Where next with theory and research on how the school environment influences young people's substance use?

Introduction

This article reviews current theory, and in particular the Theory of Human Functioning and School Organisation (Markham and Aveyard, 2003), and empirical research about how secondary school environments influence young people's substance use (smoking, drinking and illicit drug use). It goes on to propose key areas for further theoretical and empirical work.

Despite some recent declines in prevalence in some countries, substance use remains a serious problem for young people living in industrialised countries. More than 40% of adult smokers start smoking while at secondary school (Dunstan, 2012) and early initiation is associated with heavier and more enduring smoking and greater mortality (Fuller, 2011, Department of Health, 1998). Smoking in adolescence is subject to social stratification and is a major source of health inequalities later in the life course (Dunstan, 2012). There is less evidence for adolescent alcohol and drug use than for smoking being social stratified (Fuller, 2013). However, in terms of alcohol, harms are increasingly concentrated in a sub-group of heavy drinking young people (Health and Social Care Information Centre, 2013). Early initiation of alcohol use and excessive drinking are linked to later alcohol-related harms (Hingson et al., 2006, Viner and Taylor, 2007). Alcohol use among young people is associated with truancy, exclusion, and poor attainment, unsafe sexual behaviour, unintended pregnancies, trouble with police and/or parents, accidents/injuries, and violence

(Masterman and Kelly, 2003). Adolescent drug use is also associated with accidental injury, self-harm, suicide (Charlton et al., 1993, Beautrais et al., 1999, Thomas et al., 2007) and other 'problem' behaviours, such as unprotected sex, youth offending and traffic risk behaviours (Jessor et al., 1991, Home Office, 2002, Jayakody et al., 2005, Calafat et al., 2009). Early initiation and frequent use of cannabis is a risk factor for later problematic drug use (Ferguson et al., 2006). Drugs such as cannabis and ecstasy are also associated with increased risk of mental health problems (Hall, 2006, Moore et al., 2007, Parrott et al., 1998).

Schools are an important site for public health intervention because of their near universal coverage of young people at a critical stage in the life course (Bonell et al., 2007, Rutter et al., 1979). While health education delivered in classrooms is effective in improving knowledge and attitudes, effects on behaviour are inconsistent and often unsustained (Faggiano et al., 2008, Foxcroft and Tsertsvadze, 2011, Thomas et al., 2013). Hence there is increasing interest in interventions to modify the school environment, addressing some of the multiple upstream determinants of young people's health, with emerging evidence that such interventions can be effective (Langford et al., 2014b).

This paper begins with a brief overview of theory about how the school environment influences young people's health behaviours before examining in depth the Theory of Human Functioning and School Organisation because this theory considers how specific features of the school environment might promote healthy behaviours including the avoidance of harmful substance use. Building on a recent systematic review (Bonell et al., 2013a), it then examines quantitative research that is pertinent to assessing the empirical

validity of the Theory of Human Functioning and School Organisation and the implications of this evidence. It then reviews qualitative research on the processes by which schools might shape substance use behaviours and what this suggests about the validity of existing theories, before finishing with recommendations for future theory development and empirical work.

Theory about how the school environment impacts on substance use

The Theory of Human Functioning and School Organisation (Markham and Aveyard, 2003) is one of the few theories which proposes how specific aspects of the school environment might influence student health behaviours and outcomes including substance use (Bonell et al., 2013a). In contrast, most theories about schools and health, such as the Social Development Model or Social Control Theory (Gottfredson and Hirschi, 1990, Hawkins and Weiss, 1985), merely stress the importance of a positive connection to school as supportive of health promoting behaviour (Bonell et al., 2013a). The Social Development Model (Hawkins and Weiss, 1985) goes somewhat further in suggesting that young people can learn *anti-social* and *pro-social* behaviours from the school environment through the provision of: opportunities for *involvement*; opportunities to *develop skills*; and *reinforcements* for actions. However, the Theory of Human Functioning and School Organisation is the only theory which engages with how institutional processes in schools influence student health behaviours, including but not limited to substance use (figure 1).

Informed by Bernstein, (Bernstein, 1975) the theory suggests that healthier school environments are those which promote student commitment to the school's 'instructional'

and ‘regulatory’ orders (Markham and Aveyard, 2003). The instructional order is the way in which a school enables students to learn, formally and informally. The regulatory order is the way in which a school encourages norms of behaviour and belonging. If students do not become committed to the instructional order they are said to have become ‘*estranged*’, and where they are uncommitted to the regulatory order they are deemed to have become ‘*detached*’. If committed to neither they are said to be ‘*alienated*’.

