

Research Publications

A list of research publications, including the abstract, is provided for our research related to 1) [School Climate](#), 2) [Classroom Climate](#), and 3) [Reform, Educational Change, and School Improvement](#)

Publications Related to School Climate

Aldridge, J.M., & McChesney, K. (2020). Parents' and caregivers' perceptions of the school climate: Development and validation of the Parent and Caregiver Survey (PaCS). *Learning Environments Research*. DOI: 10.1007/s10984-019-09300-2

Abstract: School climates are known to be associated with a range of student outcomes (including academic, social, behavioural, and affective), and much work to date has focused on gathering students' perceptions of their school climate to inform ongoing improvement efforts. However, parents, caregivers, and students are also influenced by the psychosocial school climate. Although less attention has been given to capturing parents' and caregivers' perceptions, the way parents and caregivers feel about a school can affect their children's attitudes toward the school as well as the parents' and caregivers' engagement with the school. Therefore, the perceptions of parents and caregivers concerning the school climate offer critical information about both strengths and areas for improvement in terms of ensuring that schools are places that foster students' wellbeing and achievement. In this article, we report the development and validation of the Parent and Caregiver Survey (PaCS) for gathering parents' and caregivers' perceptions of the socioemotional school climate. The PaCS is underpinned by strength-based and culturally responsive perspectives on parent and caregiver engagement and a socioecological perspective of a child and adolescent development. Responses to the PaCS from 1276 parents and caregivers at 23 Australian schools confirmed the validity and reliability of the instrument. Given its theoretical underpinnings and successful validation, the PaCS could be helpful for researchers and practitioners seeking to support parent engagement and school improvement.

Aldridge, J.M., & Fraser, B.J. (2018). Teachers' perceptions of the organisational climate: A tool for promoting instructional improvement. *School Leadership and Management*, 38(3), 323-344. DOI:10.1080/13632434.2017.1411899

Abstract: The current push for principals to be accountable for student outcomes has led to a renewed interest in the role of leadership in instructional improvement. This article describes the development and validation of a survey focused on organisational management features likely to improve instruction. The development of the instrument involved a multistage approach that included: identifying key organisational management features important to instructional leadership and an effective school based on research and theoretical underpinnings; clearly articulating key constructs; and modifying, adapting, and developing items to assess those constructs. After pilot testing, the survey was administered to 216 teachers selected from four high schools in Western Australia. We used [Trochim W. M. and J. P. Donnelly to ensure that the survey was reliable. 2006. *The Research Methods Knowledge Base*. 3rd ed. Cincinnati, OH: Atomic Dog] framework for construct validity. Data analysis provided evidence to support the reliability and validity of the questionnaire in terms of translation and criterion validity. The development of this survey provides principals with an economical and psychometrically sound tool that can be used as part of a process involving critical self-reflection.

Aldridge, J.M., McChesney, K. & Afari, E. (2018). The relationships between school climate, bullying, and delinquent behaviours. *Learning Environments Research*, 21, 153-172. DOI:10.1007/s10984-017-9249-6

Abstract: Given that schools are potentially powerful sites for influencing adolescent behaviour, there must be a greater understanding of the psychosocial aspects of the school climate that can be leveraged for this purpose. The research reported in this article used structural equation modelling (with data from a sample of 6120 students at Australian high schools) to examine the influence of the psychosocial school-level environment on students' self-reported experiences of bully victimisation (i.e., being victims of bullying) and engagement in delinquent behaviours. Further, we examined whether bully victimisation mediated the relationships between school climate variables and delinquent behaviours. School connectedness and rule clarity were negatively associated with both bully victimisation and delinquency ($p < 0.05$), and teacher support was negatively associated with bully victimisation ($p < 0.01$), confirming the importance of these aspects of the school-level environment. However, affirming diversity and reporting and seeking help both positively influenced bully victimisation ($p < 0.05$), raising concerns about how these aspects of the school-level environment might have been promoted. Importantly, bully victimisation was found to mediate the influence of five of the six school climate constructs on delinquent behaviours ($p < 0.001$). This study advances our understanding of how specific aspects of the school climate influence the prevalence of bullying and delinquent behaviour, adding weight to the call for educators to actively monitor and enhance psychosocial aspects of the school climate to improve student behavioural outcomes.

Aldridge, J.M., & Fraser, B.J. (2018). Teachers' perceptions of the organizational climate: A tool for promoting instructional improvement. *School Leadership and Management*, 38(3), 323-344. DOI:10.1080/13632434.2017.1411899

Abstract: The current push for principals to be accountable for student outcomes has led to a renewed interest in the role of leadership in instructional improvement. This article describes the development and validation of a survey focused on organisational management features likely to improve instruction. The development of the instrument involved a multistage approach that included: identifying key organisational management features important to instructional leadership and an effective school based on research and theoretical underpinnings; clearly articulating key constructs; and modifying, adapting, and developing items to assess those constructs. After pilot testing, the survey was administered to 216 teachers selected from four high schools in Western Australia. We used [Trochim W. M. and J. P. Donnelly to ensure that the survey was reliable. 2006. *The Research Methods Knowledge Base*. 3rd ed. Cincinnati, OH: Atomic Dog] framework for construct validity. Data analysis provided evidence to support the reliability and validity of the questionnaire in terms of both translation and criterion validity. The development of this survey provides principals with an economical and psychometrically sound tool that can be used as part of a process involving critical self-reflection.

