

The University of Sydney
Faculty of Health Sciences



Speech Pathology

Linking Language to Learning in Secondary School Classrooms: A collaborative service delivery.

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Outline of Presentation

1. Adolescents with language impairment in mainstream secondary schools: What do we know, where are we and where do we want to go?

- Prevalence and caseload statistics
- Evidence-base for support and interventions
- A population at risk.

2. The LINCS Program study

- Outline of program
- Initial findings



What is a language impairment?



An impairment in the ability to understand and/or use one's primary language

Some characteristics of language impairment include:

- Difficulty with understanding oral, written and non-verbal language
- Difficulty expressing ideas through oral and written language
- Poorly developed grammar
- Reduced vocabulary
- Difficulty following instructions.

Adolescents with language impairment: What do we know?

1. What is the **prevalence** of language impairment in the adolescent population?
2. What are the main **interventions** used by SLP's providing a service to adolescents with language impairment?
3. What are the **models of service delivery** used to support this population?

1. What do we know about the prevalence?

- 12-18 year olds attending mainstream school.
- Met standard diagnostic criteria for language impairment.
- Lack of population-based studies targeting this age group, however many **longitudinal follow-up studies** of clinical populations providing persistence data.

Population-Based Studies

McLeod & McKinnon (2007)

Population based study of the learning needs of 5-18 year olds in an Australian school district.

Total sample size from 2 waves of study: 29,047.

20,370 / Primary

8,677 / Secondary

Communication Disorder (CD)
mainly LI at this stage

Specific Learning Difficulty (SLD)
incl. difficulties in developmental
and/or academic skills.

Year	CD		SLD	
	Wave 1	Wave 2	Wave 1	Wave 2
7	11.05	15.29	19.14	19.92
8	10.84	16.16	17.55	20.26
9	11.72	13.48	16.38	19.65
10	8.88	16.21	15.80	16.60
11	3.29	4.63	10.66	14.50
12	2.36	5.05	6.45	12.29

Longitudinal Studies - Clinical populations and persistence of language impairment

- Search identified 12 longitudinal studies of populations previously identified with language impairment.
- Consistently high degree of persistence of language impairment into adolescence and beyond

Key studies

Johnson et al. (1999)	114 of original 142 with “speech/language disorders” tested at Time 3, 18-20 yr olds. 73% persistent LI. (Canadian longitudinal study)
Smart et al. (2001)	126 of original 195 with “Persistent Learning Difficulties”. Overall rate of 24% 13-14 yr. olds with persistent literacy-based learning problems. (Australian Temperament Study)
Clegg et al. (2005)	17 of original 23 with “Severe Receptive Developmental Language Disorder” at Time 4, mid 30’s. 100% persistent SRDLD. (UK longitudinal study)
Conti-Ramsden et al. (2006)	93 of original 242 with SLI/N-SSLI. At mean age 13.11 yrs.: 51.7% persistent SLI, 91% persistent N-S SLI. (UK longitudinal study)

Persistence data issues

- Rates range from 9% to 100%. Variables include:
 - Cohort size, 17-300
 - Nature of the original diagnosis e.g. persistence rates between 90-100% based on persistently “severe” population. Other studies: no severity information.
- **Consistent finding that early diagnosis of language impairment persisting beyond age 5, at high risk of life-time persistence.**
- Consistency in verbal scores vs. inconsistency in non-verbal scores over time.

What do we know about their representation on our caseloads?

Australia	12-18 year olds w/Oral Language Difficulties (Hollands et al. 2005)	30% had no 12-18 year olds on caseload, 60% had between 1-20, 6% had between 21-99
USA	School age/school-based (ASHA 2006)	SLI: 61% Pragmatics: 77% Learning Disabilities: 73%
UK: 1	11-16 year olds (Broomfield & Dodd 2004).	Receptive Language Disorder: 2.2% (7-11 yr. olds 4.5%) Expressive Language Disorder: 2.1% (7-11 yr. olds 12.9%)

Caseloads contd.

UK: 2	12-16 year olds SLP services (Dockrell et al. 2006).	SLI: 60% at age 12, dropping to 9% by age 16. (Population included LI due to known aetiology e.g. intellectual disability and other developmental disorders e.g. ASD).
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2. What do we know about effective interventions?

