt curriculum content and delivery practices to meet the specific and diverse needs, skills and interests of their students (Wright, Macdonald and Burrows 2004). Australian HPE researchers have argued for practices that move away from 'one-size-fits-all learning experiences that deny many students access to the serendipitous aspects of learning' (Glasby and Macdonald, 2004, p. 135). It is precisely this commitment to the principles of individuality, creativity, diversity and critical inquiry that lies at odds with fidelity's notion of adherence to a uniform implementation of programs (Achinstein and Ogawa 2006).

### **Health Literacy @ Ipswich Schools Project**

Seeking to pursue a deeper insight into the contextual factors of schools that confound the achievement of fidelity was an underlying objective of the *Health Literacy @ Ipswich Schools [HL@IS]* project. The primary purpose of this project was to establish whether or not the possibilities posed by a health literacy focused SBHE, as advocated by the National Health and Hospitals Reform Commission (2009), could be realised within the reality of contemporary Australian schooling. In so doing, the researchers were afforded a unique opportunity to explore the dynamics that surround SBHE reform and obtain the much-needed

teacher's perspective on their role in the delivery of SBHE programs (McCuaig and Nelson 2012).

Curriculum, assessment and pedagogical innovations informing Australia's past and current HPE reform agenda (QSCC 1999b; Australian Curriculum Assessment and Reporting Authority 2012a) underpinned the research design and the health literacy unit of work. The *HL@IS* project was also guided by five key approaches to SBHE sourced from contemporary health promotion and education literature:

- salutogenic health and wellbeing (Bengel, Strittmatter and Willmann 1999);
- asset approaches to health literacy (Nutbeam 2000, 2008);
- social constructivist pedagogies (Wright, Macdonald and Burrows 2004);
- recognition of student voice (Begoray, Wharf-Higgins and Macdonald 2009); and,
- collaborative curriculum approaches (Petrina 2004).

The research was structured around five phases of activity including: preparation, context analysis, curriculum design, implementation, and evaluation. This paper draws on findings that emerged from the teacher interviews conducted at the conclusion of the curriculum implementation phase.

As this project was specifically interested in teachers' and students' perspectives, qualitative methods were employed to obtain a richer understanding of the participants' thoughts about and responses to the curriculum initiative. A purposive sampling approach was employed to ensure that the schools and participants selected could contribute to an understanding of the phenomena under investigation. The research team worked with a total of three purposively selected schools in the city of Ipswich which lies some forty kilometres west of Brisbane in Queensland, Australia. Where possible, a balance and representation of schools and student cohorts was sought according to the factors of private/state; single sex/co-educational; and,



low- high socioeconomic school status. As schools were keen to ensure comparability of curriculum delivery across a year cohort, the project resulted in the following levels of involvement:

- Inkwater College – Teachers (n=5), Year 10 HPE classes (n=5), Students (n= 120)
- Bluemarine SHS - Teachers (n=13), Year 9 HPE classes (n= 14), Students (n=350)
- Indigo SHS – Teacher (n=1), Year 9 (Intervention Program), Students (n= 7)
- Total: Schools (n = 3), Classes (n = 20), Teachers (n = 19), Students (n = 500)

Work conducted within the curriculum design phase predominantly involved the construction of the health literacy unit of work, which was shaped by the first four principles identified above. Following the initial unit design, a series of teacher professional development workshops was conducted with those teachers and curriculum leaders most likely to deliver the unit. Each school was invited to review curriculum content and provide feedback which resulted in minor adjustments to workbook organisation, assessment tasks and accompanying resource packages. A final version of the health literacy unit was established and disseminated to participating schools and their teachers (see Table 1). Participating teachers were asked to deliver the proposed curriculum to their students through the typical operation of their school's HPE program.

**Insert Table 1 about here**

Teacher interviews were organised and conducted using an interview schedule comprising of a series of open ended questions. All teachers who delivered the *HL@IS* unit of work at Inkwater College and Indigo SHS participated in the teacher focus group interviews.