Riekie, H., & Aldridge, J.M. (2017). The role of the school climate in students' mental health and identity formation: A South Australian study. *British Journal of Educational Research*, 43(1), 95-123. DOI:10.1002/berj.3254

Abstract: The well-documented increase in student mental health issues in Australia and growing recognition of the need for education to play a part in students' identity formation prompted this study. The research reported in this article sought to identify specific elements of the school climate that were likely to influence the interplay of adolescent health and development and students' identity formation. The aim was two-fold. First, the study examined the relationships between students' perceptions of the school climate and self-reports of wellbeing, resilience, and moral identity; and second, the interrelationships between the three outcome variables were explored. Two surveys, one to assess students' perceptions of features of the school climate and another to assess students' wellbeing, resilience, and moral identity, were administered to 618 Year 11 students from 15 independent schools in South Australia. Structural equation modelling was used to investigate hypothesised relationships between students' perceptions

of their school climate and self-reports of wellbeing, resilience, and moral identity. Our results indicated statistically significant and positive relationships between school-climate factors and the three outcome variables. Further, indirect relationships (mediated by resilience) were found between school-climate factors and students' wellbeing. Our findings could be used to guide schools in building tangible, purposeful environments that engender well-balanced, optimistic, resilient citizens with strong moral identities.

Aldridge, J.M., Alai, K. & Fraser, B.J. (2016). Relationships between school climate and adolescent students' self-reports of ethnic and moral identity. *Learning Environments Research*, 19, 1-16. DOI: 10.1007/s10984-015-9199-9

Abstract: This article reports research into associations between students' perceptions of the school climate and self-reports of ethnic and moral identity in high schools in Western Australia. An instrument was developed to assess students' perceptions of their school climate (as a means of monitoring and guiding schools as they are challenged to become more inclusive and grapple with increasingly diverse populations) and administered to 4067 students, 63 % of whom were aged between 12 and 17 years, in eight schools. The same students also responded to a survey to assess ethnic and moral identity. Data analysis indicated strong, positive associations between the school climate and students' ethnic and moral identity. The results suggest that, for schools wishing to promote students' ethnic and moral identity, it would be beneficial to consider elements of the school climate identified in the new survey.

Aldridge, J.M., Fraser, B.J., Fozdar, F., Ala'i, K., Dantas, J. & Afari, E. (2016). Students' perceptions of school climate as determinants of wellbeing, resilience, and identity. *Improving Schools*, 19, 5-26. DOI:10.1177/1365480215612616

Abstract: This study examined the relationship between school climate variables and students' feelings of wellbeing, life satisfaction, ethnic identity, moral identity, and resilience. Furthermore, the study also examined the interrelationships between these five outcome variables. Six aspects of the school climate were measured: teacher support, peer connectedness, school connectedness, affirming diversity, rule clarity, and reporting and seeking help. The participants included 2202 students; the data included 2122 complete and usable cases (1058 boys and 1059 girls) from six public high schools in Perth, Western Australia. These data were analysed using structural equation modelling (SEM) analysis. All six school climate factors were related to student wellbeing. These relations were primarily indirect (except for teacher support, school connectedness, and affirming diversity which had a direct influence), mediated through the students' sense of ethnic and moral identity, resilience, and life satisfaction.

Aldridge, J.M., & Fraser, B.J. (2016). Teacher's views of the school climate and its influence on teacher self-efficacy and work satisfaction. *Learning Environment Research*, 19, 291-307. DOI:10.1007/s10984-015-9198-x

Abstract: The purpose of this study, in part, was to confirm the factor structure of the School-Level Environment Questionnaire, which assesses six school climate factors that can be considered necessary for improving schools. The study also tested a research model of the relationships between the school climate, teachers' self-efficacy, and job satisfaction. The participants included 781 Western Australian high-school teachers in 29 schools. When the data were analysed using structural equation modelling, teacher self-efficacy, and teacher job satisfaction were related to school climate dimensions, and there was also a relationship between teacher self-efficacy and job satisfaction. These results provide practical information for improving school climate and suggest that it is worthwhile for school principals to consider factors within the school climate and how they might be enhanced.

Aldridge, J.M. & Ala'i, K. (2013). Assessing students' views of school climate: Developing and validating the What's happening in this school? (WHITS) questionnaire. *Improving Schools*, 16(1), 47-66. DOI: 10.1177/1365480212473680

Abstract: This article describes the development and validation of a six-scale survey to assess school climate in terms of students' perceptions of the degree to which they feel welcome and connected, together with a scale to assess students' perceptions of bullying. The development of each survey involved a multi-stage approach, including 1) an extensive review of research related to school climate to identify components that can be considered necessary for effective schools made up of diverse students; 2) elucidating the scales identified in step one; and 3) writing individual items within the scales. Items from previously validated questionnaires were examined and, if appropriate, adapted. We used Trochim and Donnelly's (2006) construct validity framework to guide the new questionnaire's validation. When the questionnaire was administered to a sample of 4067 high school students from eight schools, various statistical analyses ensured the questionnaire's discriminant, convergent, concurrent, and predictive validity.

Aldridge, J.M., Fraser, B.J., & Laugksch, R. (2011). Relationships between the school-level and classroom-level environment in secondary schools in South Africa. *South African Journal of Education*, 31, 127-144. DOI: 10.15700/saje.v31n1a407

Abstract: We report research into associations between the school-level and classroom-level environment in science classrooms in South Africa. An instrument developed to assess students' perceptions of their classroom learning environment to monitor and guide changes towards outcomes-based education was administered to 2,638 Grade 8 science students from 50 classes in 50 secondary schools in Limpopo province. In addition, the teachers of each of the 50 classes responded to a questionnaire developed to assess factors in the school-level environment (such as the adequacy of resources, parental involvement, and collegiality). The data collected using the two questionnaires were analysed to examine whether the environment created at the school level was linked to the likelihood of teachers successfully implementing outcomes-based education at the classroom level.