- Targeted studies involving mainstream secondary school students with oral and written language disability.
- Cirrin & Gillam (2008): A systematic review of the literature on school-age children (K-12) with spoken language disorders. 2/21 age-relevant studies.
- **“Best-practice” interventions?**
 - Effectiveness of **strategy-based interventions**
 - Essential to **support written language** at this stage
 - Importance of targeting **vocabulary enrichment**
 - Use of **visual aids** e.g. graphic organisers to support all areas of language-based learning

3. Service delivery models

- **Community-based SLP services** for adolescents with LI.
Restricted by cost, service prioritization favouring early intervention, and “distance from services” barriers.
- **In-school class withdrawal** for individual or group therapy sessions. However,
 - Complex timetables, few opportunities for generalisation and carry-over, miss class time and need to make up work
 - Adolescents are often “reluctant participants” in the therapy partnership. Making attendance for “remedial help” obvious may lead to stigmatisation, teasing and bullying.
- **In-class collaborative support.** Only possible when SLP employed on a regular/consistent basis, and/or where special units exist.

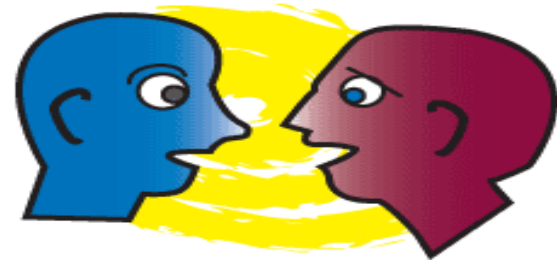
Collaborative model of service delivery

- Growing evidence for the effectiveness of professionally collaborative, school-based services (e.g. ASHA, 1991; Ehren, 2002; Elksnin, 1997; Larson & McKinley, 2003; Law et al. 2002; Martin, 2008).
- Focus on functionality and universality in intervention approaches (WHO,2001)

Advantages of professional collaborations in the school context

- ✓ Collaboration with many teachers across a range of subjects makes **good use of time and resources**
- ✓ Collaboration provides an effective way to **respond to the students' changing needs** across subjects and grades.
- ✓ Collaborative intervention programs lead to an **exchange of ideas and expertise** between the two professions.

Sharing expertise



Teachers are the experts in acquiring and disseminating curricular information: they can

- ✓ provide topical information regarding curricular goals and content,
- ✓ ensure any intervention has immediate academic relevance and impact, and
- ✓ provide opportunities for practice and generalisation.

SLP's have expertise in oral and written language: they can

- ✓ provide specific information regarding individual students' communication and learning support needs
- ✓ provide training in strategies and accommodations applicable to different teachers' grade and subject needs.

Training of Secondary Teachers

****Professional guidelines consistently recommend that mainstream teachers receive training in the nature of LI, as well as in the support and management of school students presenting with LI (e.g. Bercow, 2008; Gascoigne, 2008; Shaddock, 2007)****

Standard model: “one-off” inservices/workshops/case conferences.

- **Pros:** Raises awareness of LI, disseminates some general classroom management ideas, may involve many teachers.
- **Cons:** Scratches the surface only, especially if not supported by follow-up contact by SLP.

Additionally.....

.....what is effective in primary school doesn't necessarily translate to the secondary school environment.

- Secondary students with LI have contact with many teachers, take many subjects, have different issues at different academic levels
- Often only a small number of teachers involved in individual case conferences
- Teachers report feeling bombarded with “new ideas” at one-off presentations, tend to resort to familiar ways of teaching due to time and curriculum pressures.

Further research needed.....

Development of services through experimental treatment studies:

- Closing the gap for a significantly under-recognised and under-serviced population.
- Evidence-base practice for effective models of service delivery and for specific interventions for the support of secondary school students with language impairment.