Volunteers from the 13 Bluemarine SHS teachers were called for, which resulted in six teachers participating in two teacher focus groups. The Inkwater and Bluemarine curriculum leaders (HPE HODS) agreed to be interviewed separately from the teachers to facilitate

discussion regarding the future direction of the unit, the leaders' perception of teacher engagement and their overall sense of the effectiveness of health literacy as a concept within SBHE (see Table 2).

### **Insert Table 2 about here**

Prior to the collection of data all participants, including school principals and students' parents, were provided with informed consent documentation that contained information about the study and a separate consent form. All consent documentation complied with the *'The University of Queensland Guidelines for Ethical Review of Research Involving Humans'*. Focus groups and teacher interviews were conducted by two researchers with one researcher acting as discussion facilitator and the other obtaining written notes to support the digital recording of all conversation. All recorded data was subsequently transcribed in full with pseudonyms assigned to all participants and schools. Data from the teacher interviews and focus groups was analysed using qualitative methods of constant comparison and thematic analysis (Emmison and Smith 2000).

### **Health Literacy @ Ipswich Schools Project Findings**

In this section, we present the findings from teacher interview data which clustered around three themes: challenging school logistics; objectives of SBHE; and, pedagogical practices. Data within these themes provide further insight into the issues and complex contexts that we argue compromise efforts to achieve fidelity of program implementation.

#### ***Challenging school logistics***

Across the three school communities, all teachers identified a range of factors that detracted from the effectiveness of the unit implementation. These factors were predominantly related to issues of school logistics, with most concern directed towards the allocation of learning

time within the school timetable. Interviews were littered with comments such as “time has been a massive issue”, “time’s the drama”, “we have limited time here...to spend on our health”. Teachers readily identified ‘trade-offs’ that were being undertaken to ensure the SBHE unit could be delivered as anticipated, with Inkwater College achieving “a couple of lessons a day because we could sort of crunch the physical education” (David, Teacher, Inkwater College). A Bluemarine SHS teacher revealed the contested nature of timetable allocation stating:

...we're getting three lessons a week. Science still only gets two or three - so they're still a bit dirty, they see that we're getting more than their share. (Aidan, HPE HOD, Bluemarine SHS).

While timetable constraints reinforced the challenge of uniform delivery, other factors further compromised the consistency of unit delivery within and between school sites. Here a critical issue was the presence, or otherwise, of the classroom teacher. For example, at Inkwater College “a couple of teachers were away, you know, three or four lessons out of the eight week term, so that makes it very difficult” (Tina, Teacher, Inkwater College), while the curriculum leader at Bluemarine SHS was concerned that “one staff member would have seen her class twice all term” (Aidan, HPE HOD, Bluemarine SHS). As the unit was designed to develop students’ interpersonal and communication skills through group work, the typical amount of student absence not only compromised exposure, but inhibited teachers’ capacity to achieve a consistent progression through the unit’s tasks and learning activities. Such sentiments were captured by one teacher who stated that:

...another really hard thing to overcome was when kids are away. They fall very far behind...at times the group has issues because they think the other person’s not doing it. (Mary, Teacher, Bluemarine SHS)

Ad-hoc access to computers further demonstrated the challenges associated with adherence and exposure. An innovation that the *HL @ IS* Unit endeavoured to recognise was the increasing role that Information and Communication Technologies (ICT) play in the education and healthy living contexts of young people (Mission Australia 2011), and the need for schools to develop students' ICT knowledge, skills and confidence (ACARA 2012b). Student interview data provided support for this ICT emphasis; "I liked how we had technology as well. So it wasn't as boring as just writing in a book" (Rob, Student, Bluemarine SHS). However, at Bluemarine SHS where 14 classes were undertaking the unit, the curriculum leader was particularly troubled; "We got badly let down by the IT department who promised all sorts and delivered nothing" (Aidan, HPE HOD, Bluemarine SHS). Access to computers further complicated curriculum coverage as "you should be able to complete the same amount of work rather than having to share one computer all the time" (Alex, Teacher, Bluemarine SHS).

