

August 2013 newsletter for the Learning Spaces/Learning Styles network.

You have received this newsletter as you are either part of the Action Research Inquiry Project or have subscribed to the website or have expressed an interest ☺. Previous newsletters can be found on the website <http://www.learningspacesandlearningstyles.com/>

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- Welcome to all new subscribers to the website: <http://www.learningspacesandlearningstyles.com/>
- References I have found inspiring over the past months:

http://www.edutopia.org/blog/8-tips-redesign-your-classroom-david-bill?utm_source=facebook&utm_medium=post&utm_campaign=blog-remaketip-reclaimfurniture – a really valuable article about transforming a cramped learning space into a learning space that is more focussed on student learning. Three short videos and reference links to other valuable sites.

<http://learningspacetoolkit.org/> - suggestions for making your learning spaces technologically relevant.

http://archnet.org/gws/IJAR/11101/files_10721/7.2.21-e%20umran%20topcu-caumme-pp%20311-317.pdf – an academic article focussing on learning and environmental design. This article makes some really worthwhile points.

<http://www.iccte.org/Proceedings2013/Papers%202013/01-3-Zygouris.pdf> a look at 21st century learning and different methods of delivery. I was interested in this as I have just been a tutor for an online training program in education and also a participant in my first MOOC. “*Technology is creating new spaces that are disrupting how, where and when learning will take place. This disruption needs to become a reality in teacher preparation programs.*”

<http://www.news.com.au/lifestyle/parenting/how-will-schools-look-in-10-years-time/story-fngqim8m-1226570063587> - whilst some of the ideas seem really ‘out there’, what is possible for classrooms and learning to look like in 10 years?

- *Facebook*: learning spaces and learning styles
- *LinkedIn*: Group- Learning Spaces and 21st century learning styles
- *Palnet*: Webinars have been great, including Learning Spaces & Pedagogy, Chicken & Eggs: <http://www.palnet.edu.au/artefact/event/viewevent.php?id=46055>, chaired by Mark Sparvell.
- *Master in School Leadership Action Research Inquiry Project*:

Using the 4Ps- Purpose, Pedagogy, Personalised Learning and Protocols – when planning with flexible learning spaces.

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Abstract:

Many schools across Australia have been funded with new buildings constructed with learning spaces designed for 21st Century learning – modern, spacious, with breakout areas. This article follows the journey of two schools moving into new flexible learning spaces. The potential for this action research project was for school teams to explore ways for planning in teams to improve student engagement and connectedness by better understanding students’ learning styles and applying that knowledge to the use of flexible learning spaces. This article aims to make connections between learning spaces and learning styles to support teacher planning with a focus on the 4Ps: Purpose, Pedagogy, Personalised learning, and Protocols; within a 21st century learning and teaching context.

KEYWORDS: learning spaces, learning styles, 21st century learning, personalised learning, pedagogy, protocols.

Extract from the full article [which can be obtained from the author by request]. The methodology provides the context, whilst the results, discussion and conclusion are included to show how the inquiry progressed. The introduction, literature review and references complete the article, however are not included here. Please do not copy any parts of this inquiry without the author's permission.

METHODOLOGY:

A pragmatism paradigm was the approach for this action research project as mixed methods provided better opportunities for investigating the research question *How can teachers use flexible learning spaces [FLS] to cater for different learning styles?* The research question dictated the participants and the methods used, opening up the inquiry to many possibilities and giving a sequential direction to head towards (Maxcy, in Tashakkori and Teddlie, 2003).

Participants: Teachers [N=9], 5 x Grade 5 and Grade 6 classes [N=121], 1 x Grade 2 class [N=10] were identified by their Principals as candidates to participate in this research. These teachers and students moved from traditional classroom spaces at Hills School and Creek School, into new BER flexible learning spaces, and expressed a need for support with transition into the new spaces.

Data Generating Tools: Five methods for generating data were used – a departmental state wide student survey; an anonymous school based teacher and student survey; the Dunn and Dunn Learning Style Inventory [LSI]; student and teacher journals; observations from student and teacher meetings and networking. 5 teachers from Hills School and 4 teachers from Creek School were invited to take part in all data generating activities. 121 Gr. 5 and Gr. 6 students at Hills Schools were subjects of the DEECD survey and were invited to respond to the anonymous school based survey. 2 teachers from Hills School and 1 from Creek School volunteered their classes and invited students to complete the Learning Styles Inventory [LSI]. 10 students in Gr. 5 and Gr. 6 were selected by their teachers to fill out a journal reflecting on the evaluation of progress after 9 months of learning in the new flexible learning spaces..