The LINC'S Program

Language In Classrooms

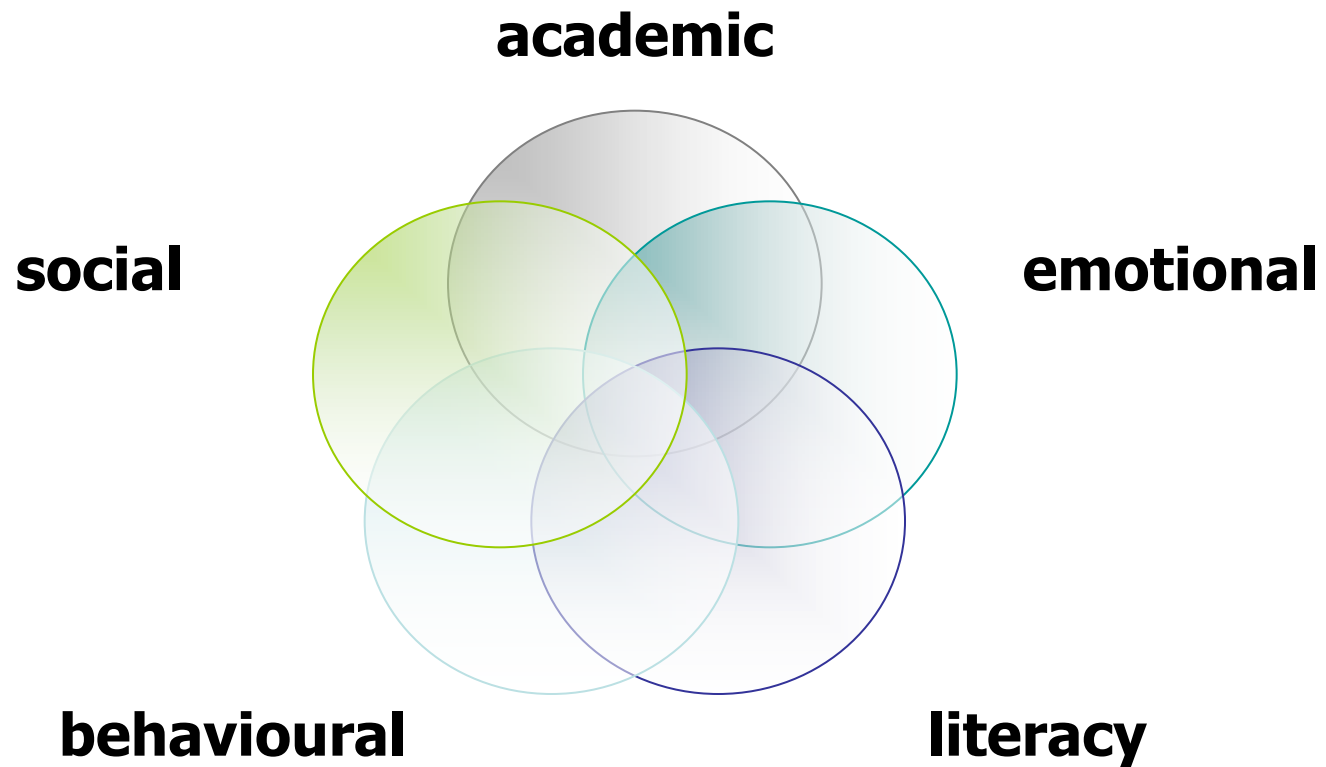


- ❖ A collaboration between speech-language pathologists and secondary school teachers.
- ❖ Overall goal: to support the students in their classes who have language-based learning difficulty.
(Language Impairment).
- ❖ SLP trains teachers in the development and application of oral and written language modification techniques
- ❖ Training involves regular consultations between the SLP and teachers over the course of a school term.

Why do we need to support these young people?

- **Academic failure** (Conti-Ramsden, Durkin et al. 2009; Durkin et al., 2009; Snowling et al. 2001).
- **Overlap language and literacy difficulties** (Smart, Prior et al., 2001; Stothard, Snowling et al., 1998)
- **Psycho-social and behavioural problems** (Brownlie et al. 2004;Clegg et al., 2005)
- **Juvenile offender populations** (Bryan, 2007; Snow & Powell 2004).

Risk Factors





www.stjohnspk-h.schools.nsw.edu.au

The mainstream secondary school: Why is it such a challenging environment for the adolescent with a language impairment?

Challenges in the school environment

- +/- **80 % auditory-verbal learning**
- Major role of language in ALL learning
- New and complex vocabulary
- Teachers are focused on delivering curriculum content under time pressures
- Literacy competency needed for effective learning
- Complex timetables, range of subjects and teachers, teaching styles
- Incompatible learning/teaching styles?
- Written assignments, tests, exams
- Different teachers/different rules
- Inconsistent homework



Vocabulary, vocabulary, vocabulary....

- Each new curricular topic for all subject areas involves the introduction of a set of vocabulary items and terminologies, which **must be processed and retained** in order to develop even the most rudimentary knowledge and application of that topic (Beck, 2002).
- Meaning may be stated once, and supplied on a glossary sheet that is difficult to interpret.
- Meanings often copied out verbatim from dictionaries, with no “real” understanding extracted.