Aldridge, J.M., Laugksch, R.C., & Fraser, B.J. (2006). School-level environment and outcomes-based education in South Africa. *Learning Environments Research*, 9, 123-147. <https://doi.org/10.1007/s10984-006-9009-5>

Abstract: In this study, we developed and validated a questionnaire to assess teachers' perceptions of their actual and preferred school-level environment, investigated whether teachers involved with Outcomes-Based Education (OBE) perceive the school-level environment differently from those who are not, and investigated factors in the school-level environment (such as resources and staff freedom) linked with a school's likelihood of successfully implementing OBE. The study involved modifying and validating an existing questionnaire to make it suitable for assessing the school-level environment in South Africa and adding to the School-Level Environment Survey (SLEQ) the scales of Familiarity with OBE and Parental Involvement. Analysis of data collected from 403 teachers provides evidence for the validity and reliability of the new SLEQ-SA. MANOVA for repeated measures revealed a statistically significant ($p < 0.01$) difference between teacher perceptions of their actual school environment and the one they would prefer for all seven SLEQ-SA dimensions. When MANOVA was used to examine whether teachers involved in OBE, perceive their school-level environments differently from those who are not, statistically significant differences emerged for two of the seven school-level environment scales, with teachers involved with OBE perceiving significantly more Familiarity with OBE and Work Pressure. The constraints teachers face are wide-ranging, including factors such as a lack of material resources and large class sizes. The results provide valuable information to policymakers, principals, and researchers that could help guide the implementation of OBE.

Publications Related to Classroom Climate

Robinson, J. M., & Aldridge, J. M. (2022). Environment–attitude relationships: girls in inquiry-based mathematics classrooms in the United Arab Emirates. *Learning Environments Research*, 25, 619–640. DOI: 10.1007/s10984-022-09409-x

Girls' attitudes towards mathematics can impact their achievement and career choices in STEM fields. Can introducing inquiry-based learning (IBL) in mathematics classes generate positive associations between girls' perceptions of the learning environment and their attitudes toward mathematics? Based in the United Arab Emirates, this study provided important information about the relationships between learning environment factors central to an inquiry method and student engagement. Data collection involved administering two surveys to female mathematics students ($N=291$) in four schools: one to assess students' perceptions of the learning environment and another to assess students' attitudes toward mathematics. Positive and statistically significant ($p < .01$) associations emerged between learning environment factors crucial to an inquiry approach and students' attitudes. These findings provide important information about how IBL might improve girls' attitudes toward mathematics classes and whether IBL environments are related to their attitudes.

Aldridge, J.M., & Rowntree, K. (2021, Open access). Investigating relationships between learning environment perceptions, motivation, and self-regulation in science classrooms in Abu Dhabi, United Arab Emirates. *Research In Science Education*, 52, 1545–1564. DOI: 10.1007/s11165-021-09998-2.

The global lack of student motivation towards learning science and gender imbalance in STEM careers provided the impetus for this study, which had two key aims: (1) to examine the influence of female students' perceptions of the psychosocial learning environment on their motivation towards and self-regulation in science learning, and (2) to investigate the influence of their reported motivation on their self-regulation of effort. Data were collected from 338 female students in grades 6 to 9 science classes across 16 government schools in Abu Dhabi, in the United Arab Emirates. Structural equation modelling was used to explore the hypothesised relationships, which indicated statistically significant associations between learning environment perceptions, motivation, and self-regulation. The results provide exigent information to teachers, policymakers, and researchers about the influences of the psychosocial learning environment on female students' motivation towards science, as well as the influence of motivation towards science on their self-regulatory behaviour within science classroom settings.

Galos, S., & Aldridge, J.M. (2020). Relationships between learning environments and self-efficacy in primary schools and differing perceptions of at-risk students. *Learning Environments Research*. DOI: 10.1007/s10984-020-09323-0

Because students at risk of academic failure are more likely to experience a range of serious outcomes at school and later in life, educators need to provide a learning environment that supports these students. The aims of the study were two-fold. First, to better understand how educators might help students considered to be at-risk, we examined whether they perceived their learning environment and self-efficacy differently from their counterparts. Second, to provide insight into how teachers can improve their students' self-efficacy, we investigated relationships between students' perceptions of the classroom environment and their self-efficacy. A survey was administered to 609 primary-school students in 31 classes. Practical insights from the results can assist teachers in creating supportive learning environments that enhance self-efficacy and learning outcomes for all students, particularly those academically at risk.

Chipangura, A., & Aldridge, J. (2019). Multimedia: A means of improving students' engagement in mathematics Classrooms? *International Journal for Mathematics Teaching and Learning*, 20, 2, 193-211.

Despite the potential benefit of multimedia, there needs to be more tangible evidence to support the view that multimedia is bringing about the required shift in the quality of education that it is intended to help. This study compared mathematics students in nine Years 8 to 12 classes frequently exposed to multimedia with seven Years 8 to 12 classes that were not. First, quantitative data were collected using students' self-reports on their engagement. Second, classroom observations and interviews with ten students and three teachers were used to gather information that provided insights regarding students' perceptions of the use of multimedia in mathematics classes. The results found statistically significant differences between the two groups, with students frequently exposed to multimedia reporting more learning goal orientations, task value, self-efficacy, and self-regulation than their counterparts who were not exposed to multimedia. Observation and interview data collected to provide insights into the quantitative data suggested that students in classes frequently exposed to multimedia were more likely to be autonomous and independent in their learning than their counterparts in classes not frequently exposed to multimedia. Further, exposure to multimedia was found to be differentially effective for male and female students. Statistically significant interactions were found between exposure to multimedia and gender for learning goal orientations, task value, and self-efficacy, with males reporting to be more engaged than females in classes that were frequently exposed to multimedia and less involved than females in classes that were not frequently exposed to multimedia. The results offer important insights into how students' exposure to multimedia could promote their engagement in mathematics classes.

Chipangura, A. & Aldridge, J.M. (2017). Examining the impact of multimedia on students' perceptions of the learning environment. *Learning Environments Research*, 20(1), 121-138. DOI: 10.1007/s10984-016-9224-7

We investigated (1) whether the learning environment perceptions of students in classes frequently exposed to multimedia differed from those of students in classes that were not, (2) whether exposure to multimedia was differentially effective for males and females, and (3) relationships between students' perceptions of the learning environment and student engagement in classes that were exposed to multimedia. The sample involved 365 high-school students in 16 classes, nine that were frequently exposed to multimedia and seven that were not. Two instruments were administered to students: one to assess students' perceptions of the learning environment and another to assess student engagement. There were statistically significant differences between the two groups for all the learning environment scales and statistically significant interactions between exposure to multimedia and sex for three learning environment scales (Involvement, Task Orientation, and Equity). Finally, the learning environment in mathematics classes that involved multimedia was related to student engagement. These results offer potentially important insights into how student exposure to multimedia could promote more positive learning environments and improve student engagement in mathematics.

