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# 13. A NEW CURRICULUM AND A NEW LEARNING SPACE

*An Opportunity for Real Change in an Irish Context*

## CONTEXT

Curricular change is currently underway in Ireland. A new Junior Cycle Student Award (JCSA) marks a move away from traditional learning and examinations, replacing these with project work, continual assessment, and collaborative styles of learning (Flynn, 2012, October 4). Traditionally, teaching and learning has been dominated by teacher-led methodologies. Students sit in straight rows of square individual desks facing a whiteboard and projector at the front of the classroom. The teacher lectures on their subject expertise and the students write notes, with limited peer interaction. However, the foci of the JCSA are team work, discussion, project design, and collaboration and these will change the dynamic of classrooms, and improve the communication skills of pupils. This kind of change presents an excellent opportunity to reconsider classroom spaces and how they are used, with a view to designing new learning spaces to accommodate the curricula innovation (Fisher, 2005a).

Ireland has for many years used curriculum reform as an accelerant for the adoption of learner-centred pedagogies in teaching and learning (National Council for Curriculum and Assessment, 2011). However, schools have experienced difficulty moving away from past pedagogical cultures to adopt new approaches to teaching and learning (Chism, 2006). If the traditional learning spaces in schools are not reconfigured to allow for collaborative work is it reasonable to predict that the new approaches of the JCSA are doomed?

In Ireland, school designs for State-funded school buildings are contained in a set of guidelines from the Department of Education and Skills (DES). The DES insists that "where it is proposed to construct a new school these guidelines and all associated documents in the suite of Design Guidance should be applied in full" (Department of Education and Skills, 2014). The design philosophy of the DES states that "the different functions of the 'Design Team' members shall be integrated, combining 'Building Services Engineering', 'Architectural Design', 'Structural Engineering' and 'Quantity Surveying' to create a well-designed, sustainable, cost effective, durable low maintenance building" (Department of Education and Skills, 2014). Notably missing in this 'team' are the teachers, principals and pupils. This

*W. Imms et al. (Eds.), Evaluating Learning Environments, 181–193.*

study suggests that teachers and principals have a key role to play in informing good design for learning spaces and they should play a central role in evaluating innovative learning spaces.

Spaces need to be responsive to evolving educational programs, philosophies, delivery methodologies, and student and staff needs (Chism, 2003; Cleveland, 2011; Fisher & Dovey, 2014; Rydeen, 2013). The main purpose of the study described in this chapter was to determine what 'works' for teachers in newly designed innovative spaces by exploring how the spaces respond to the needs of students and teachers. The study also attempted to investigate whether innovation in the design of school learning spaces might be an "interventionist strategy with the potential to catalyse sustainable pedagogical reform" (Cleveland, 2009, p. 20). The findings of this study indicate that there are strong arguments for reconsidering the design and configuration of learning spaces, to promote teaching and learning methodologies associated with the introduction of the JCSA in Ireland. These findings can inform the design practices of architects designing learning spaces in Ireland and meaningfully considered during the education of pre-service teachers. Considering modifications to school spaces is both necessary and opportune at the introduction stage of the JCSA.

## OBJECTIVES

The objectives of the research were to:

- examine *the use of space* during teaching and learning episodes over a defined period of time with one First Year group (age: 13 years)
- determine the *attitudes of teachers* towards teaching and learning in the innovative space
- discover the *perceptions of teachers* with regard to the social interaction of students in the innovative learning space
- determine factors and *implications for the future* in learning space design, in the context of Irish second-level schools

## METHODOLOGY AND DATA COLLECTION

The methodology and data collection approaches selected for the research were informed by both the research question and theoretical perspectives from current national and international literature. The research, which comprised a study of one school, was conducted over an eighteen month period. An interpretivist approach was adopted, and the views of the school 'users' (Principal and teachers) were privileged in the analysis. Interpretive research strives to understand and interpret the world in terms of its actors (Cohen, Manion, & Morrison, 2011). The adoption of an interpretivist approach required the acceptance of value-mediated findings and a subjective view of the learning space in question (Cohen, Manion, & Morrison, 2011). The writer was aware that all the interpretations were based in a particular moment, i.e. after teaching and learning periods had occurred in the learning

space. The interpretations were open to re-interpretation and negotiation through dialogue between the researcher, the Principal and the five participating teachers. An interpretivist approach was appropriate for this research because it was in keeping with the focus on the relationship between the learning spaces and teacher's experiences of teaching and learning for the JCSA in this space.