### ***Purposes of School Based Health Education***

Earlier we identified the purposes of schooling as a source of dissonance between the health and education sectors' commitment to and evaluation of SBHE and the teachers' interview data confirmed this state of affairs. Across all three school contexts, the educators enthusiastically acknowledged their role in enhancing the health and wellbeing of young people, with the Bluemarine SHS curriculum leader stating that "it's basically our core job which is mainly healthier people" (Aidan, HPE HOD Bluemarine SHS). Nonetheless, while participants keenly argued that they "definitely do have a role", they also believed that the responsibility for creating healthy, active young people "shouldn't be solely ours, it needs to be balanced with what else is going on, really, to make it successful" (Susan, Teacher, Inkwater College). In this respect and regardless of school socioeconomic status, parents'

incapacity to adequately provide health related knowledge and skills to their children was identified as the primary rationale for SBHE. For example, one teacher argued:

To an extent I think schools can play a part in [healthy living] being their role but I think the basis of it should be coming from home but we know that that just doesn't happen. So I think schools pick up and cover the gap of knowledge that students are receiving there. (Linda, Teacher, Indigo SHS).

Consequently, many of the teachers stipulated very specific purposes for their SBHE, with the data from one HPE HOD effectively summarising the teachers' position:

Well I think we need to teach them to make a decision. They've got to have the knowledge. We don't need to be saying this is the right thing to do or the wrong thing to do. They need to have the knowledge to be able to work it out for themselves... they need to be making the decision about whether or not that's good for them and then have the skills to actually act on that. (Aidan, HPE HOD, Bluemarine SHS).

As the above comments indicate, these teachers felt strongly that the objective of their SBHE programs was not grounded in a commitment to ensuring the adoption or changing of specific health behaviours. Instead, they believed that their purpose was to provide young people with the knowledge and skills that could inform their healthy living choices, and provide them with a wealth of resources to support them as they independently undertake their lives beyond the school gates.

As a consequence of this educational perspective, the teachers unanimously argued that the focus of their SBHE work was primarily an issue of what students will learn and how teachers can establish students' achievement of this learning. As Tina from Inkwater College said, "It comes back to our role as a teacher at the end with any unit, you want to - well,

you'd hope that there'd be some sort of progression of knowledge". Her curriculum leader Sam explained that:

I think students need to be able to either discuss or write down and develop and justify what they're trying to say, to prove their understanding. I'm not really interested in a student, if I say if you're going to smoke, what's going to happen? Oh, I'm going to get lung cancer. I'm not interested in that. I'm interested in them being able to develop and discuss an idea as much as possible. (Sam, HPD HOD, Inkwater College)

As this educator suggests, students' achievement and demonstration of educational outcomes through processes of assessment are the core business of their work as health educators in schools. As another teacher explained:

...schools have a demand for assessment... so you have to have the two, you have to have what the school needs in terms of ticking all these boxes [in relation to assessment] and then the needs of the student. (David, Teacher, Inkwater College).

In fact, assessment practices were considered so central to the operation of schooling that in response to suggestions that SBHE should not be assessed, one teacher argued that the students would "work out very quickly that they're not going to get a grade for this so what's the point so what am I doing it for" (Aidan, HPE HOD, Bluemarine SHS). Additionally, the teachers were cognisant of the vagaries of "current educational trends and where the funding is" (Tina, Teacher, Inkwater College). In Australia such trends, including an emphasis on national high stakes testing in literacy and numeracy and the funding of health interventions that seek to address specific national health concerns, generate a landscape of competing imperatives that compromises the status and implementation of SBHE (Leow et al 2012).