Al Zubaidi, E. & Aldridge, J.M. (2016). Learning English as a second language at the university level in Jordan: Motivation, self-regulation, and learning environment perceptions. *Learning Environments Research*, 19, 133-152. DOI:10.1007/s10984-014-9169-7

The overarching aim of this study was to investigate students' perceptions of the learning environment and whether these influenced their motivation and self-regulation in learning English as a second language at the university level in Jordan. Our sample involved 994 students from 13 schools within one university's three faculties (humanities, health sciences, and engineering). The data collection involved administering two surveys: one to assess students' perceptions of the learning environment and another to assess students' motivation and self-regulation in learning English as a second language. The results

of the analyses strongly supported the reliability and validity of the surveys when used at the university level in Jordan, thereby providing confidence in the results of the present study. Simple correlation and multiple regression analysis were used to examine the influence of students' perceptions of the learning environment of English language classes on self-reports of motivation and self-regulation. Statistically significant ($p < 0.05$) simple correlations were found between students' perceptions of their learning environment and their motivation and self-regulation. The regression weights (β) indicated that scales of the learning environment were positively and statistically significant ($p < 0.05$) and independently related to the motivation and self-regulation outcomes.

Bell, L.M., & Aldridge, J.M. (2014). Investigating the use of student perception data for teacher reflection and classroom improvement. *Learning Environments Research*, 17(3), 371-388. <https://doi.org/10.1007/s10984-014-9164-z>

This article reports a study involving: (1) developing and validating a learning environment instrument, (2) investigating whether reflection on feedback generated using the instrument led to improvements in the learning environment, and (3) examining how teachers used the feedback. For the new learning environment instrument, validity was supported for 10,345 secondary students over three years (2,042 students in 2008, 4,467 in 2009, and 3,836 in 2010). To investigate whether reflection on feedback from this instrument led to improvements in the learning environment, multivariate analysis of variance and effect sizes were used to examine pre-post differences. Statistically significant improvements in students' views of the learning environment were found for 8 of the 11 scales. Finally, we examined how teachers used the student feedback. Of the 459 teachers, 45 focus teachers used the feedback as part of a formal action research approach involving entries in reflective journals, written reports, discussions, and participation at a forum. These data were analysed to provide an overview of how the information was used and to provide a more detailed account of the journey of one of the teachers.

Velayutham, S., & Aldridge, J.M. (2013). Influence of psychosocial classroom environment on students' motivation and self-regulation in science learning: A structural equation modeling approach. *Research in Science Education*, 43, 507-527. <https://doi.org/10.1007/s11165-011-9273-y>

The primary aim of this study was two-fold: 1) to identify salient psychosocial features of the classroom environment that influence students' motivation and self-regulation in science learning, and 2) to examine the effect of the motivational constructs of learning goal orientation, science task value and self-efficacy in science learning on students' self-regulation in science classrooms. Data collected from 1360 science students in grades 8, 9, and 10 in five public schools in Perth, Western Australia, were used to validate the questionnaires and investigate the hypothesized relationships. Structural Equation Modeling analysis suggested that student cohesiveness, investigation, and task orientation were the most influential predictors of student motivation and self-regulation in science learning. In addition, learning goal orientation, task value, and self-efficacy significantly influenced students' self-regulation in science. The findings offer potential opportunities for educators to plan and implement effective pedagogical strategies to increase students' motivation and self-regulation in science learning.

Afari, E., Aldridge, J.M., Fraser, B.J., & Myint, S.W. (2013). Students' perceptions of the learning environment and attitudes in game-based mathematics classrooms. *Learning Environments Research*, 16, 131-150. DOI 10.1007/s10984-012-9122-6

We investigated whether introducing games into college-level mathematics classes in the United Arab Emirates (UAE) effectively improved students' perceptions of the learning environment and their attitudes toward mathematics. A pre-post design involved the administration of English and Arabic versions of two surveys (one to assess students' perceptions of the learning environment and the other to determine their attitudes) after modification to ensure their relevance for college-level mathematics students in the UAE. For a sample of 33 classes (352 students), eight of which (90 students) were exposed to mathematics games, students involved in mathematics games perceived statistically significantly

more teacher support, involvement, personal relevance, enjoyment of mathematics lessons, and academic efficacy.

Velayutham, S., Aldridge, J.M., & Fraser, B.J. (2012). Gender differences in student motivation and self-regulation in science learning: A multi-group structural equation modelling analysis. *International Journal of Science and Mathematics Education, 10*, 1347-1368. <https://doi.org/10.1007/s10763-012-9339-y>

This study aimed to investigate the influence of students' motivational beliefs (learning goal orientation, task value, and self-efficacy) in science learning on students' self-regulation in the science classroom. The study also examines the moderating effect of gender on the proposed relationships. Data were collected from 719 boys and 641 girls across grades 8, 9, and 10 in 5 public schools in Perth, Western Australia. Structural equation modeling analysis results indicated that all three motivational constructs strongly predict students' self-regulation in science learning. The multi-group analysis to examine gender differences revealed that the influence of task value on self-regulation was statistically significant for boys only. The findings present possible opportunities for educators to plan and implement effective intervention strategies to increase students' self-regulation in science learning. The core feature would be to target and develop students' motivational beliefs of learning goal orientation and self-efficacy in science learning. Additionally, for boys, the intervention strategies would be to elevate boys' perspectives of science task value.