Glossary check.....

- **Fenchial: A Fenchial person is a person of Fenchial descent who identifies as a Fenchial person and is accepted as such by the community in which he or she lives.**

Glossary: History Years 7-10 Syllabus, NSW Board of Studies

- **Aboriginal:** An Aboriginal person is a person of Aboriginal descent who identifies as an Aboriginal person and is accepted as such by the community in which he or she lives.

....and there's more. Higher-order language difficulty



Higher-order language forms.....

Sarcasm and innuendo

Analysing and
synthesising

Interpretation

Ambiguity

Abstract thinking
and reasoning

Inference and implication

Classroom and Hidden Curricula

(Nelson 1989)

Behavioural and academic conformities implicitly required of the students by different teachers, for example:

- Adherence to **sets of class rules and expectations** that are specific to each teacher
- Expectations to **work diligently and independently**
- To **attend consistently** to orally and visually presented information,
- To **copy efficiently** from the board and write notes
- To **use working memory skills** to retain and re-organise information.



The psycho-social environment

- **Importance of peer groups, and “fitting in”**
- Self-esteem and self-concept issues
- Related behavioural issues: general tendencies e.g. “acting out” vs. withdrawal
- ESL/cultural diversity issues
- Denial, avoidance and learned helplessness
- Huge variance in attitude and coping strategies.

Academic

- Behind in prior knowledge
- Literacy difficulties
- Restricted learning and generalising strategies

Vocabulary

- Restricted knowledge/use
- Curriculum content: ++ new vocabulary



Processing

- Decontextualised information
- Attention and retention diff's
- Misinterpretation

Written language

- Assessed through writing
- Word, sentence to essay level
- Notes, copying from board



Additional guidelines?

- ✓ Students with LI are often **disempowered, disengaged and disadvantaged** .
- ✓ Quality Teaching: The concept of **universal curriculum accessibility** (NSW DET, 2003).
- ✓ The ‘**Systems Model**’: changing the interactions between the environment and the individual. (Paul, 2007, p.12)

One solution?

Sustainability issues could be addressed by embedding key ideas and strategies in a school-based training that is implemented **over time**, one that:

- ✓ empowers teachers to make conceptual changes to their, and other teachers', teaching techniques,
- ✓ optimises the possibilities and opportunities for the generalisation of skills and knowledge over time, and across subjects and grades.



The LINCS Program Language In Classrooms

- Program piloted in 2006 at a Sydney high school
- Now a randomised control trial of the program
- Study first of its kind in Australia and internationally
- 2 high schools involved in the study
- Study participants:
 - 13 Year 8 teachers across disciplines: English, Maths, Science, PDHPE, History, Visual Arts and Agriculture
 - 44 Year 8 students with identified language-based learning difficulties (specific/non-specific LI)
 - Primary and secondary quantitative and qualitative outcome measures at 4 pre/post stages

Time-Line of Study

	Testing Time 1	One school term	Testing Time 2	One school term	Testing Time 3	One school term	Testing Time 4
Training Group	Immediate pre	Training	Immediate post	No training	Follow-up post		
Control Group	Delayed pre	No training	Immediate pre	Training	Immediate post	No training	Follow-up post

Study goals

To evaluate:

- **The efficacy** of SLPs' training of secondary school teachers in the use of sustainable language modification techniques.
- **The effects** that sustained and interactive training by SLPs has on secondary teachers' development and application of spoken and written language modification techniques, and
- **The impact** these changes in teaching approaches have on aspects of the academic progress of secondary students with language disability.

Outline of LINCS Program

- Teacher training program, over a school term
- Training in development and application of oral and written language accommodations and modifications
- Used in whole classes, targeting students with LI inclusively, across subjects and grades.
- Overarching goals:
 - **To create a language-friendly environment** in mainstream secondary classrooms
 - **To address the need to maximize the impact of an intervention in the long term**, and across a whole-of-school community.

So that.....



Their students with LI will be better able to:

- **Access the curriculum** i.e. attend to, process, retain and use presented information
- Be **more engaged** in learning by increasing their direct participation in class activities
- Demonstrate a **better understanding** of curriculum content on assignments, projects and tests
- Develop and use a broader and **more “robust” vocabulary**
- Feel **better and more confident** about themselves as able learners.