Procedures: Surveys: The annual Student Attitudes to School Survey [SASS] (DEECD 2011) provided initial data for student perceptions regarding their wellbeing, teaching and learning and student relationships. The SASS is completed by Gr. 5 and Gr. 6 students and is anonymously collated by the DEECD against all schools. Results indicated to Hills school that something significant had changed over the past year. As teachers and the Gr. 6 cohort were basically the same, teachers perceived that the transition into the new building had created issues for students and teachers. To determine what the current situation was, how students and teachers were feeling, what information was needed and what direction participants were willing to take in the project, an anonymous survey was designed. Student surveys were also developed to make connections with learning spaces and learning styles and provide opportunity for student voice. The first part of both surveys asked participants to respond on a scale of 1-4. A further 10 questions on the teacher survey sought to understand the general nature of teaching in flexible learning spaces - What changes could be made to improve teaching in flexible learning spaces? How do different spaces help to meet the individual and social needs of students? Other questions related specifically to teachers in their own context: What help do you need to use flexible learning spaces to cater for different learning styles? How do you think the learning and teaching styles of other teachers in your team impacts on your teaching? What protocols do you think are needed for your team to use flexible learning spaces effectively? What is the most/least important way to use the learning spaces in the new building? The student questions invited them to have input into what changes/improvements could be made to use flexible learning spaces to cater for different learning styles.

Learning Style Inventory: After the results of the surveys were shared, teachers indicated a need to build knowledge about the learning styles of students who would be using the flexible learning spaces in order to enhance their planning. A search was made for a commercial learning styles inventory [LSI] that matched the literature and what the teachers wanted. The Dunn and Dunn (Dunn, Griggs, Olsen, Beasley, & Gorman, 1995) learning style inventory [LSI] was chosen. This methodology replicated Sagan's study (2010) which introduced the LSI to sixth graders, providing them with their own learning profile. For our project, using the LSI provided a starting point for personalised learning as it made the best connections between learning spaces and learning

styles in the context of the BER environment. It also provided an opportunity for student voice and the influence of student perception on engagement, something lacking in the literature. All 9 teachers, along with 52 Gr. 5 and Gr. 6 students and 10 Gr. 2 students, completed the LSI.

Journals: Teachers were invited to fill in journals, observing and reflecting on WHAT – what was happening as they were trialling and observing with their team and class; SO WHAT – what this meant for them, their team, their students, their thinking, their values, understandings and beliefs, and NOW WHAT – what this now means for future planning, action, professional learning. Selected students from Gr. 5 and Gr. 6 who had completed the LSI were invited to complete reflective journals based on a PMI – Plus, Minus and Interesting observations when using learning spaces and learning styles. These journals will be used for continued evaluation of what is working and what needs to be modified.

Networking and Observations: Collaborative networking was an important part of this project. Attending team meetings with Gr. 5 and Gr. 6 teachers at Hills School, meetings with the students for feedback and progress updates and reporting to leadership and staff were all part of the methodology. Meeting with the teachers at Creek School and visiting the classrooms on a regular basis was an important part of collaboration, along with regular emails, website postings and newsletters from the website mailing list. Richardson and Mancabelli (2011) talk about the power of online learning networks, especially when complementing face to face networks. The purpose built online network www.learningspacesandlearningstyles.com added to the wider scope of BER projects across Australia by supporting teacher interest, knowledge and understanding of the transition into new learning spaces. Many other teachers and school leaders who were simultaneously moving into their new buildings had the potential for valuable input into the project.

RESULTS:

Surveys: At Hills School, the annual Student Attitude to School Survey showed a significant drop in the data generated since the move into the new BER building. Prior to moving into the larger learning spaces, student wellbeing indicators were well in the third quartile compared with other Gr. 5 and Gr. 6 students in Victorian schools. Results dropped to the first quartile after the move. Within the category of *teaching and learning*, student learning and learning confidence scored in the fourth quartile and then dropped to the first quartile after the move. Student connectedness and student motivation moved from the third quartiles to the first quartile. The categories of *student relationships* and *connectedness to peers* shifted from the fourth quartile to the first quartile. These alarming decreases in student attitude since moving into the BER building needed addressing by all involved in the transition to new learning spaces at Hills School. The results of the school based survey, undertaken after analysis of the SASS, by the 10 teachers across both schools, indicated that they felt it really important to know the preferred learning style of their students, and acknowledged that they didn't plan as well as they would like. They also acknowledged that they were unsure of how they could use the learning spaces to cater for different learning styles. [See Table 1].