Aldridge, J.M., Afari, E., & Fraser, B.J. (2012). Influence of teacher support and personal relevance on academic self-efficacy and enjoyment of mathematics lessons: A structural equation modeling approach. *Alberta Journal of Educational Research, 58*, 614-633. <http://hdl.handle.net/20.500.11937/47820>

Our study aimed to examine the effects of two psychosocial features of the classroom environment (teacher support and personal relevance) on college students' academic self-efficacy and enjoyment of mathematics lessons. Data collected from 352 mathematics students attending three higher education institutions in the United Arab Emirates were used to validate the questionnaires and to investigate the hypothesized relationships. Structural equation modeling analysis suggests that teacher support and personal relevance are influential predictors of enjoyment of mathematics lessons and academic self-efficacy.

Velayutham, S., Aldridge, J.M., & Fraser, B.J. (2011). Development and validation of an instrument to measure students' motivation and self-regulation in science learning. *International Journal of Science Education, 33*, 2159-2179. <https://doi.org/10.1080/09500693.2010.541529>

Students' motivational beliefs and self-regulatory practices have been identified as instrumental in influencing students' engagement in the learning process. An important aim of science education is to empower students by nurturing the belief that they can succeed in science learning and cultivating the adaptive learning strategies required to help bring that success. This article reports the development and validation of an instrument to measure salient factors related to the motivation and self-regulation of students in lower secondary science classrooms. The development of the instrument involved identifying key determinants of students' motivation and self-regulation in science learning based on theoretical and research underpinnings. Once the instrument was developed, a pilot study was undertaken involving 52 students from two Grade 8 science classes. Quantitative data were collected from 1,360 students in 78 classes across Grades 8, 9, and 10, in addition to in-depth qualitative information gathered from 10 experienced science teachers and 12 Grade 8 students. Analyses of the data suggest that the survey has strong construct validity when used with lower-secondary students. This survey could be practically valuable as a tool for gathering information that may guide classroom teachers in refocusing their teaching practices and help to evaluate the effectiveness of intervention programmes.

Fraser, B.J., Aldridge, J.M., & Adolphe, G. (2010). A cross-national study of secondary science classroom environments in Australia and Indonesia. *Research in Science Education, 40*, 551-571. DOI 10.1007/s11165-009-9133-1

This article reports a cross-national study of classroom environments in Australia and Indonesia. A modified version of the What Is Happening In this Class? (WIHIC) was used simultaneously in these two countries to 1) cross-validate the modified WIHIC, 2) investigate differences between countries and sexes in perceptions of the classroom environment, and 3) investigate associations between students' attitudes to science and their perceptions of the classroom environment. The sample consisted of 1,161 students (594 students from 18 classes in Indonesia and 567 students from 18 in Australia). Principal components factor analysis with varimax rotation supported the validity of a revised structure for the WIHIC. Two-way MANOVA revealed some differences between countries and between sexes in students' perceptions of their classroom environments. Simple correlation and multiple regression analyses revealed generally positive associations between the classroom environment and student attitudes to science in both countries.

Aldridge, J.M., Fraser, B.J., & Ntuli, S. (2009). Utilising learning environment assessments to improve teaching practices among in-service teachers undertaking a distance-education programme. *South African Journal of Education, 29*, 147-170. DOI: 10.15700/saje.v29n2a256

We examined the viability of using feedback from a learning environment instrument to guide improvements in the teaching practices of in-service teachers undertaking a distance education programme. The 31 teachers administered a primary school version of the What Is Happening In this Class? (WIHIC-Primary) questionnaire to their 1,077 learners to determine preferred and actual classroom environments. Feedback about discrepancies between learners' actual and preferred learning environments was used to formulate teaching strategies to reduce differences over a 12-week intervention period. In-service teachers' reports, contact sessions, interviews between teachers and researchers, and three case studies based on classroom visits (one of which is reported here) provided thick descriptions of teachers' reactions to utilising the learning environment instrument. Our research provided the first learning environment study at the primary school level in South Africa, cross-validated an IsiZulu version of the WIHIC when used for the first time in South Africa, and supported the success of teachers' use of a learning environment questionnaire in guiding improvements in their teaching.

Dorman, J. P., Aldridge, J. M. & Fraser, B. J. (2006). Using students' assessment of classroom environment to develop a typology of secondary school classrooms. *International Education Journal, 7*, 906-915. ISSN 1443-1475

Research employing the Technology-Rich Outcomes-Focused Learning Environment Inventory (TROFLEI) was conducted in Australian secondary schools. A sample of 4,146 students from 286 classes responded to the TROFLEI, which assesses ten classroom environment dimensions: student cohesiveness, teacher support, involvement, task orientation, investigation, cooperation, equity, differentiation, computer usage, and young adult ethos. Validation data attested to the sound structural characteristics of the TROFLEI. Cluster analysis was used to develop a classroom typology of five relatively homogeneous classes described as exemplary; safe and conservative; non-technological teacher-centered; contested, technological, and non-technological.

Trinidad, S., Aldridge, J. M. & Fraser, B. J. (2005). Development, validation, and use of the Online Learning Environment Survey. *Australian Journal of Education, 21*(1), 60-81.

This article reports the development, validation, and use of a survey for assessing students' perceptions of their e-learning environments. The Online Learning Environment Survey (OLES) was administered to 325 students, 131 in Australia and 194 in Hong Kong. The data were analysed to examine 1) the reliability and validity of the survey, 2) differences between the perceptions of a) students' actual and preferred

environment, b) students and their teacher, and c) male and female students, and 3) whether associations exist between students' perceptions of their e-learning environment and their enjoyment of e-learning. In addition to quantitative data, unstructured interviews were used to provide a more in-depth understanding of the e-learning environments created. These data provide valuable feedback to educators working in e-learning environments to help teachers evaluate the environment's effectiveness and adjust and improve as required.

Aldridge, J. M., Fraser, B. J., & Sebela, M. P. (2004). Using teacher action research to promote constructivist learning environments in South Africa. *South African Journal of Education*, 24, 245-253.