Language modification strategies: some examples

<p>Direct vocabulary instruction</p> <ul style="list-style-type: none">• Identification of key vocabulary for new topics• Interactive creation of relevant descriptors	<p>Processing information</p> <ul style="list-style-type: none">• Breaking down texts: Central idea and associated facts/details• Supplementing verbal/print information with visuals
<p>Teachers' written language</p> <ul style="list-style-type: none">• Simplifying language on worksheets, assignment sheets• Changing the sequence of presented information e.g. text and questions layout	<p>Teachers' oral language</p> <ul style="list-style-type: none">• Slower speech rate, or better voice projection• Repetition of key facts

Teacher outcome data

Concerns-Based Adoption Model (CBAM) (Hall & Hord, 2006): Measurement of 2 diagnostic aspects of the adoption of a new program

- **Stages of Concern:** Different reactions, feelings and attitudes that individuals experience when they are implementing a new program.
- **Levels of Use:** Behaviours individuals develop as they become more familiar with, and more skilled in using, a new program.

Level of Use (LoU)

- **Involves a face-to-face structured interview and rating 7 categories across 8 levels of non-use/use.**
- **Administered and rated by blinded and independent RA's.**

Level	Description
0	Non-Users, with degrees of preparation
1	
2	
3	Users, mainly self and classroom focused
4	
5	
6	Users, adopting a more collaborative approach
7	

LoU:7 categories of behaviour

- **Knowledge, Acquiring Information, Sharing, Assessing, Planning, Status Reporting and Performing.**
- **3 categories reported:**
 - **Sharing:** Discusses the innovation with others. Shares ideas, plans, resources, outcomes and problems related to the use of the program
 - **Planning:** Designs and outlines short and/or long-range steps to be taken during process of program adoption
 - **Status Reporting:** Describes personal stand at the present time in relation to use of the program.

Trained teachers at pre/post/follow-up times:

Sharing: Discusses the innovation with others. Shares ideas, plans, resources, outcomes and problems.

-Pre-post condition : Asymptomatic (two tailed) = .017 (significant)

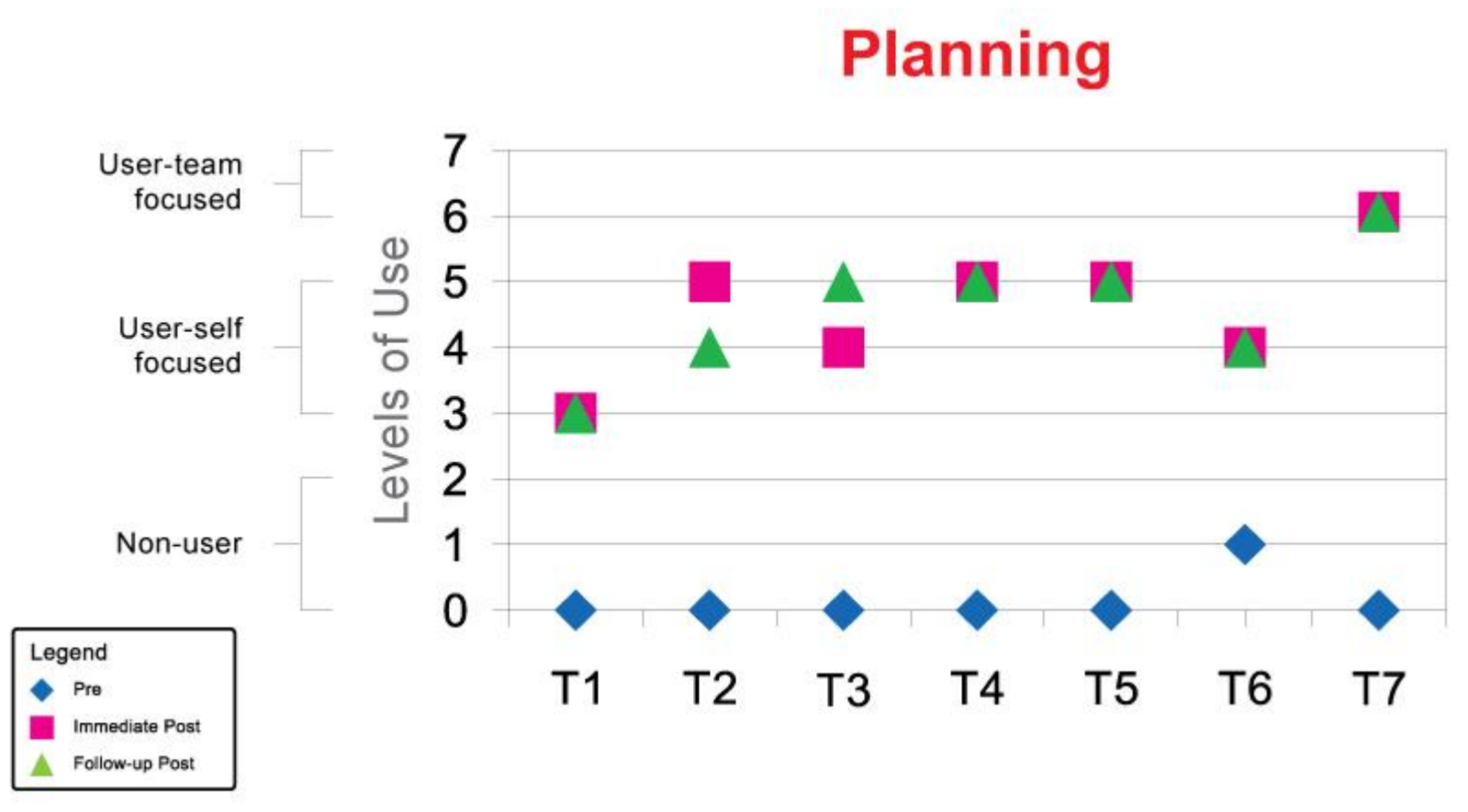
-Post-follow-up condition: Asymptomatic (two tailed) = .202 (non-significant)