An additional objective for the teachers was the importance of first knowing and then acknowledging the specific and diverse needs, skills and interests of their students. In seeking to provide a relevant and authentic SBHE, the teachers unproblematically described the modifications they made to the *Health Literacy @ Ipswich Schools* curriculum package. Here we see evidence of the earlier noted alignment tensions between fidelity and contemporary teaching and learning principles (Achinstein and Ogawa 2006). For example, the Bluemarine SHS leader provided the following insight:

We don't want to see teachers just picking this up and saying this is what it is, I'm just going to do this step by step by step. We really want them seeing it adapted and changed and put their own spin on it; find their own resources; put their own activities in there as well to suit their class; suit their own teaching style too... they think about how they can make it more interesting for their class; get better results out of their class; push their students a little bit harder - as opposed to the teacher who just says right we're doing activity three today, this is what you're going to do, go do it.

(Aidan, HPE HOD, Bluemarine SHS)

Indeed the participating teachers considered curriculum packages and resources as merely a foundation upon which they would then collaboratively construct a more pertinent unit of work for their students, ensuring that “every one's invested in it” (Aidan, HPE HOD, Bluemarine SHS). Importantly, teachers argued that in their efforts to address an entire population demographic, set curricula often fail to address the nuanced needs of their students and school communities.

### ***Pedagogical practices***

Overall, the response of students and teachers to the health literacy unit was positive. The majority of teachers and all HPE curriculum leaders involved in the interviews thought the

design and sequencing of the unit was effective in terms of teacher delivery, student engagement and student learning (McCuaig, Carroll et al 2012). Notwithstanding this positive feedback, the research team struggled with a number of pedagogical modifications enacted or proposed by the teachers as they appeared to compromise the contemporary educational principles upon which the unit of work had been grounded. Such modifications were employed to counter the ‘foreign and uncomfortable’ (Glasby and Macdonald 2004, p. 142) feelings associated with the shift from expert to facilitator of learning.

As Begoray and colleagues (2009) explained, ‘Student voices need to be heard. In-class responses to topics and approaches, while daunting for some instructors, can help students to contribute to their own learning and take responsibility with the teacher for classroom success’ (p.40). And daunting this experience may well be, with teachers in the *HL@IS* project expressing uncertainty in relation to how much they should intervene in relation to the development of students’ health related knowledge and skills. For example, one curriculum leader indicated that “I think as teachers we are into teaching and I think it’s quite hard - professionally, it’s quite hard to sit back and see what they were doing.” (David, Teacher, Inkwater College). Similarly, the teacher at Indigo SHS noted:

Well I found that I had to stop and just let them go with their ideas. I sort of had an idea in my head but they had their ideas. So I just took a step back and let them have their idea. (Linda, Teacher, Indigo SHS)

As educational researchers, we were intrigued by this ambiguity regarding the role of teacher as facilitator of learning as we had assumed, on the basis of workshop discussions, a level of familiarity with this pedagogical practice. Constructivist, student-centred teaching and learning approaches have underpinned SBHE teaching resources and Australian HPE curricula for well over a decade (QSCC 1999a, 1999b, Wright 2004, Australian Department



of Health and Aged Care 2000). Indeed student interview data confirmed the effectiveness of such approaches, as the students embraced the opportunity to choose topics and drive the unit according to their interests and needs. In contrast, the teachers felt they knew the topics that would be most pertinent to their students' health needs and suggested that the efficient allocation of topics to groups would counter issues associated with time and the "uncertainty" generated by student input.

Perhaps such commentary should not have been so surprising as research following Australia's most recent HPE reform indicated that PE teachers were ill-equipped, both professionally and philosophically, to embrace and construct the kinds of student-centred, holistic health programs advocated within the new HPE curriculum (Glover and Macdonald 1997, Macdonald et al 2002, Tinning 2001, 2002). However, of most concern was one teacher's suggestion that as a result of the student-centred approach, group work issues and inconsistent access to ICTs, some students "really didn't learn anything, they just copied whatever the next person wrote down, instead, because it had to be filled in" (Susan, Teacher, Inkwater College). It was this commentary that prompted our interest in the importance of conceptualising an educationally relevant notion of fidelity, one that might make a more useful contribution to the achievement of a realistic alignment between the hopes and reality of SBHE.