Table1: Responses to scaled questions in school based survey.

Teacher Answers	1. Not at all	2. Somewhat	3. Mostly	4. Very/Always	Rating Average
How excited are you about teaching in the flexible learning spaces in the New Building?	0.0%	0.0%	58.3%	41.7%	3.42
How well do you think the New Building spaces can help you teach using your students' preferred learning style?	0.0%	16.7%	66.7%	16.7%	3.00
How important is it that you know what your students' learning styles are?	0.0%	8.3%	50.0%	41.7%	3.33
How important is it that student learning styles are catered for when teaching new things?	0.0%	8.3%	50.0%	41.7%	3.33
How well do you understand the preferred learning styles of your students?	0.0%	83.3%	16.7%	0.0%	2.17
How often do you plan lessons for your students' preferred learning styles?	0.0%	72.7%	27.3%	0.0%	2.27

Student Answers	1. Not at all	2. Somewhat	3. Mostly	4. Very/Always	Rating Average
How excited are you about learning in the flexible learning spaces in the New Building?	2.1%	7.3%	33.3%	57.3%	3.49
How well do you think your teacher uses the different learning spaces in the New Building?	3.1%	16.7%	40.6%	39.6%	3.16
How well do you think the New Building spaces can help you learn using your preferred learning style?	3.2%	15.1%	36.6%	45.2%	3.21
How important is it that you know what your learning style is?	0.0%	13.4%	48.5%	38.1%	3.28
How important is it that your learning style is catered for when learning new things?	0.0%	7.2%	46.4%	46.4%	3.41
How well do you think your teacher understands your preferred learning style?	1.0%	28.9%	48.5%	21.6%	2.86
How well does your teacher plan lessons for your preferred learning style?	2.1%	29.2%	44.8%	24.0%	2.86

Responses to – *what help do you need to use flexible learning spaces to cater for different learning styles?* – resulted in four main issues: 1. Team planning: collaborative team work around planning for spaces. 2. Professional Development: developing common team vision of expectations and behaviours. 3. Technology and resources: setting up different areas for 21st century learning. 4. Understanding the learning and teaching styles of students and teachers. There were some gaps between teacher and student perception as to the effectiveness of the FLS. When the teachers shared the results of the survey, there was a common need to plan well, resource the area and set protocols. Teacher responses showed little variation between focus schools. Teacher 10 says “More furniture, ICT space. Focus on planning from everyone in the team, team understanding of behaviours and expectations. Resources such as a reading centre.”

Learning Styles Inventory: Classes undertaking the Dunn and Dunn LSI shared their results and applications with others in their team which resulted in planning with a greater purpose of catering for these needs. The results of the group profiles for the two Gr. 5 and Gr. 6 classes identified preferences in physiological [intake, time of day, mobility]; psychological [global, reflective or impulsive] perceptual [auditory, tactual, kinaesthetic, verbal, visual]; sociological [alone, pair, peers, authority, variety]; emotional [motivation, conformity, task persistence, structure]; environmental [sound, temperature, light, seating]. Differences in results have implications for planning with the two age cohorts. Full results are available from the researcher.

Preferred learning style element	Strong Preference	Preference	It Depends	Preference	Strong Preference
Sound	42%	4%	26%	4%	21%
	Quiet				Sound
Light	26%	2%	38%	4%	28%
	Dim				Bright
Temperature	50%	7%	19%	4%	19%
	Warm				Cool
Seating	14%	9%	19%	7%	50%
	Informal				Formal
Motivation	26%	9%	40%	14%	9%
	self-motivated				motivated by others
Conformity	16%	19%	33%	16%	14%
	less conforming				more conforming
task persistence	28%	9%	38%	9%	14%
	less persistent				more persistent
structure	14%	14%	50%	11%	9%
	less structure				more structure

alone/peer	14% alone	0%	16%	21%	47% peer
authority	19% less authority	4%	45%	9%	21% more authority
variety	28% less variety	16%	23%	11%	19% more variety
auditory	11% not by listening	2%	59%	11%	14% learns by listening
visual	9% not by seeing	7%	42%	14%	26% learns by seeing
kinesthetic	11% not by moving	14%	35%	9%	28% learns by moving
tactile	4% not by touching	7%	23%	21%	42% learns by touching
intake	28% doesn't need intake	7%	16%	4%	42% needs intake
morning/evening	9% morning	7%	35%	7%	40% prefers evening
late morning	19% not late morning	14%	40%	7%	19% prefers late morning
afternoon	9% doesn't prefer afternoon	4%	33%	16%	35% prefers afternoon
mobility	16% stationery	14%	19%	11%	38% movement
reflective/impulsive	28% reflective	16%	26%	11%	16% impulsive

Table 3. Student Learning Styles Summary - Group Profile of 10 Grade 2 students, showing only results with strongest variation from Gr. 5 and 6 student results.