Planning: Designs and outlines short and/or long-range steps to be taken during process of innovation adoption

-Pre-post condition : Asymptomatic (two tailed) = .017 (significant)

-Post-follow-up condition: Asymptomatic (two tailed) = .297 (non-significant)

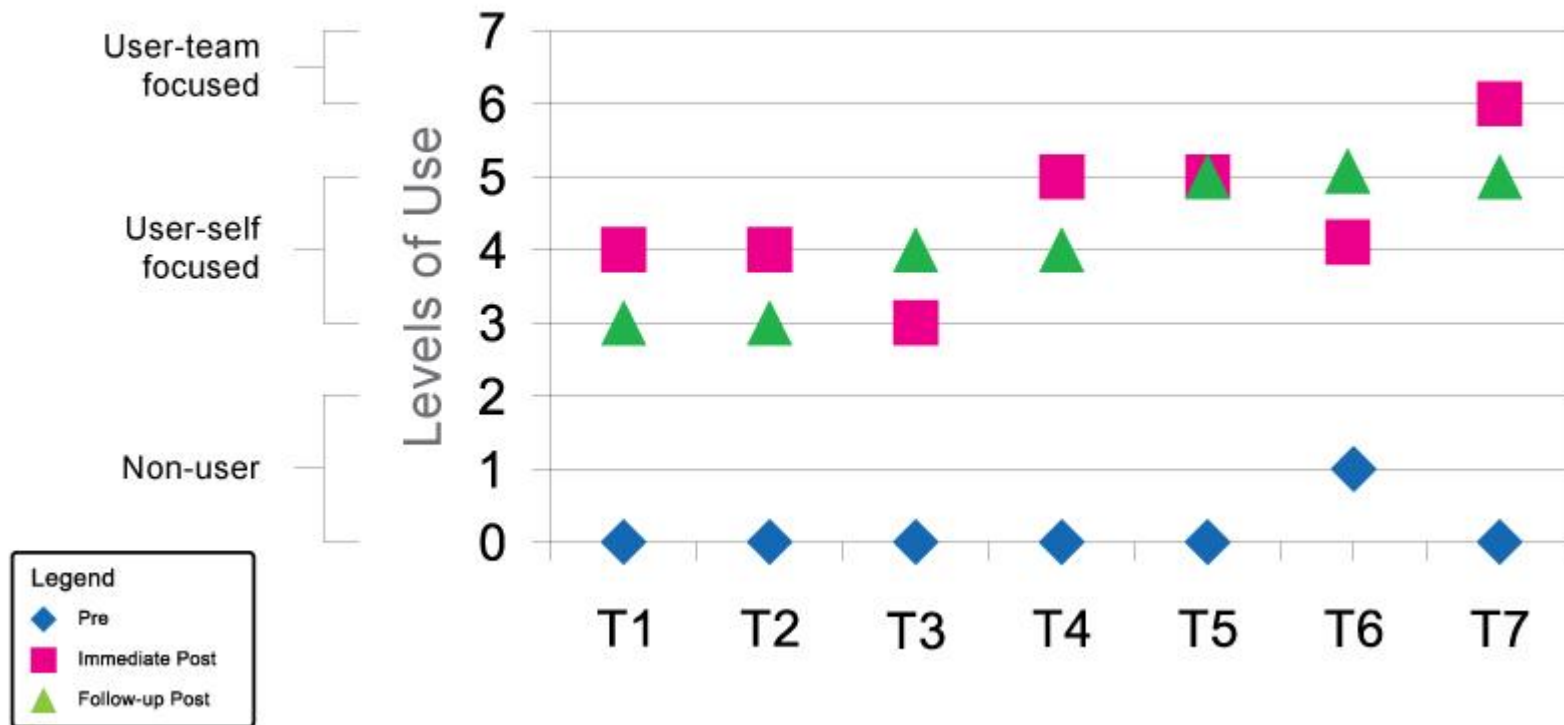


Status Reporting: Describes personal stand at the present time in relation to use of the innovation.