### **Fidelity and the pedagogic device**

In our efforts to explain this data and to develop an educationally driven notion of fidelity we turn to the work of Basil Bernstein (e.g. 1996, 2000), and in particular his theory of the pedagogic device, which provides a useful framework for conceptualising the processes of health knowledge production, recontextualisation and reproduction within and between bureaucracies and classrooms. In this regard we seek to articulate a notion of fidelity that more appropriately accounts for the dynamics and expectations of education systems, and

reflects a concerted and coherent alignment between the message systems of curriculum (what is taught), pedagogy (how it is taught) and assessment (what is evaluated). Thus, in contrast to public health notions of fidelity, our understanding of fidelity within educational contexts reflects a recognition of the *inevitability of knowledge recontextualisation* that occurs between the sites of official content knowledge organisation where curriculum policy documents are produced and the sites of implementation.

Bernstein proposed the theory of the pedagogic device as a means of explaining the translation of knowledge (intellectual, practical, expressive, official or local knowledge) into pedagogic communication. Bernstein's theory identifies and explains the complexities surrounding the process of converting domain-specific knowledge into school knowledge and the impact of this on the reproduction of class inequalities. His concepts however, also draw attention to the way in which knowledge is changed into different forms across the education system and provides a model for understanding which knowledges and their forms will be taught in schools. In what follows we review the three rules and fields of the whole device to reveal those factors influencing the realisation of traditional fidelity across the whole system before focusing attention on the evaluative rules and fields of reproduction which are most pertinent to our explanation of the *HL@IS* project findings.

Three inter-related rules (distributive, recontextualising and evaluative) provide the generative principles by which knowledge is converted into pedagogic communication. *Distributive* rules 'mark and distribute who may transmit what to whom and under what conditions, and they attempt to set the outer limits of legitimate discourse' (Bernstein 1996, p. 46). These rules distribute different forms of consciousness through the distribution of different forms of knowledge. Distributive rules regulate the distribution of power, knowledge and forms of consciousness. In this regard the distributive rules of the pedagogic device impact upon the legitimacy of a message (be it content, policy expectation, etc) and

the voice of the message (who is delivering their message and their legitimacy within the system). While a health policy expectation or initiative may have legitimacy outside school systems, the maintenance of its content will depend upon the extent to which the message and the means of its delivery are consistent with the distributive rules of the system. Bernstein explained that the *recontextualising* rules are the principles according to which a discourse is *dislocated* from its source of generation, *relocated* into a pedagogic context (such as an official curriculum or a teacher's lesson plan) and *refocused* to serve a particular purpose. Consequently the knowledge discourse will no longer be the same as it was because it has been converted, according to this rule, into pedagogic discourse (what is to be taught and how it is to be taught in the school context). One would expect a health initiative developed outside of the education system to be recontextualised in such a way. There is a predictable change that occurs because the discourse is serving an education system purpose, which may be different to the purpose intended by the health organisation.

Finally, Bernstein identified *evaluative* rules as the specific pedagogic (or instructional) practices through which the discourses are communicated within the education system. 'In broad terms, evaluative rules are concerned with recognising what counts as valid acquisition of instructional (curricular content) and regulative (social conduct, character and manner) texts' (Singh, 2002, p.573). It is predictable that the discourses constituting any health initiative developed outside of the system for the system will be subjected to change according to these rules. For example, in relation to the data presented in this study, the evaluative rules were particularly evident in the way the teachers understood the rationale and outcomes of the SBHE unit in terms of students' capacities for acquiring and using knowledge rather than specific changes in health behaviour. Furthermore the professional responsibilities for assessment influenced how they viewed and implemented any curriculum, including health units, at their schools.