The theory asserts that commitment to school can protect students’ health. Commitment in particular to the instructional order enables students to develop ‘*practical reasoning*’ and commitment to the regulatory order in particular enables development of ‘*affiliation*’. Practical reasoning is said to involve an ability to understand and manage one’s own feelings, and weigh options when deciding how to behave (Nussbaum, 1990). Affiliation is related to a person’s values and her/his capacity for developing mutually beneficial relationships. Practical reasoning and affiliation provide students with the cognitive and social supports required to develop autonomy and thus make decisions which will promote that individual’s interests and thereby flourish, which would include avoiding health-harming behaviours. The theory does not explicitly address whether risk behaviours such as substance use arises because of deficits in practical reasoning and affiliation or rather because students’ affiliation and practical reasoning are redirected respectively from school towards anti-school peer groups and from participation in pro-school to anti-school activities such as substance use.

The theory further suggests that whether schools can instil commitment, particularly for socioeconomically disadvantaged students, and thereby promote health, will depend on

their modes of '*classification*' (how rigidly various 'boundaries', listed below, are set) and '*framing'* (whether teaching and decision-making are student-centred). The theory suggests that commitment is achieved by schools implementing policies and practices which erode various boundaries and improve linkages within the school between:

- staff – so authority is distributed rather than concentrated among senior staff;
- staff and students – so relationships are collaborative rather than authoritarian;
- between students – so positive relationships are encouraged and students are treated equitably;
- different areas of students' life – so teachers focus on students' overall wellbeing and development rather than merely academic progress, and support is provided across the whole school rather than merely in the classroom; and
- the school and its local community – so the cultures of each are mutually supportive and students and staff fully benefit from local resources.

This theory is plausibly grounded in developmental and educational theory (Bernstein, 1975, Bernstein, 1996, Bronfenbrenner, 1979, Nussbaum, 1990, WHO, 1995). However, as we shall discuss in the next sections on quantitative and qualitative research, it is not thoroughly substantiated by current empirical evidence.

Quantitative research on how the school environment influences substance use

One source of evidence for school organisational arrangements impacting on substance use comes from studies of the effects of interventions aiming to modify the whole-school

environment. Health Promoting School (HPS) interventions aim to promote health via a three-pronged strategy involving transforming school environments, classroom health education, and outreach to parents and communities. A recent Cochrane systematic review of such interventions found that while they are effective for promoting various health outcomes, including reducing smoking, it is currently not clear whether they are effective for reducing alcohol or drug use (Langford et al., 2014a). The first key problem in interpreting this evidence is that these interventions involve multiple components and incorporate health education alongside elements intended to modify the school environment. Thus, the evidence suggests but does not offer definitive evidence that school environments themselves can influence pupils' substance use. That said, there is evidence from specific studies such as the randomised trials of the US Aban Aya and the Australian Gatehouse intervention that interventions including environmental components aiming to build social inclusion and student engagement within schools are more effective in reducing substance use than interventions including only classroom-based health education (Flay et al., 2004, Patton et al., 2006). There is also evidence from a recent systematic review that interventions addressing the school environment but not including classroom health education can be effective in reducing substance use outcomes (Bonell et al., 2013b).

A second problem in interpreting this evidence is that existing HPS interventions have tended to address relatively downstream aspects of the school environment such as anti-smoking policies, posters etc.. It may be that such downstream actions work for smoking but not for alcohol and drugs since these substances are more commonly used in community rather than school sites. Future HPS interventions may need to address more upstream drivers which affect young people's general propensity to use alcohol and drugs, countering

neighbourhood-level factors that might increase the likelihood of substance use. A new generation of trials of health promoting school interventions focusing on core aspects of school organisation, culture and practice could provide strong evidence that student connection to school is a major protective factor against alcohol and drug use. Such interventions would aim to modify more general aspects of the school environment such as school management, pastoral care and general disciplinary policies.