'Burrow College' is the pseudonym given to the school that participated in the case study. It was a pilot school for the JCSA, and a space had been adapted to allow flexible working and creative learning. To assess teachers' responses to this space, the research study was approached in a holistic manner, and descriptions, photographic records and audio journals were collected to explore learning episodes within learning spaces. These documents facilitated the chance to understand the perceptions of the individual teachers involved. The difficulties with validity when conducting the research in a single culture were known, however, it was believed that this was compensated for by the wealth of experience and variety of subject specialisms of the Principal and the five teachers who participated in this research. While this research focused on one pilot school, future research may consider using multiple schools to allow for comparisons across multi-cultural contexts.

The research was conducted within the University College Dublin ethical framework and guidelines. To commence the research, an assessment rubric for learning spaces in Ireland, was created, drawing on the following documents: *Principles of Teaching and Learning* (NCCA, 2011); *An emerging template for assessing learning spaces* (Narum, 2013) and Fisher (2005b), *Linking Pedagogy and Space*. The learning space assessment rubric was named the 'POLTSAR' tool (see Appendix A). Fisher (2002) divided active learning methodologies into five areas: delivering, applying, creating, communicating and decision making. These five areas were incorporated into the 'POLTSAR' tool to assess the learning space. The tool determined the implications that the 'Principles of Teaching and Learning' of the JCSA curriculum had on learning space design and configuration. For example, the creativity and innovation section of the POLSTAR tool is illustrated in Figure 1.

| **Creativity and Innovation** | **Provisional space that is in a state of flux** |
|---|---|
| • Learner centred pedagogies with multiple learning settings co-located<br>• Theory linked to practice, problems integrate both aspects, resources used continually and creatively, integrated curriculum delivery<br>• Students encouraged to participate in learning space design and learning space reconfiguration | • Multi-purpose learning zones that enable students to learn through inter-disciplinary short courses over a period of time<br>• Wet area<br>• Facilitates team teaching<br>• Opportunities to move around |

*Figure 1. The learning space provision for creativity and innovation*

To collect data, audio journals were used. It was hoped they would capture instantaneous responses from teachers using the innovative learning space in Burrow College. The teachers were asked to facilitate teaching and learning in the space, record a post-lesson audio journal, and indicate how the physical learning space affected the teaching and learning episode. The use of audio journals gathered instantaneous, naturally occurring data from the teaching and learning episode that took place in the physical learning space.

Photographic records were created by the five teachers. Photographs are useful sources of data because they can convey the culture, background and 'biographies' of an event. An image can also give insight into behaviour, as photographs are "wrapped in many layers of meaning and interpretation" (Cohen, Manion, & Morrison, 2010, p. 554). The photographs were analysed in a similar way to the interviews and audio journals. Thematic analyses of both the recordings and the images were made, with reference to the 'POLTSAR' tool. The themes were grouped together and a statement regarding each theme was produced in the analysis. The research question was then addressed using these themes. By employing the use of photographs, data that not only described events in context, but participants' intentions, strategies and agencies (Cohen, Manion, & Morrison, 2010) were generated.

## OBSERVATIONS

The 260m$^2$ learning space was designed to enable a full cohort of sixty students and two teachers to gather for the purpose of teaching and learning. There were two learning zones: 'Learning Zone A' (180m$^2$) and 'Learning Zone B' (80m$^2$). The zones were linked by a moveable partition and had matching floor finishes. The learning space could also be set up for large-group activities, facilitating events such as presentations from a guest speaker, or for hosting a school assembly. Zone A was designed as a general purpose area. Adhering to the technical guidance documents of the Department of Education and Skills (DES), the space contained a stage, a mounted projector, table and bench units (see Figure 2). These units were 1825 mm long with a seat height of 425 mm and a table height of 740mm. There were also hexagonal tables, chairs, a demountable stage (800 mm in height), a projector screen, acoustic sound panels and white walls.

Zone B was designed as a Music/Drama room that adhered to the technical guidance documents of the DES. It contained student tables (600 x 600 x 760 high), a teachers' desk (1200 x 600 x 760 high), 30 student chairs (460 high), a teachers' chair (460 high), a whiteboard (2400 x 1200), a pin board (1200 x 1200), an 'Interactive Whiteboard', an electronic projector screen, a projector, and white walls. It also linked to the outside, natural world at the front of the school through double doors and a storage press (900 x 450 x 1800 high). Diversity in the range of zones within the learning space allowed the space to be clearly different from the traditional classrooms at Burrow College (see Figure 3).

