



KIDSMART SNAPSHOTS

LOXTON PRESCHOOL

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Integrating technology as a tool for developing an inclusive curriculum





LOXTON PRESCHOOL IS LOCATED IN A SMALL COUNTRY TOWN RENOWNED FOR ITS FARMING AND FRUIT GROWING IN THE RIVERLAND AREA OF LOXTON, 250 KMS NORTH EAST OF ADELAIDE. THE COMMUNITY IS DIVERSE WITH CHILDREN FROM ABORIGINAL, GREEK, AFRICAN, THAI, ITALIAN AND GERMAN BACKGROUNDS; ALL WITH VARIED SOCIO-ECONOMIC AND SOCIAL BACKGROUNDS. THE DOWNTURN IN THE WINE AND CITRUS INDUSTRIES, AS WELL AS THE DROUGHT, HAVE CAUSED MANY FAMILIES TO EXPERIENCE SEVERE FINANCIAL HARDSHIPS. THE EFFECTS OF UNEMPLOYMENT IN THE COMMUNITY HAVE HAD VARIOUS IMPACTS ON THE EQUIPMENT, SERVICES AND THE OPPORTUNITIES PARENTS CAN PROVIDE FOR THEIR CHILDREN.

> Investigation

In 2006, the year Loxton Preschool participated in the IBM KidSmart program, we also had a significantly large number of students with developmental special needs. We developed an inclusive curriculum to cater for our students including speech and language groups under the guidance of the DECS speech pathologist; a coordination and motor planning intervention group; and extra support for literacy and numeracy development for the indigenous students. Due to many of our students having to travel long distances to the preschool and other social interactions, they are considered disadvantaged, as they can not readily access equipment and have limited social contact with other children.

As part of the IBM KidSmart program we needed to identify an area of interest and develop an understanding of how technology could improve learning in that context. The options were plentiful, but we chose to focus the report on one child in particular, who was experiencing severe learning difficulties, and explore the possibilities of computer integration as a tool for improving numeracy and literacy outcomes for that child.

> Observations

Troy is a four year old male child who lives on a farm 25kms from the preschool. He lives with his parents and 3 other siblings. He has a speech and language delay and receives support from a speech pathologist.

At the start of the year we collected baseline data on Troy's level of prior learning. A brief summary was as follows:

Numeracy understanding – Troy could not rote count or demonstrate any understanding of 1:1 correspondence, positional language, patterning, number recognition or shapes, and could only identify two colours.

Literacy communication and language – Troy could recognise his name but had no knowledge of individual letters; could only respond to level 1 questioning and solve simple problems. His speech was mostly incomprehensible, making communication extremely frustrating for him. His attention span was short, and he required many cues to keep his attention.

As Troy is very much a visual learner, we decided to supplement his preschool program with 1:1 sessions using the IBM KidSmart computer. We looked at the learning outcomes we wanted to achieve and decided to focus on developing



numeracy concepts. We wanted Troy to develop trust and confidence, a positive sense of self-worth and a range of thinking skills. We made a list of specific skills and concepts we wanted him to learn, which included:

- Increase attention span and desire to learn
- Recognise and use numbers 1-5, demonstrating understanding of 1:1 correspondence, quantity and value
- Improve communication skills
- Develop knowledge of positional attributes

Once we had identified learning goals we investigated the Riverdeep software packages to find programs that would reinforce Troy's learning. In the **Millie's Maths House** suite of programs, we found a number of activities that provided learning opportunities to reinforce mathematical concepts, such as What's My Number? Number Machine, Build a Bug and Cookie Factory.

We developed a rotational program utilising support worker, teacher and parent time, where Troy worked one to one on the computer for 15 minute sessions. His interest level and keenness to participate was high. We started to notice results very quickly. His mouse skills developed from non-existent to full mastery and, because of the 1 to 1 ratio, he was exposed to intense communication and interaction opportunities, for example, Troy would continually be asked to explain things including procedures, directions for playing games, as well as questions such as, "What will happen next?" We followed up the 2D activities on the computer by setting up relevant 3D activities in our day to day program to reinforce concepts, e.g. we set up play doh cookies where he could count out decorations similar to the Cookie Factory, and a collage activity where Troy had to construct a bug that had certain characteristics e.g. 3 eyes and 8 legs, similar to the Make a Bug program. The concrete objects provided a multimodal opportunity to revisit concepts in various learning contexts, which further developed his skills and knowledge.

Numeracy understanding – Troy could now rote count to 11; demonstrate 1:1 correspondence for up to 7 objects; demonstrate understanding of positional language – under, on, behind, middle and next to; copy 3 element patterns; recognize the numbers 1-8; name triangles, circles and squares; and identify all the primary colours.

Troy's speech and language development has improved dramatically, enabling him to communicate with peers and staff more effectively. His attention span has lengthened and his ability to follow instructions has improved. He is more engaged and interested in learning.

The results are very pleasing, considering the time frame and Troy's learning difficulties. We are quite sure that Troy's progress would not have been as significant without the use of technology.



> Future Direction

From the results of our research on Troy and the other children, who were not documented, we saw many opportunities to engage learners of all abilities. We no longer see computers as merely an extra activity for children to access, but as an integral part of our learning program. We will continue to develop resources and links that support the concept of 2D and 3D computer integration within our curriculum.

One year on from the IBM KidSmart program, we have installed an internet connection so that we will be able to access additional resources and knowledge with the children to further aid their learning. We would like to install a similar computer in our Speech and Language room to supplement our early intervention programs. All children now have access to the computers as tools to enrich their learning. This is just the start for us, as we explore how we can further enhance the learning of all our students by accessing new initiatives and innovative opportunities through technology.

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