To date, no such intervention studies exist, but observational studies suggest that the school environment can have an important impact on pupils over and above that of neighbourhoods. Two Scottish longitudinal studies of students age 11-15 years examined secondary school effects on substance use. Importantly, these adjusted for individual- and area-level potential confounders. In the first, smoking was more common in schools rated by researchers as having a poor ethos and in which more students reported disengagement with education or poor relationships with staff (West et al., 2004). In the second study, there were significant school effects on smoking among boys and girls at age 15/16 years even adjusting for individual socio-economic and socio-cultural factors as well as area (Henderson et al., 2008a). For girls, this effect was best explained by girls' ratings of teacher-pupil relationships and attitude to school. For boys, the effect was best explained by an interaction between teacher-pupil relationships and school-level affluence. Researchers' rating of the schools' focus on caring and inclusiveness was also significantly associated with both male and female smoking rates (Henderson et al., 2008b). However, while this research supports the theoretical suggestion that school organisation can have important effects on student health, it does not provide direct evidence in support of the Theory of

Human Functioning and School Organisation because it does not engage directly with the notion of classification and framing.

Another group of cross-sectional and longitudinal studies undertaken in the UK and USA has aimed to engage with this theory more directly by examining associations between 'value-added education' and various measures of substance use (Aveyard et al., 2004, Bisset et al., 2007, Markham et al., 2008, Markham et al., 2012, Tobler et al., 2011). In these studies, value-added education was used as a proxy measure for the degree to which schools succeed in gaining students' commitments to the 'instructional' and 'regulatory' orders. The proxy measure assessed the extent to which schools achieved better than expected examination passes and lower than expected truancy. It was calculated as the variance in attainment and attendance remaining after accounting for student socio-demographic characteristics. In all these studies except one (Tobler et al., 2011) this measure also included local deprivation so that these studies aimed to control for potential confounding by neighbourhood effects . With the exception of one study (Markham et al., 2012), the studies using this measure have reported consistent weak-to-moderate associations between value-added education and lower rates of smoking, drinking alcohol and drug use, even accounting for prior use in longitudinal studies (Markham et al., 2008, Tobler et al., 2011). Gross measures of educational attainment and truancy were not related to substance use. The main problem interpreting these studies arises from the fact that they do not use direct measures of 'classification', 'framing' or other aspects of school organisation.

Insights from qualitative research

Several qualitative studies, overwhelmingly done in the USA and UK, suggest the processes by which stricter school boundaries might increase students' risk of substance use. They suggest how disengagement from education and increased risk of substance use can occur in a context of:

- teachers and school appearing irrelevant to many students' lives and aspirations (Devine, 1995, Fletcher et al., 2009a, Fletcher et al., 2009b);
- relationships with teachers being weak (Devine, 1995, Fletcher et al., 2009a, Gordon and Turner, 2001);
- peer structures being clique-ridden (Milner, 2006);
- students not participating in decision making (Plano Clark et al., 2002, Waldron, 2005);
- teachers focusing on cognitive work in the classroom to the detriment of protecting and supporting students outside classes (Devine, 1995, Fletcher et al., 2009b); and
- schools prioritising the education of those with potential for high attainment while marginalising others (Bonell et al., 2012b, Fletcher et al., 2009c)

Much of this research emphasises teachers' authoritarian styles and inattention to students' overall development as drivers of disengagement and substance use, supporting the idea that eroding boundaries within a school may reduce substance use and other risk behaviours (Gordon and Turner, 2004).

Some of this qualitative research also suggests that 'uncommitted' students engage in risky behaviours not primarily because of deficits in practical reasoning and affiliation but rather

because, in a context of disengagement with education and high levels of substance use in local neighbourhoods, practical reasoning and affiliation become redirected from pro-school engagement and activities towards anti-school peer groups and active decisions to use substances (Fletcher and Bonell, 2013). Indeed, a systematic review and meta-ethnography of qualitative research (Jamal et al., 2013) found that risk behaviours are typically *rationally chosen* albeit in a context of constrained opportunities. For example, groups of students who feel disconnected from school, and in consequence perceive that conventional pro-school markers of identity and social status such as excellence in learning, sport or other pro-school activities are unattainable, may feel drawn to use substances as alternative markers of collective identity, social status or the transition to adulthood, particularly in local neighbourhoods characterised by poverty, marginalisation and high rates of drug and alcohol use (Fletcher et al., 2009c). Studies have noted how the adoption or rejection of drug use and other risk behaviours can function as an important source of identity for, and means of differentiation between, groups of students in such areas. Thus, this evidence suggests that engagement in substance use will occur in a context of limited opportunities but may sometimes result from re-directed practical reasoning and affiliation and not just deficits in these. Although not explicitly addressed in the original Theory of Human Functioning and School Organisation, this point has been recognised as important in a recent paper by one of the theory's originators (Markham, 2015).