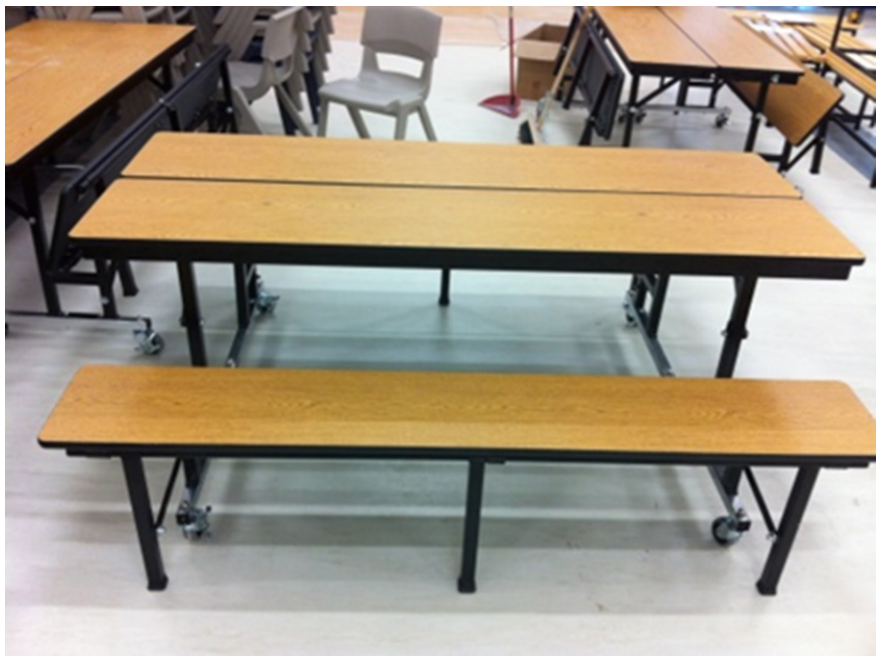

*Figure 2. Table and bench units, as per the technical guidance document from the Department of Education and Skills (DES). Burrow College, March 2014*

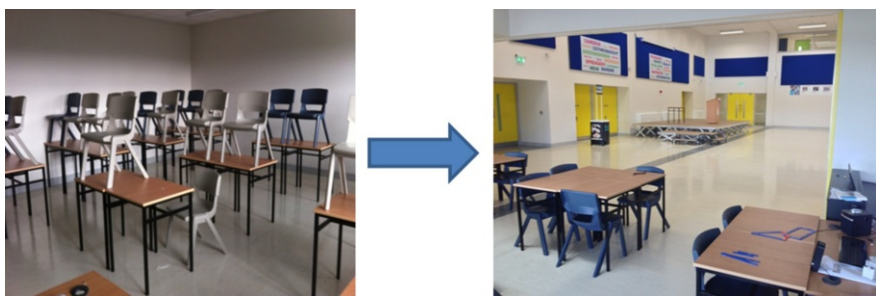

*Figure 3. The traditional classrooms turn into a new learning space. The traditional classrooms at Burrow College were turned into the larger, brighter General Purpose room and the Music/Drama room with two learning zones. Burrow College, March, 2014*

In line with DES technical guidance documents the moveable partition created smaller learning zones that proved to be a successful design feature as the partition provided an opportunity to create two learning zones.

While teachers were keen to use the new spaces, they pointed out that a lack of continuing professional development (CPD) was a major barrier to both creating and using learning spaces. There is very limited CPD available for teachers on learning space design and configuration in Ireland. The Board of Management, the Principal, the teachers and the students were not engaged in the school design process. Indeed, the omission of key stakeholders is a weakness in the school design process in Ireland. The Principal provided an insight into his experience with the technical guidance from the DES that he was able to change only a little. The equipment lists, including the desks, supplied by the department did not lend themselves to flexibility. He lamented that the school would have to fund any changes to the learning space design and furniture (Principal, Burrow College, 2014).