Bernstein further describes three fields of production and reproduction of knowledge which are structured by the contexts of educational discourse. The primary context involves the production of discourse and is concerned with the production of non-pedagogical knowledge. This is where the intellectual field of the education system originates (Bernstein 1996) and where information about health issues is produced through selected and valued research endeavours. The recontextualising field is concerned with the transformation of non-pedagogical knowledge to pedagogical knowledge (MacPhail 2004), and regulating the transfer of texts between the primary and secondary fields. It comprises two sub-fields: 'official recontextualising field' (ORF) and 'pedagogic recontextualising field' (PRF). The ORF primarily refers to the education system and statutory authorities that *select* 'discourse' and make it official through the syllabuses and policies they produce, regulate and administer. The PRF refers to groups of fields such as professional associations, teacher education institutions and journals that impact upon the recontextualisation and transfer of primary knowledge. Bernstein (1990) suggested that the text produced in the primary field undergoes transformation in the recontextualising field to such an extent that it is no longer the same text.

The secondary context involves the reproduction of discourse, at the site, for example, of the classroom. This context has various levels, agencies and positions that implicate upon the *selective* reproduction of educational discourse. Within this field the principles of classification and framing are of particular pertinence to the regulation of relations within and between the levels, between the transmitters (teachers) and acquirers (students), and the ensuing reproduction of the recontextualised discourse. The findings of this project relate particularly to the practices and outcomes of the secondary field. The teachers felt at liberty to adjust curricula in relation to specific educational and bureaucratic responsibilities (such as

learning and assessment) and to factor in multiple priorities (both education and administrative) and organisational complexities.

The rules and fields of the pedagogic device draw attention to the predictable ways with which educational discourses are engaged, changed and reproduced at the macro level through to the micro level of the education system. In this regard we note that the legitimacy of a knowledge discourse (e.g. health education outcomes) depends not so much on the source of its generation (such as a health organisation or authority), but rather on the context of its reproduction (i.e. in a school classroom). These contextual factors through which the rules of the device are operative will include educational agents' perceptions of the purposes of the initiatives (e.g., teachers, parents, students, bureaucrats), where they come from and their alignment with prevailing beliefs regarding the primary, or legitimate, purposes and work of schools. This was readily evident in the opinions of teachers concerning time and program constraints, but also in their affirmation of a legitimacy to deliver the material as *educational* agents. Furthermore, the teachers' contrasting of their responsibility for education against intervening on students' behaviours demonstrated the way in which health discourses are dislocated, relocated and refocused in relation to what teachers view to be their core business.

To summarise, models of fidelity that fail to offer a critique or invite scrutiny of the construction, content or dissemination of a curriculum or policy efface the complexity and contrasting purposes of schools. This inevitably leads to the conclusion that fidelity issues are a school and/or teacher implementation matter, irrespective of whether the complexities of these sites are recognised or not. However, the pedagogic device challenges the assumption that the translation of health initiative fidelity into the context of schooling is possible. It reveals the need to understand, beyond just recognition, the context of schooling and the process by which educational discourse is transmitted.

## **Implications and conclusions**

The findings presented in this paper demonstrate the weakness of traditional approaches to fidelity in the context of education systems, including at the level of the classroom. There are numerous factors that impact upon the production, selection, transmission, recontextualisation and evaluation of educational discourses. These factors highlight the need for health promotion and public health stakeholders to better understand schools if they are to be considered an effective site for health enhancing initiatives.

We propose that efficacious notions of educational fidelity must comprehend these processes in terms of the work of schools and teachers, and in terms of the expectations we have of the educational and behavioural outcomes of students. Fidelity thus requires the production of official material that supports this integrated approach to education, but also engages teachers in a professional and educational dialogue with those who produce the official documents to ensure that the curriculum, assessment and pedagogy can be instantiated in the practices and experiences of the classroom. That is, fidelity is not a one way communication, but rather depends upon a bi-directional communication between teachers and bureaucrats that focuses attention on the knowledge and practice possibilities within the curriculum, pedagogy and assessment message systems of education.