Furthermore, not all qualitative studies suggest that it is overly authoritarian schools with too rigid boundaries that inadvertently encourage increased student substance use. Some qualitative research suggests that schools with inadequate systems of protection for students and insufficient teacher authority within and outside classrooms may predispose

students to engage in substance use and other risk behaviours, particularly when interacting with neighbourhoods characterised by high levels of gang membership, violence and drug use (Devine, 1995, Paulle, 2013). Other research suggests this can occur because students may engage in substance use as a strategy for self-preservation, showcasing 'tough' identities in their schools and local neighbourhoods in order to foster close relationships with potentially threatening peers and achieve 'safety in numbers' (Dance, 2002, Fletcher et al., 2009b). Substance use may also occur as a means of self-medication in an attempt to manage anxiety in threatening school and neighbourhood environments (Fletcher et al., 2009c). All these strategies however create a vicious circle whereby the means through which students gain support, solidarity and safety cause conflict with teachers which leads to further disengagement from school and lower expectations, which in turn inhibit the realization of 'pro-school' reasoning and affiliation and ultimately reproduce behaviours detrimental to health.

These findings from qualitative research are merely suggestive. They focus on the processes by which individuals respond to school and neighbourhood environments in ways which affect their health behaviours. With the exception of one paper which explored how school organisational cultures can influence student-teacher relationships and health (Gordon and Turner, 2004), they do not examine in any detail the organisational processes that shape the contexts in which these individual decisions are made. While this research suggests that at the individual level, substance use may have its roots in self-preservation, self-medication or 'escape' from school, it cannot determine what school level processes influence these processes, how such processes interact with neighbourhood processes or whether schools containing such students will have higher or lower aggregate levels of substance use.

Additionally, it is not currently clear from qualitative research whether schools need to erode the boundaries listed above or in fact to maintain some boundaries. Indeed, quantitative research on school educational effects, while not examining health impacts, generally concludes that engagement and attainment are highest in schools with orderly environments and a strong focus on academic attainment (Mortimore et al., 1988, Rutter et al., 1979, Sammons, 2007, Sammons, 2012, Sammons et al., 2011). Other authors have observed that UK schools which select on the basis of educational attainment at age 11 have high value-added scores and low rates of substance use (Aveyard et al., 2004). The same might also be true of non-selective schools in affluent neighbourhoods characterised by high aspirations and low levels of substance use. In such setting some schools are likely to have strong boundaries, for example in terms of more traditional staff-student relationships without bringing about student disengagement and involvement in health-compromising behaviours.

Priorities for future theorisation and empirical research

Our first recommendation is for new large-scale longitudinal quantitative studies of school effects on substance use in diverse geographical settings beyond just the UK, Australia and USA. These studies need to move beyond a reliance on proxy measures and instead use direct measures of school organisational approaches, policies and practices. Such processes would include how schools engage in 'classification' and 'framing' as defined in the Theory of Human Functioning and School Organisation. These studies need to examine the inter-relationship between school and neighbourhood effects, assessing whether there are

independent school- and neighbourhood-level effects or interactions between these; for example, where eroded school boundaries might be protective against substance use in disadvantaged neighbours but less so in selective schools or schools in more affluent neighbours as hypothesised above. It is important that research occurs in a range of geographical settings both within studies to examine such interactions but also between studies to examine whether theory that appears applicable to education in industrialised countries also applies in other cultural contexts.

Our second recommendation would be that future trials of HPS interventions addressing substance use should include studies of interventions that go beyond addressing downstream determinants such as tobacco policies and address how schools engage students in learning and the school community. Some existing trials such as the Aban Aya study (Flay et al., 2004) have examined interventions which do so but these have not employed sociologically informed theories of change. A trial is currently underway of a whole-school intervention to address violence and substance use where the theory of change is based on the Theory of Human Functioning and School Organisation (Bonell et al., 2014a). Such trials can usefully provide evidence not merely about the effectiveness of specific interventions but also about the validity of the theories on which interventions are based (Bonell et al., 2012a). Again, such studies should examine how school institutional and neighbourhood characteristics moderate intervention effects.

Our third recommendation is for more qualitative studies exploring the processes via which schools shape student substance use or moderate the impact of neighbourhood process on

substance use. Such studies also need to be done in diverse settings, not just the USA and UK.