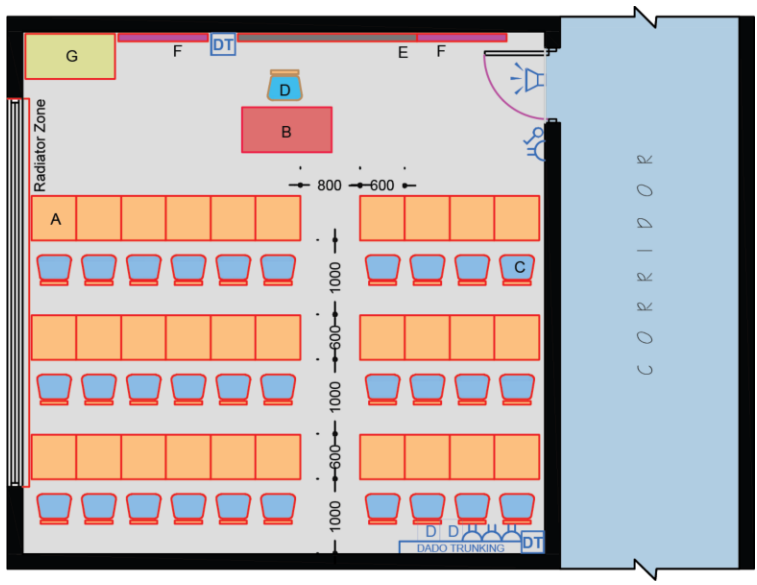


*Figure 4. Room layout as specified by the DES for Burrow College, May 2014. Source: Technical Guidance Second Level Schools (DES, 2014)*

The design philosophy of the DES is that the layout of learning spaces is of critical importance; however, their layouts are those of traditional classrooms, with rows and a teacher's desk at the front (see Figure 4). However, with some creativity, it was possible to reconfigure the DES design of the General Purpose room and Music/Drama room, resulting in a learning space that facilitated active learning with minimal cost. Even these limited alterations had positive results. The large open spaces allowed for break-out areas for group work in the zones that contained hexagonal tables. The large open spaces also facilitated the teachers to gather the students for communal activities. The partitions, the hexagonal tables,

benches, the stage, and the room configuration were all visible cues for teaching and learning intentions in the learning space. The learning zones in the learning space were readily inter-connected and allowed for a 'flow of learning' (Oblinger, 2006; Lippman, 2010).

## CONCLUSIONS

These observations suggest that innovative configurations of learning spaces in second-level Irish schools should be prioritised during new school building projects and curriculum reform. The research found that the learning space influenced the pedagogical approaches and actions of the teachers and the learning behaviours of the students.

Classroom planning and construction in Ireland reflect dated paradigms of teacher-led instruction. Irish second level schools are designed according to specifications from the DES, and include features such as horizontal and vertical circulation routes to separate classrooms. These do not facilitate the *Principles of Teaching and Learning* (NCCA, 2011) of the JCSA. Journals, photographic records and observations indicated that the Principal and teachers in this study lamented the imposition by the DES of rigid guidelines and furniture specification of school design. Even with moderate opportunities for creativity, teachers used learning spaces effectively and enjoyed the process. The teachers encouraged the use of innovative spaces but they also supported the traditional educational objectives of knowledge acquisition and comprehension of subject matter and academic excellence. The learning spaces provided a place for students to share prior knowledge from a range of subjects, to manage information, and to communicate knowledge effectively.

Educators, stakeholders and architects need to re-think learning spaces and the opportunities that they provide. Students require facilitation of inquiry models and collaboration by their teachers and rich tasks to challenge them. These skills can be promoted when learning spaces are designed with environmental cues as to what should or could happen there. The Principal of Burrow College argued that: "skills around problem solving, collaboration, communication … are hugely important and they are identified in national studies … in terms of what are the future skills needed in Ireland."

### *Recommendations*

In Ireland, the DES claims to have a good learning space design process in place for schools. However, no funded large-scale studies have been conducted to assess learning space design practices in any schools across Ireland. The DES Planning and Building Unit and the Inspectorate are currently undertaking a 'Post-Occupancy Evaluation' (POE) of recently-built primary schools. Well-defined and documented measurement techniques, beyond the scope of the POE, need to be developed and implemented in the Irish context. Large-scale studies on learning spaces could

provide educational stakeholders with a detailed account of the state of the nation's learning spaces. Irish teachers and architects in each school context require the opportunity to collaborate around the needs of their school context during the school design process. In addition, the impact of learning spaces on teaching and learning in Ireland needs to be investigated. Such studies could provide baseline data needed to advance learning space design during a time of curriculum reform.