The primary focus was to assist South African teachers in becoming reflective practitioners in their daily mathematics classroom teaching. The study involved a combination of quantitative and qualitative research methods. Quantitative data were collected using the Constructivist Learning Environment Survey (CLES) to assess learners' perceptions of the emphasis on constructivism in the classroom environment. In the first phase of the study, the CLES was administered to 1 864 learners in 43 classes and analysed to determine whether the CLES is valid and reliable for use in South Africa. Descriptive analysis was also used to generate graphical profiles of learners' perceptions of the actual and preferred learning environment for each class. During the second 12-week intervention phase, two teachers used the profiles to assist them in developing strategies aimed at improving the constructivist orientation of their classroom learning environments. The teachers implemented a strategy and maintained a daily journal to reflect on their teaching practices. At the end of the 12 weeks, the CLES was re-administered to learners to determine whether their learners' perceptions of the constructivist emphasis in their classroom learning environments had changed.

Aldridge, J. M., & Fraser, B. J. (2000). A cross-cultural study of classroom learning environments in Australia and Taiwan. *Learning Environments Research: An International Journal*, 3, 101-134. <https://doi.org/10.1023/A:1026599727439>

This research is distinctive in that it provides an example of one of the few cross-cultural studies in science education and used multiple research methods from different paradigms in exploring classroom learning environments in Taiwan and Australia. This article describes the validation and use of an English and Mandarin version of the What is Happening in this Class? (WIHIC) questionnaire in junior high school science classes in Australia and Taiwan. When the WIHIC was administered to 1,081 students in 50 classes in Australia and 1,879 students in 50 classes in Taiwan, data analysis supported the reliability and factorial validity of the questionnaire. It revealed differences between Taiwanese and Australian classrooms. Although the study commenced from a more positivistic framework, favouring a more objectivist view, it employed an interpretative framework as the study progressed. It drew on elements of constructivist and critical theory paradigms. This article outlines the researchers' use of multiple research methods, including classroom observations, in-depth interviews, and narratives. The themes that emerged from the data gathered using these methods helped make sense of classroom environments created in each country.

Aldridge, J. M., Fraser, B. J., Taylor, P. C., & Chen, C. C. (2000). Constructivist learning environments in a cross-national study in Taiwan and Australia. *International Journal of Science Education*, 22, 37-55. <https://doi.org/10.1080/095006900289994>

This article focuses on validating and using English and Chinese versions of the Constructivist Learning Environment Survey (CLES) in a cross-national study of high school science classrooms in Australia and Taiwan. The CLES was administered to 1,081 students from 50 classes in Australia and 1,879 students from 50 classes in Taiwan. Data analysis supported each scale's internal consistency reliability, factor structure, and ability to differentiate between classrooms and revealed interesting differences between average scale scores in Taiwan and Australia. The questionnaire data were used to guide qualitative data

collection in each country to explain patterns and differences in mean scale scores in Australia and Taiwan. Interviews with students also provided precautionary information regarding students' understanding of some items and the use of a Western survey to measure constructivist learning environments in an Eastern country.

Fraser, B.J., & Aldridge, J.M. (2018). Improving classrooms through assessment of learning environments. In J.P. Bakken (Ed.), *Classrooms Volume 1: Assessment practices for teachers and student improvement strategies* (pp. 91-107). New York: Nova.

Publications Related to Reform, Educational Change, and School Improvement

Aldridge, J.M., & McLure, F.I. (2023). Preparing for change in schools: Barriers and supports to educational reform – A systematic literature review. *Leadership and Policy in Schools*. DOI: 10.1080/15700763.2023.2171439

Abstract: Although the role of leadership in school improvement is widely recognised, there needs to be more understanding of what leaders can do to support (and mitigate barriers to) the implementation of mandated educational change. This systematic literature review analysed findings from 191 relevant primary studies published between 2000 and 2020 and identified four broad themes: developing a reform-ready school climate, comprehensive planning, preparation for implementation, and building capacity. These results offer practical information about malleable school-level factors that school leaders can attend to (before implementing mandated reform) to support the school's capacity for change.

McLure, F.I., & Aldridge, J.M. (2023). Sustaining Reform Implementation in the Classroom: A Systematic Literature Review. *School Leadership and Management*. DOI: 10.1080/13632434.2023.2171012

Abstract: This systematic literature review analysed research related to education reform published between 2000 and 2020. Empirical evidence from 249 studies identified factors hindering or facilitating the long-term success of reform implementation. Eight overarching, actionable themes were found to influence success. Six themes describe requirements at the school level: the need for shared leadership focused on supporting reform; budgeting and resourcing considerations; the critical role of continuing, high-quality professional learning that is consistent with the reform effort; the need for data collection and evaluation to examine the success of the reform initiative and guide further changes; the importance of engaging stakeholders in the reform process on an ongoing basis; and ensuring staffing stability. At the classroom level, teachers require support in developing a clear understanding of the reform in practice and actionable steps for implementation. Finally, ways in which external entities and advisory teams can help to sustain reform are presented.

McLure, F.I., & Aldridge, J.M. (2023). A systematic literature review of barriers and supporting factors for initiating educational change: Coordination, capacity, coherence, connectedness, flexibility, and fit. *Educational Management Administration and Leadership*. DOI: 10.1080/13632434.2022.2113050

Abstract: This systematic literature review of empirical studies was to analyse the results of 20 years of research related to education reform to identify factors that support or hinder change efforts. An electronic search identified 160 relevant primary studies published between 2000 and 2020 that were included in the review. While recognising that change processes are not linear, this paper reports factors (possibilities and constraints) reported in the literature as change is planned for and introduced into schools. The review suggests that to heighten the success of change initiatives at the initial stage, those designing and mandating the changes need to consider six overarching factors: coordination of the reform; coherence

between goals, strategies, and professional learning and the vision and needs of the school; the connection between the new reform and ongoing changes occurring across schools; flexibility of the reform to address different needs between schools and within schools; fit with sociocultural factors found in each school context; and construction of school leadership capacity to manage change.

Aldridge, J.M., Rijken, P., & Fraser, B.J. (2021). Collaborative action research as part of a school improvement effort: Improving the learning environment and student self-efficacy. *Learning Environment Research*, 24, 183-205. DOI: 10.1007/s10984-020-09318-x.