Preferred learning style element	Strong Preference	Preference	It Depends	Preference	Strong Preference
Sound	20% Quiet	10%	10%	60%	0% Sound
task persistence	30% less persistent	30%	30%	10%	0% more persistent
Structure	10% less structure	0%	10%	40%	40% more structure
Authority	20% less authority	0%	0%	40%	40% more authority
Auditory	0% not by listening	10%	0%	20%	70% learns by listening
Visual	30% not by seeing	30%	10%	10%	20% learns by seeing
Kinaesthetic	0% not by moving	10%	0%	0%	90% learns by moving
Intake	0% doesn't need intake	0%	20%	40%	40% needs intake
Late morning	0% not late morning	10%	30%	40%	20% late morning

Journals: The journals showed interesting perceptions from students' and teachers' when using flexible learning spaces. Both acknowledged the value of having specific pedagogical purposes for using the flexible learning spaces – see Table 4. Teacher 9: “The students’ engagement in reading has increased substantially with the addition of the reading corner and the reading lounge. While the reading corner and lounge may no longer been seen as ‘new’ the excitement and engagement has not wavered.” Students felt that, initially, there was too much distracting behaviour in the open spaces, whilst teachers were reporting that students were trusted to be working independently. Student 6 – “At first hardly anyone worked well but as we get used to the learning space we are working better. I see people talking more than working. The teachers seem to be embracing [sic] the FLS and want to use it as much as possible.” Student 7: “Interesting thing is the amount of people that are silly when the teacher isn’t looking.” Teacher 3: “Students responded really positively and communicated ideas well. There was more cooperation and less time wasting and distraction.” Teacher 4: “Students move quickly to

a space to work as they value the opportunity to be trusted to be doing the right thing as the teacher roams and works with groups.”

After presenting the data from the school based survey, attending team meetings, gathering the data from the LSI, working with the students and reflecting on the journals, the importance of the 4Ps became more relevant to the planning process– Purpose, Pedagogy, Personalised learning, Protocols.

DISCUSSION:

This is not the first time that governments have invested time or money into reforming learning environments (Armenta and Keefe, 2005). They say that professional learning for teachers moving into these new buildings is needed to sustain and maximise the use of the BER learning spaces to prevent past histories of reverting back to more traditional pedagogy and classroom design. So far, research shows that professional learning provided for schools, and national and international literature has focussed predominantly on the design and furnishing of the new spaces. There is less research available on what to do once teachers have relocated (Blackmore, Bateman, Loughlin and O’Mara, 2011; Fisher, 2007). Professional learning has mostly taken place with informal and formal networking: the online www.learningspacesandlearningstyles.com website; chatting with students and teachers; attending classes; team meetings; and classroom walkthroughs led to powerful insights, challenging beliefs, questioning, sharing observations, exchanging stories and evaluating progress. However, the results have shown that whilst professional learning is a strong desire from participants, evaluating the data indicates that establishing protocols is a priority of need to prevent teachers retreating back into traditional classroom spaces.

After undertaking the literature review and proceeding through the project, there was a concern that the use of the term learning styles may not reflect 21st Century learning principles. Should it be replaced with learning modalities, learning characteristics, learning diversities? After whole school discussions, staff meetings and curriculum days at Hills School, knowledge gained from the LSI was reframed to expand to the understandings of learning styles for 21st century learning i.e. social interactions, pacing of lessons, role of multimedia. Like Sagan’s (2010) research project, students at both schools showed learning preferences that were connected to the building design. Sagan’s findings advocated that students should be taught about their learning style so they can take some responsibility for accommodating it in their classroom. This was also reflected by Hills School. Student 5 says “I think teachers try to allocate work to your needs. I think it is good for the future. Students are responding well to the space and their styles.” The LSI results were seen as an important driver for promoting purpose and personalised learning by the teacher teams when planning the use of the larger flexible learning spaces.