With Junior Cycle curriculum reform ongoing, it is important to develop assessment techniques and tools that help educators learn more about the connections between teaching practices, student experiences and learning spaces in the Irish education system. By assessing learning spaces, valuable insights into teaching and learning practices in the Irish context could be documented. Principals and teachers need to take responsibility for the resources and classrooms at their disposal.

The 'POLTSAR' tool, developed through this research could be used to begin to assess current and future learning spaces. Learning spaces should be designed and re-configured to creatively meet the needs of curriculum reform and associated new teaching practices. The writer's review of the tools available to assess learning spaces highlighted a predominant focus on the physical features of the learning space rather than matching the learning space with the teacher practices (Cleveland & Fisher, 2014, p. 25). The 'POLTSAR' tool attempts to bridge this gap, by focusing on the alignment between the learning space and teaching practices. This supports the views of Fisher and Cleveland (2014) who maintain that:

> The need for learning environment evaluation stems from a desire to collect evidence that can inform future decisions. Information gained through the building evaluation could be used to inform decisions about both the design and the use of learning environments. For example, the evaluation of new building typologies could inform architects about the effectiveness of new design patterns, while simultaneously informing teachers and students about how they might best utilise new environments to suit pedagogical approaches. (Cleveland & Fisher, 2014, p. 7)

The DES should consider introducing an interdisciplinary approach to the assessment and evaluation of learning spaces. Cleveland and Fisher maintain that it just 'might provide the developmental space needed to generate new knowledge' (Cleveland & Fisher, 2014, p. 24).

Currently, the majority of school buildings adhere to a common design process and model. These learning spaces will not support the JCSA curriculum reform and are out of date even as they are being built. This means they will require future retrofitting (Pearlman, 2010) into contemporary learning spaces. The DES should evaluate its school-design process and room layout technical guidance documents, in order to respond to the needs of Irish schools during curriculum reform. The addition of teachers, students and Principals to the design team would be beneficial.

Every school context requires different learning space designs, and there is a need for flexibility and autonomy in relation to the furniture requirements on the technical guidance documents. A robust furniture budget allocated to the school would give the school autonomy to choose its furniture and fittings to suit its individual needs, vision and values.

The DES should create and implement continuing professional development (CPD) for teachers and Principals in relation to learning space design and its relevance for curriculum reform. These CPD courses could marshal the strengths of both architect and teacher education programs, to evolve innovative learning opportunities for educators. Online professional learning communities, working on learning spaces, could collaborate and share ideas from country to country, while removing the barrier of geographical distance.

Finally, teachers need to be educated on how to engage students in learning space design. In Ireland, curriculum reform is imminent and it will be important to remember that 'spaces are themselves agents for change and changed spaces will change practice' (JISC, 2006, p. 32). New learning spaces are symbols of overall change in a school. In the Irish context there is huge scope for further research which aims to enhance the quality of teaching and learning spaces.

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APPENDIX A: 'POLSTAR: A LEARNING SPACE ASSESSMENT TOOL'

<table>
<tr><td colspan="2">The POLSTAR Junior Cycle Learning Space Design Tool</td></tr>
<tr><td>Principles of Teaching and Learning<br><br>Pedagogical Approach and Professional Actions</td><td>Pedagogical Activity and Key Skills<br><br>Implications for the Learning Space Design</td></tr>
<tr><td colspan="2">Applying<br>Managing Information and Thinking<br>Communicating<br>Working with Others<br>Creating<br>Being Creative<br>Delivering<br>Decision Making<br>Staying Well<br>Managing Myself<br>Recognises and supports</td></tr>
<tr><td>Quality<br>• Integrated, problem and resource based learning<br>• High expectations and challenging learning objectives<br>• Facilitating and planning for a range of learning styles<br>• Incorporating Bloom's Taxonomy into active learning tasks that have explicit purposes<br>• Reflective of up to date educational literature and research<br>• Reflects attention to educational research on how students learn, as well as to evidence from the field about what works<br>• Teacher as a facilitator<br>• Team planning and professional dialogue for inter-disciplinary short courses</td><td>The educational values and principals of the learning community (teachers, school Principal and stakeholders)<br>• Space naturally facilitates interactions, within and between groups and individuals.<br>• Teachers can easily move between groups and use a variety of teaching methods<br>• Spaces facilitate blended learning, reflect the concept of the 'flipped classroom,' in which 'passive' learning takes place in other times and places.<br>• Furniture movable, adaptable by students/teachers in the use of different types of active pedagogies (small round/hexagonal tables, benches, stools and lightweight chairs)<br>• Adjustable lighting<br>• Air temperature control</td></tr>
</table>