Abstract: The focus of professional learning on activities has changed to internal growth or change among teachers. Our 3-year whole-school collaborative action research was based on student feedback from a learning environment survey at a secondary school. Quantitative data were obtained by administering a survey in 2012, 2013, and 2014 to 2673 students in 171 classes to assess perceptions of the learning environment. Qualitative information involving classroom observations and interviews with the principal and professional development coordinator illuminated how the school incorporated this collaborative action research approach. Statistically significant differences in numerous aspects of the learning environment were found between the 2012, 2013, and 2014 student groups.

Read, K., Aldridge, J.M., Ala'i, K., Fraser, B., & Fozdar, F. (2015). Creating a climate where students can flourish: A whole school intercultural approach. *International Journal of Whole Schooling*, 11(2), 29-44. Available at: http://www.wholeschooling.net/Journal_of_Whole_Schooling/IJWSIndex.html

Abstract: This article reports part of an ongoing process that is taking place at one high school. With the vision of an inclusive school where all students could flourish, the school deliberately set out to develop a culture in which the students would feel welcome, connected, and belonging. This article focuses on, first, how the school, with a culturally diverse student population, implemented a whole school intercultural approach aimed at improving students' views of the school climate and, second, the impact that this had on students' perceptions of the school climate and their self-reports of wellbeing, resilience, and identity. These results indicated that, at the end of the 18 months, students' perceptions of the school climate were statistically significantly higher for four of the six school climate scales. Further, students scored statistically higher regarding their wellbeing, resilience, self-anchoring, and moral identity.

Aldridge, J.M., Bell, L.M., Fraser, B.J., & Dorman, J. (2012). Using a new learning environment questionnaire for reflection in teacher action research. *Journal of Science Teacher Education*, 23, 259-290. <https://doi.org/10.1007/s10972-012-9268-1>

Abstract: This article reports the development, validation, and use of an instrument designed to provide teachers with feedback information, based on students' perceptions, about their classroom environments. The instrument was developed to provide teachers with feedback that they could use to reflect on their teaching practices and, in turn, guide the implementation of strategies to improve their learning environments. To determine the validity and reliability of the new instrument, data from 2043 grade 11 and 12 students from 147 classes in 9 schools were analysed. The Rasch model was used to convert data collected using a frequency response scale into interval data suitable for parametric analyses. During an action research process, reflective journals, written feedback, discussions at a forum, and interviews with eight teachers helped illuminate the processes teachers used during action research. This article reports the views of these teachers in general. It examines more closely how one of the teachers used student responses to the learning environment questionnaire as a tool for reflection and as a guide in transforming her classroom environment. This case study helped us to gauge the extent to which action research based on students' perceptions of the learning environment helped guide teachers' improvements in their classroom learning environments.

Aldridge, J. & Bianchet, S. (2022). Using student feedback about the learning environment as a starting point for co-construction. *Learning Environments Research*, 25, 939–955. DOI: 10.1007/s10984-021-09403-9.

Abstract: The context in which learning occurs or the learning environment is pivotal to a positive learning experience for students. Although numerous studies have established strong links between a positive learning environment and a range of student outcomes, more research needs to examine how teachers might establish such an environment. Amidst growing acknowledgment that opportunities for the co-construction of learning and assessment design could provide a means of developing a more positive learning environment, this case study examined one such journey. Using a case study approach, we argue that student feedback involving a learning environment survey provides a valuable starting point for including students in co-construction and classroom improvement. Our findings indicate that teachers can improve the learning environment by involving students in meaningful co-construction through open tasks.

McChesney, K., & Aldridge, J.M. (2021). What gets in the way? A new conceptual model for the trajectory from teacher professional development to impact. *Professional Development in Education*. 47(5), 834-852. DOI: 10.1080/19415257.2019.1667412

Although school and education system leaders can mandate teachers' participation in professional development activities, various school-related, teacher-related, and student-related factors influence how professional development opportunities ultimately result in the desired teaching and learning impacts. This study examined teachers' perceptions of the factors that influenced the effects of various professional development activities in which they had participated. Constructivist grounded theory analysis of qualitative data provided by 131 teachers (reflecting 15 nationalities) led to the developing of a new conceptual model for the trajectory from teacher professional development activities to student impacts. The model involved five stages: *intended* professional development, *received* professional development, *accepted* professional development, *applied* professional development, and *student impacts*. Various barriers influenced whether professional development was able to progress to each successive stage; the current data provided insight into the structural barriers that determined whether intended professional development was received by teachers and the *acceptance* barriers that determined whether received professional development was actually accepted by teachers. The new model extends existing frameworks by highlighting the importance of contextual influences on teacher professional development and providing further specificity regarding some of the gatekeeping factors that influence the outcomes of teacher professional development.

McChesney, K. & Aldridge, J.M. (2019). A review of practitioner-led evaluation of teacher professional development. *Professional Development in Education*, 45(2), 307-324. DOI:10.1080/19415257.2018.1452782

The central role of teacher professional development in educational improvement is well-documented, and the investments of time and money into teacher professional development across the globe are immense. However, the quality of professional development has been shown to vary considerably, and meaningful evaluation of professional development activities is critical. It has been widely advocated by both researchers and education system leaders. Whereas past reviews have examined the nature and quality of researcher-led evaluations of professional development, the present review focuses on the nature and quality of practitioner-led evaluations. Using current theoretical recommendations for effective evaluation as benchmarks, the review examines the degree to which these recommendations are reflected in routine school-based evaluation of professional development, finding that a significant gap persists between theory and practice. The review also identifies practical and psychological factors that restrict further improvement in the practitioner-led evaluation and proposes ways in which researchers, practitioners, and policymakers could each contribute to future improvement in practitioner-led evaluation of professional development. Given that much teacher professional

development occurs within school settings and/or is managed by school staff, improving the quality of routine practitioner-led evaluation of that professional development is a potentially powerful driver for positive change.