At both schools the 4Ps began to be used to set up FLS to cater for the needs of their student cohorts. Naming specific areas, transferring the success of reading lounges to other curriculum areas highlighted the value of using the journals. See Table 4.

Table 4. Summaries from journals when planning with 4Ps. Full reports available by contacting the researcher.

	What: What are you doing? What is happening? What are you noticing, feeling?	So What: Why do you think things are happening this way? Why are teachers/students responding in this manner?	Now What: Where to now? What do you need to continue the successes? What have you reflected on for future actions?
Maths in FLS	<ul style="list-style-type: none"> • Explicit instruction in classroom, moving into groups, some choosing the Gallery area. • Groups with common schedule and expectations of Gallery use. • Time management, on task behaviours are usually observed. • Space for hands on maths 	<ul style="list-style-type: none"> • Greater engagement from students and teachers • Common tasks and purpose equals on task behaviour. • Some tasks can be completed that may not be possible in traditional classrooms. • Protocols have been made clear 	<ul style="list-style-type: none"> • Research and plan in teams. • Make a specific Maths area • Have clocks to improve time management of students and teachers. • Continue to plan for weekly maths groups at the same time across the classes. • ICT supporting maths groups
Writing in FLS:	<ul style="list-style-type: none"> • Some on task, others being distracted. A lot of student movement whilst writing, editing, sharing. Frequent noise. • Different writing purposes • Opportunity for partner work and sharing. 	<ul style="list-style-type: none"> • Protocols, such as timetabling and space use hasn’t been discussed fully at team level. • Challenge moving from traditional spaces to FLS. • Different student needs not being recognised. 	<ul style="list-style-type: none"> • More collaboration on the expectations, schedules and goals for this. • Define writing sessions at team level – writing that occurs in inquiry is different from silent choice writing • Plan for collaborative, peer,

			independent and silent writing spaces.
General Usage:	<ul style="list-style-type: none"> • Implementing reading lounges, Playstation area, table tennis table and having a classroom set up with TV on the IWB are engaging students. • Opportunity for special occasions such as Author Week, Golden Time. • FLS has turned from a hub of investigation, teamwork and collaborative learning to a gallery dedicated to developing an awareness of global issues. 	<ul style="list-style-type: none"> • Incorporating learning spaces that allow for movement has had a positive impact. • Older students modelling positive behaviours with junior classes. • Students develop relationships with other staff members. 	<ul style="list-style-type: none"> • Cater for students who like to move when learning and be clear about expectations • Sort out which areas are 'noisy' spaces. • Continue implementin spaces for students to use in these times (art and craft, audio lounge etc.) • Instil responsibility and work on protocols • Specific areas for specific purposes • Further use of ICT • Formalise 4Ps in planning documents.

The 4Ps were strongly identified from the literature and from the results of the surveys and the journals. These need to be embedded in planning to ensure that teacher teams are using FLS to cater for the different learning styles within a 21st century learning context.

Purpose: A main purpose for creating socially oriented learning spaces at Hills School was to provide environments that allowed for peer collaboration and student centred teaching and learning. Oblinger (2005), Chatti, Jarke and Specht (2010), and Roskos and Neuman (2011) identified social and active learning as major purposes for using learning spaces. Designing flexible learning spaces for group work led to more active and sustained engagement of students [Blackmore et al, 2011]. When planning learning spaces at both schools, matching findings from the student and teacher LSIs helped drive purpose. "Student centred approaches to learning require a physical space that adapts to learner demands" (Neill & Etheridge, 2008 p.53). Reflections from Hills School journals showed that purpose took on additional meaning when catering for different learning styles in flexible learning spaces. Creek School findings were different as the younger cohort had different needs perceived from teacher observations and LSI results – See Table 3. Both schools are now focusing on the purpose for 21st century learning spaces to support, motivate and enrich flexible, collaborative and active learning and teaching.

Pedagogy: "Pedagogical innovation demands a space that enables exploration by both teacher and student. To be effective, this space should allow for multiple modes of instruction and learning" (Neill & Etheridge, 2008 p. 48). The BER learning spaces at Hills School, in particular, are being set up to allow for inquiry, collaboration, explicit instruction, group work, teacher clinic groups, individual work, reflection, rich assessment, social interactions, problem-solving, ICT, and experiential learning opportunities. At Creek School, FLS planning is based on a core curriculum pedagogy and is still more teacher directed which seems to correlate to the age of the students and their need for structure and authority – see Table 3. Wilks (2010) refers to a time element with the new BER spaces - teachers needing time to practise using new pedagogies in differing configurations of flexible learning spaces. This was more evident with Creek School as they felt more comfortable planning with FLS as time went on. The BER learning spaces are providing opportunities to embrace new pedagogies and strive for a better understanding and implementation of 21st century learning and teaching within the constraints of time as teachers learn alongside students.