To inform this raft of empirical work, we need better theory. Therefore, our fourth recommendation is for the further refinement of the Theory of Human Functioning and School Organisation to ensure it is conceptually clear and informed by existing social and educational research. The first area where more development may be needed is the definition of boundaries. Some boundaries might actually promote commitment to school and health promoting behaviours and therefore be worth maintaining, while others might be harmful and worth eroding. Beneficial staff-staff boundaries might include a head-teacher who champions innovative strategies and policies, while harmful staff-staff boundaries might include a head-teacher delegating little authority to other staff (Sammons et al., 2011). Beneficial staff-student boundaries might include a teacher authoritatively leading the day-to-day management of the classroom so that there is time for students to learn. Harmful staff-student boundaries might include the teacher not supporting the student outside of the classroom or never granting any power to the student in making decisions about their work (Ko et al., 2013). Healthy student-student boundaries might include different students choosing different subjects to study in the later years of their secondary education to reflect their interests and aspirations (Jin et al., 2010). Harmful student-student boundaries might include students being streamed by academic ability across all subjects from early in their school careers (Collins and Gan, 2013). Beneficial academic/broader learning boundaries might include a school providing students with critical and in-depth understanding of particular academic subjects. Harmful academic/broader learning boundaries might include not bringing out how such academic

learning is of relevance to students' current or future lives, or focusing entirely on preparing students for examinations and so neglecting social and emotional and other non-cognitive skills (Bonell et al., 2014b). Beneficial school-community boundaries might include the school offering norms of high academic achievement and aspirations as well as not engaging in gangs, substance use or violence where these may not be so salient in the culture of the local neighbourhood (Jacob and Ludwig, 2009). Damaging school-community boundaries might include schools not engaging with the neighbourhoods and cultures from which students are drawn (Bernstein, 1996) so that schools seem irrelevant to students' broader lives or fail to provide adequate social support or sense of identity so that some students seek this instead in affiliations with gangs and engagement and involvement in a range of risk behaviours including substance use.

We propose that some boundaries will promote student practical reasoning, affiliation and hence health because such boundaries will contribute towards students developing autonomy (Nussbaum, 1990). Reviewing the potentially 'healthy' boundaries listed above, we can see that these should all promote practical reasoning, affiliation and autonomy. A head-teacher leading the implementation of innovative strategies and policies while still delegating to other staff should enable teachers to develop professionally and ultimately better educate students. A teacher being authoritative but not authoritarian in classroom management should enable students to learn but also develop a sense of their own potential to make autonomous decisions. Students not being categorised and separated according to academic ability early in their school careers but having the opportunity to develop their particular talents later in their school careers should enable students to develop a sense of shared affiliation while also nurturing their practical reasoning according

to their own strengths and interests. Teaching that develops knowledge and cognitive skills in particular subjects while complementing this with cross-subject cognitive skills as well as non-cognitive skills should best promote individual autonomy across the life course. A school that does not belittle the values of local families but nonetheless protects students from harmful norms of behaviours and offers them opportunities to develop new ideas and aspirations should engage and challenge students and promote their fullest development.

A second area in which they Theory of Human Functioning and School Organisation might require elaboration is, as suggested in a recent systematic review (Jamal et al., 2013), a recognition that alongside the 'official' school instructional and regulatory orders, there may exist analogous, informal student instructional and regulatory orders which may bridge between the school and neighbourhood context. Students might not only react to schools' official instructional and regulatory orders, but might also promote their own parallel versions of these informed by broader local norms. In schools where most students commit to the official school orders, the student instructional and regulatory orders may largely mirror and support the formal school orders. However, in schools where large numbers of students are not committed to the school's official orders and might instead be drawn to the norms of gangs and other neighbourhood groups, the student instructional and regulatory orders may function in opposition. Such alternative instructional and regulatory orders might provide instruction and normative support for behaviours such as smoking, drinking and drug use (Fletcher and Bonell, 2013). This possibility provides a theoretical framework within which to understand the rational and social basis of student decisions to engage in substance use and other health risk behaviours.