While understanding the rules and fields of the pedagogic device draws attention to the weaknesses of imposing traditional public health notions of fidelity onto educational institutions, it also provides health promotion stakeholders with an opportunity to more effectively produce programs of SBHE that can achieve sufficient traction and effect at the level of the classroom. As we highlight above, this approach should engage teachers in a bi-directional dialogue so that a shared understanding of content, implementation, purpose and consequence are promoted. A genuine desire for developing young people's health related

knowledge, skills and attitudes through education and schooling is likely to be more efficacious if the health field incorporates and engages with educational theory instead of purely employing health theories and models.

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**Table 1. Health Literacy @ Ipswich Schools Unit Summary**

<b>Activity Title</b>	<b>Key principle informing learning activity</b>	<b>Learning activity tasks</b>
1. Introduce assessment task & Healthy Living themes	<ul style="list-style-type: none"> <li>• Salutogenic approach to health and wellbeing</li> </ul>	<ul style="list-style-type: none"> <li>• Team Brainstorm—I am healthy and enjoy life because....</li> </ul>
2. Understanding a typical website client	<ul style="list-style-type: none"> <li>• Qualitative approaches to evaluating health literacy.</li> </ul>	<ul style="list-style-type: none"> <li>• Students respond individually to healthy living scenarios of website ‘clients’.</li> </ul>
3. Designing your team’s home page	<ul style="list-style-type: none"> <li>• Inquiry-based approaches to teaching and learning.</li> </ul>	<ul style="list-style-type: none"> <li>• Students construct a typical healthy living home page, character and story board:</li> </ul>
4. Golden Guidelines + Breaking down health jargon	<ul style="list-style-type: none"> <li>• Developing Functional health literacy</li> </ul>	<ul style="list-style-type: none"> <li>• Students select and record five key facts or information and create definitions using language appropriate for the target audience.</li> </ul>
5. Healthy Living in Action—Interactive challenges	<ul style="list-style-type: none"> <li>• Developing Interactive health literacy</li> </ul>	<ul style="list-style-type: none"> <li>• Each team designs a healthy living challenge scenario utilising one action strategy framework.</li> </ul>
6. Five Star resources	<ul style="list-style-type: none"> <li>• Developing Critical health literacy</li> </ul>	<ul style="list-style-type: none"> <li>• Complete resource evaluation table utilising as many resources as possible. Select top performing resources and construct.</li> </ul>
7. Reality check—Tips and strategies	<ul style="list-style-type: none"> <li>• Developing Critical health literacy</li> </ul>	<ul style="list-style-type: none"> <li>• Students conduct a PMI (plus, minus, interesting) evaluation of their Five Star resources.</li> <li>• Students devise tips and strategies that their clients can use to overcome barriers to the use of healthy living resources.</li> </ul>
8. Construct team website	<ul style="list-style-type: none"> <li>• Inquiry-based approaches to teaching and learning</li> </ul>	<ul style="list-style-type: none"> <li>• Students review their individual website pages and select their team’s best website pages.</li> </ul>
9. Submit team website	<ul style="list-style-type: none"> <li>• Efficacious Assessment</li> </ul>	
10. Final reflection task	<ul style="list-style-type: none"> <li>• Qualitative approaches to evaluating health literacy</li> </ul>	<ul style="list-style-type: none"> <li>• Complete final client assessment task.</li> </ul>

**Table 2:**

School	Teacher Focus Groups (n)	Teachers (n)	Gender	HPE Head of Dept I/view
Inkwater	1	1 x 4	Mixed	1 male
Bluemarine	2	2 x 3	Mixed	1 male
Indigo	1	1	Female	NA
Total	4	11		2