Personalised Learning: "Personalisation is about developing good personal relationships with students; about social inclusion by recognising student diversity [gender, race, class, religion, ability] and addressing individual learning needs and preferences." (Blackmore et al, 2011, p.23) At Hills school, the team is using instructional spaces to cater for each student and these are designed to respond to the learning style of each student. Both schools are continuing to monitor student perception of the learning spaces and when planning, mindful of their students' individual and group learning profiles. Personalised learning in flexible learning spaces has, so far, provided a more inclusive learning environment when catering for individual learning needs and has assisted planning for different learning styles.

Protocols: Research on learning spaces refers to the need for protocols to be established for learning spaces to be sustainable (Oblinger, 2005; Roskos & Neuman, 2011; Dockrell, Greenland & Shield, 2010). Roskos and Neuman (2011) state that learning spaces need protocols where student social skills are taught,

including problem solving, meaningful interactions, negotiation, and responsible use of ICT. Teachers from both schools are still struggling to develop, with students, appropriate protocols for using flexible learning spaces. Younger students seem to need a lot longer to establish protocols before being able to independently use FLS. Developing protocols is enhancing team teaching situations and is helping to set up mutually respectful, ethical working and learning relationships for and between staff and students using flexible learning spaces. Establishing protocols that meet the different purposes and pedagogies of using FLS is important. If we don't get this right, there is a real risk of retreating to traditional spaces and teaching. FLS won't be sustainable unless we get the protocols right.

Another important factor that Hills School considered when making connections between learning spaces and learning styles was student voice. Whilst there is mention in the literature of the importance for students to have input into the design phase, the research is sparse on the benefits of student input into the next three phases of the BER framework. Students must have a say in the transition/implementation and consolidation phases and need to have a voice when planning for purpose, pedagogy, personalised learning and setting protocols of their learning spaces. If students perceive that teachers care about the way they learn and their learning styles then students may have a more positive attitude and greater engagement because their learning needs are being openly catered for. Student 5 says "I think teachers try to allocate work to your needs. I think it is good for the future. Students are responding well to the space and their styles."

Cautions for further research would be [i]whether accommodating learning spaces and learning styles is more effective for certain cohorts, such as underachieving students, older students, younger students [ii]to be aware of the danger of labelling and stereotyping students and [iii] to take into account other factors of quality teaching, such as including feedback, when designing instruction.

When evaluating progress so far, Hills School has included flexible learning spaces as a student wellbeing goal in their Strategic Plan for the next five years. The goal states: To develop a whole school approach to optimising the use of learning spaces for providing a stimulating and engaging learning environment.

CONCLUSION:

"I think the purpose is ultimately to engage students into open-ended teaching and learning experiences. We have also in recent years started to forget about learning styles. These spaces are perfect to make connections regarding how kids learn best." (Nora, web entry, August 15, 2011).

Learning environments are dynamic and will evolve over time. In 21st Century schooling, our learning environments need to match 21st Century teaching and learning. 21st Century pedagogy is about moving from the teacher owning spaces and controlling student learning outcomes to creating FLS and working with teams to cater for the needs of students and providing environments for maximum learning engagement. It would seem timely to align FLS with learning styles, embedded in traits of the Net Gen. Teachers of both schools are identifying that if they understand their students' learning styles [including the learning needs of the 21st century learner] then student engagement will increase because teachers would be planning in teams to more effectively use FLS. Just as the literature posed the question of what comes first – design or pedagogy – so does the action research project continue to ponder what comes first – learning spaces or learning styles [personalised learning]? Will teachers take their students' learning profiles to their FLS planning or will they use FLS to cater for personalised learning [learning styles]? And will the order of implementation matter?

This project made links between learning spaces and learning styles and concludes that whilst the literature on learning spaces has focussed more on design and furniture and less on educators and students, using the 4Ps for team planning in the transition-implementation phase of the new learning spaces can be a motivator for working collaboratively to cater for the needs of students in a 21st century learning and teaching environment.

Your feedback is most welcome and always appreciated.

<http://www.learningspacesandlearningstyles.com/>

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