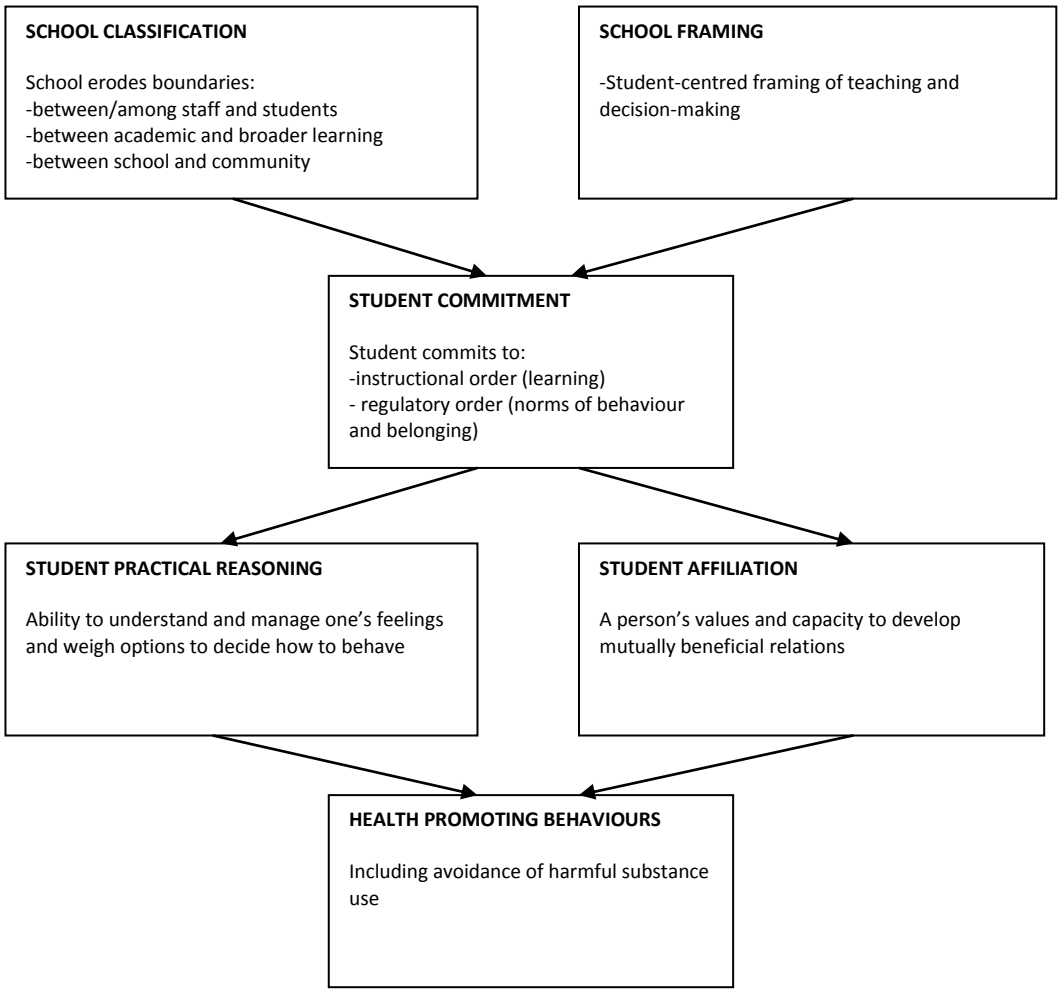
A third area for theoretical refinement might be in clarifying how the Theory of Human Functioning and School Organisation engages not just with social class but also with gender, ethnicity and perhaps other aspects of structural location or identity. Empirical studies could contribute to theoretical development by examining how measures of student socio-economic status, gender and ethnicity moderate the effects of school interventions or school level variables on substance use.

Conclusion

School environmental effects on student substance use are an example of a research area where sociologically informed theory has been developed which has then been examined in primary quantitative research as well as in systematic reviews. Drawing on sociological as opposed to psychological theory has enabled deeper and more critical consideration about how institutional processes might shape these behaviours. While existing quantitative observational studies of school health effects have supported the suggestion that the school environment exerts important effects on substance use, such research has not to date examined the specific school attributes and processes associated with better outcomes. Intervention studies have to date not generally been informed by sociological theory and interventions have largely focused on relatively downstream determinants, such as school policies and practices about substance use rather than more upstream factors such as student engagement in learning. While the Theory of Human Functioning and School Organisation represents a substantial achievement in bringing a sociological imagination to bear on school health effects, its current theorisation about how the school environment might shape substance use and other health behaviours may require further development.

Such elaboration should enable the Theory of Human Functioning and School Organisation to better inform future observational and intervention research.

Figure 1: The Theory of Human Functioning and School Organisation



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