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|---|---|
| Creativity and Innovation<br>• Learner centred pedagogies with multiple learning settings collocated<br>• Theory linked to practice, problems integrate both aspects, resources used continually and creatively, integrated curriculum delivery<br>• Students encouraged to participate in learning space design and learning space reconfiguration | Provisional space that is in a state of flux<br>• Multi-purpose learning zones that enable students to learn through inter-disciplinary short courses over a period of time<br>• Wet area<br>• Facilitates team teaching<br>• Opportunities to move around |
| Engagement and participation<br>• Project and resource based learning on practical problems<br>• Challenges and supports to develop deep levels of thinking, adventure and application which explore the boundaries of what is known<br>• Facilitation of engagement, construction of personal and peer knowledge and re-evaluating personal and peer knowledge<br>• Facilitation of active engagement of students with their peers in shaping the learning of all<br>• Opportunities to practice communicating, critiquing, skills, competencies and ways of thinking and doing in professional fields | Access to shared break out areas with multi-media to support authentic learning in mixed ability groups<br>• Flexible and moveable projector with several projection areas / several mini projectors.<br>• Technologies enable sharing between groups<br>• White boards and/or SmartWall paint walls and surfaces enable learning within groups, peer teaching and brainstorming<br>• Stage<br>• Small, portable three tiered platforms |
| Continuity and Development<br>• Continuous assessment of learning, utilising a pedagogy of assessment<br>Learning reflections and learning logs<br>• Developing a tolerance of ambiguity and opportunities for students to asks new questions<br>• Pedagogies that scaffold and facilitate the transfer and application of knowledge and skills<br>• Common understanding of the learning as preparation for life<br>• Opportunities to assess, reflect and build on prior knowledge-Reflect openness in relation to the de-construction of hierarchical structures | • Evidence of the community in the learning space<br>• 'The Wall of Fame'<br>• Dedicated evidence of learning wall for showcasing student work and progress<br>• 'Learning Log Wall'<br>• Aesthetically pleasing and links to the natural world<br>• Flexible, agile and responsive to the changing needs and desires of students |

| | |
|---|---|
| Wellbeing<br>• Contributes directly to their physical, mental, emotional and social wellbeing and resilience.<br>• Peer to peer learning<br>• Formative feedback<br>• A climate of interaction focused on collective wellbeing of all in the learning space | • Safe and comfortable<br>• A Quiet space with soft furnishings<br>• Bright and colourful<br>• Comfortable<br>• Sense of identity and belonging<br>• Silent headphone reflection zone<br>• Link to an outdoor learning space<br>• Individual break out pods<br>• Informal meeting area<br>• Student home base<br>• Could be set up for communal needs |
| Choice and Flexibility<br>• Range of subjects and interdisciplinary short courses designed by the facilitators to meet the needs of students in each school context<br>• Encourage the serendipitous collision of ideas | • Students can book access to teachers<br>• Learning spaces that encourage cross-disciplinary teams of teachers working with groups of students<br>• Students can choose their learning zones<br>• Studio zone-'Become a Pro'<br>Link to staff room<br>Adjustable, angled desk<br>Quick, clear transactions can be made from one zone to the others<br>Teacher can move around and interact with the learners |
| Inclusive Education<br>• Student's needs, backgrounds, perspectives and interests are reflected in the learning programme<br>• Address problems that are of meaningful importance to the world beyond the school<br>• Promote a social and supportive community | • Design reflects community diversity, respects and values different cultures |
| Learning to Learn<br>• Facilitates students as agents of their own learning<br>• Promotion of interdependence, independence, empowered independent learners and self-motivation<br>• Facilitate adventure, opportunities to reflect on their own learning, ambiguity, boundaries and limits | • Breakout spaces are provided to allow individual student work<br>• Spaces encourage and allow student voice to be heard, students to take responsibility for their own learning<br>• Zones for independent and reflective work |