Pre-post condition : Asymptomatic (two tailed) = .017 (significant)

Post-follow-up condition: Asymptomatic (two tailed) = .135 (non-significant)

Status Reporting

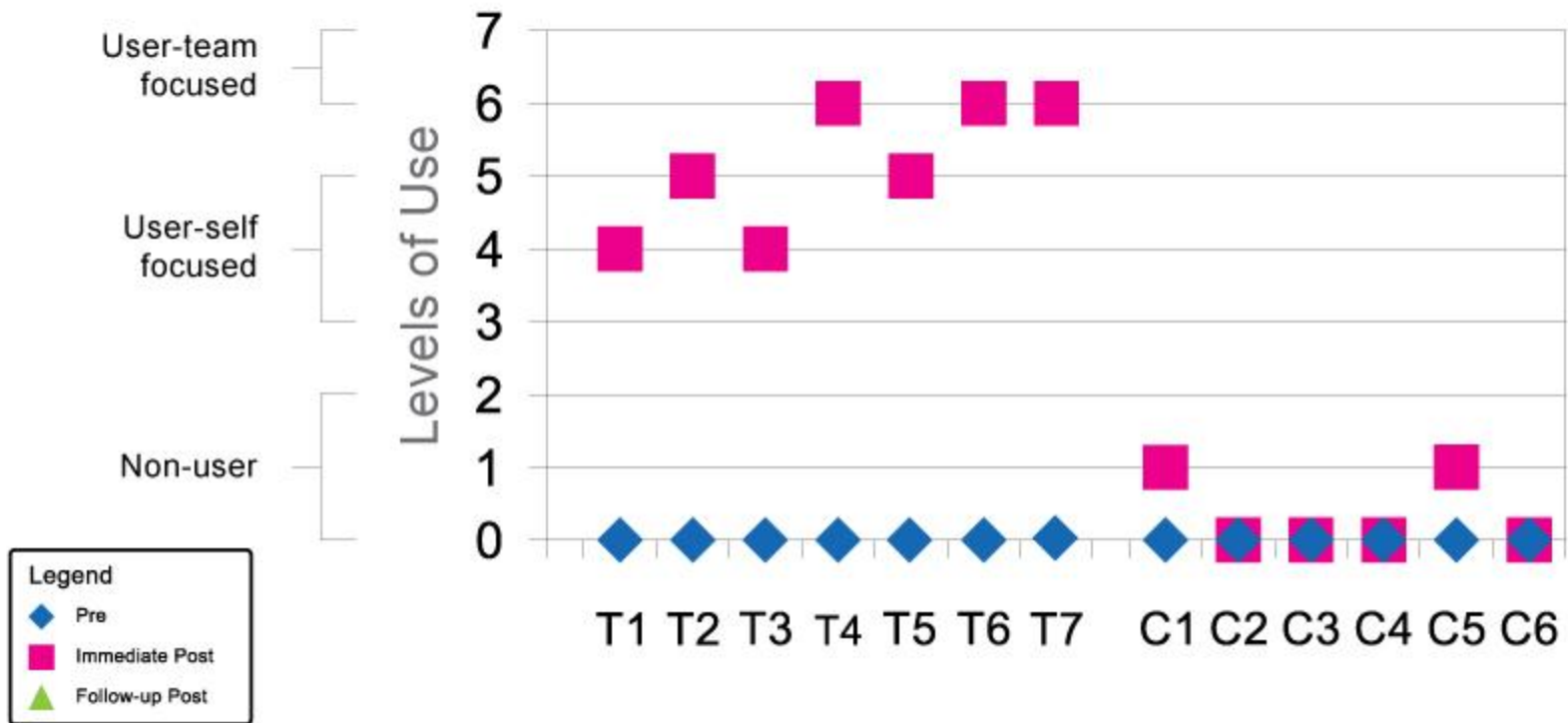


Trained/Control group comparisons

Trained Group (T): post-test condition: Asymptomatic (two tailed) = .002 (significant)