Damanik, E., & Aldridge, J.M. (2017). Transformational Leadership and its Impact on School Climate and Teachers' Self-Efficacy in Indonesian High Schools. *Journal of School Leadership*, 27, 269-296. <https://doi.org/10.1177/1052684617027002>

Abstract: This study examined the relationships between principals' leadership, school climate, and teachers' sense of self-efficacy. Drawing on existing scales, this study examined six aspects of principal leadership (professional interaction, participatory decision-making, individual support, intellectual stimulation, and moral perspective) and four school climate factors (staff collegiality, goal consensus, work pressure, resource adequacy, and staff freedom). The participants included 604 Indonesian teachers drawn from 27 high schools. The data were analysed using Structural Equation Modelling. The results indicated statistically significant and positive relationships between leadership style, school climate, and teacher self-efficacy. Except for individual support, the relationships between principal leadership and teacher self-efficacy were largely indirect, mediated through staff collegiality and goal consensus.

Soebari, T., & Aldridge, J.M. (2016). Investigating the differential effectiveness of a teacher professional development programme for rural and urban classrooms in Indonesia. *Teacher Development*, 20(5), 701-722.
DOI:10.1080/13664530.2016.1185031

This article reports on the differential effectiveness of a teacher professional development programme for teachers in urban and rural schools in Indonesia. The study employed an embedded mixed methods design involving concurrently collecting quantitative and qualitative data. The quantitative component involved a pre-post design in which two surveys were administered to 2417 students from 66 classes in 32 lower secondary schools (960 from urban schools and 1457 from rural schools). The qualitative component involved six case study teachers and two students from each of their classes. Qualitative information was gathered using teacher and student interviews, classroom observations, and teacher reflective journals. The quantitative results suggested disparities between the usefulness of the knowledge and skills imparted during the programme for teachers in urban and rural schools. The themes that emerged from the data gathered using qualitative methods helped to make sense of the differences in student scores in urban and rural schools before and after the teacher professional development programme.

Soebari, T., & Aldridge, J.M. (2015). Using student perceptions of the learning environment to evaluate the effectiveness of a teacher professional development programme. *Learning Environments Research*, 18, 163-178.
<https://doi.org/10.1007/s10984-015-9175-4>

The focus of this article is two-fold. First, it describes a model that can guide the evaluation of teacher professional development. The model combines important components of existing models and incorporates students' perceptions for examining teacher change. Second, the article reports the evaluation of a teacher development programme that included this model. In particular, this article focuses on the phases of the model that involved student perceptual measures. Using a pre-post design, the evaluation involved quantitative (students' perceptions of the learning environment) and qualitative (observation and interview) data in investigating whether teaching practices changed during a 1-year professional development programme. Data were collected before the commencement of the professional development programme and at the end of the programme from students in two classes of each of the 33 teachers who attended the professional development programme ($N = 2,417$). These data were analysed using one-way MANOVA to provide a large-scale overview of the pre-post differences in students' perceptions of their learning experience. Although there were statistically significant changes for six of the seven WIHIC scales (with all statistically significant differences showing an

improvement), the effect sizes for all scales were too small (according to Cohen's criteria) to be considered educationally important. These findings that the success of the teacher professional development programme could have been limited were corroborated by observations. Further, interviews with teachers provided information about contextual factors that influenced the translation of professional development ideas into practice.

Von Opell, M., & Aldridge, J.M. (2015). *Teacher beliefs and education reform in Abu Dhabi: 21st-century skills*. *MSKU Journal of Education*, 2(2), 36-50. [10.21666/MSKUEFD.31152](https://doi.org/10.21666/MSKUEFD.31152)

Abstract: Education reform curriculum reform of the magnitude being implemented in Abu Dhabi and involving such different cultural contexts and expected paradigm shifts poses several questions concerning implementation, ongoing challenges, and future impact for teachers, students, and the community. This paper focuses on the relationship between the Teacher Belief Survey results and the teachers' classroom practice. The research reported in this paper took place in Abu Dhabi, where Arab teachers had been entrenched in most traditional approaches to teaching. The large-scale education reform carried out when writing this paper required the teachers to shift to a constructivist approach. The study involved a mixed methods approach in which quantitative and qualitative data were collected sequentially. As a first step, the newly developed Teacher Belief Survey was administered to 198 teachers across the emirate. The second step involved a case-study approach involving 15 teachers to further examine teacher beliefs and observed practice. Lesson observations were conducted with each of the case study teachers, preceded by a semi-structured interview and a post-lesson observation interview. The results indicated that the teachers were willing to comply with the reform initiatives; however, they continued to hold more traditional beliefs about their role in the classroom and their teaching and learning acquisition philosophy. Observations corroborated these findings, indicating that the teacher's choice of delivery, use of student collaboration, and the physical environment were not what they believed them to be. Interviews and observations showed that culture, fear, a lack of knowledge and understanding by teachers, and incongruent interpretations of terminology were strong mitigating factors impeding the Arab teachers' implementation of curriculum reform initiatives. **Keywords:** Abu Dhabi, Teacher belief, curriculum reform initiatives.

Aldridge, J.M., & Fraser, B.J. (2011). *Monitoring an outcomes-focused learning environment: A case study*. *Curriculum Perspectives*, 31, 25-41. <http://hdl.handle.net/20.500.11937/29473>

Abstract: This article reports how teachers in one Western Australian school used a learning environment instrument to assist them in implementing and monitoring the extent to which they were incorporating a more outcomes-focused approach in their teaching. Using a transformational approach to outcomes-focused education, the teachers used a purpose-designed learning environment instrument to provide feedback about students' perceptions to guide improvements in their pedagogical practices. The school supported teachers during the process and used the results to monitor the success of different educational programs in promoting outcomes-focused learning environments. The sample included 449 students in 2001, 626 students in 2002, 471 students in 2003, and 372 students in 2004. There were statistically significant differences between students' perceptions of classroom environment from 2001 to 2004 for most scales and between each pair of years for specific learning environment scales. When two specific learning areas within the school were compared, there were differences in the degree to which the learning environment changed between 2001 and 2002.