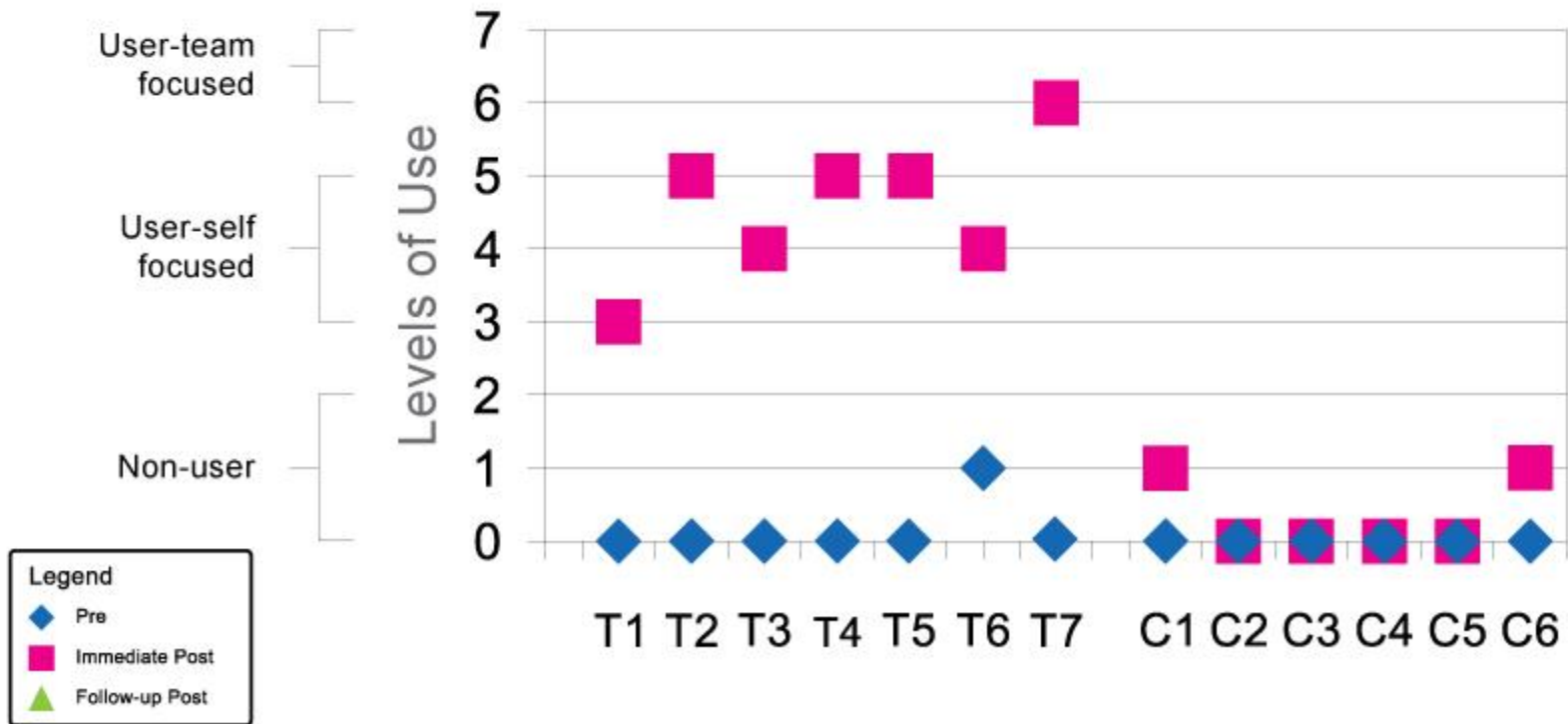
Control Group (C): pre-post condition : Asymptomatic (two tailed) = .157(non-significant)

Sharing



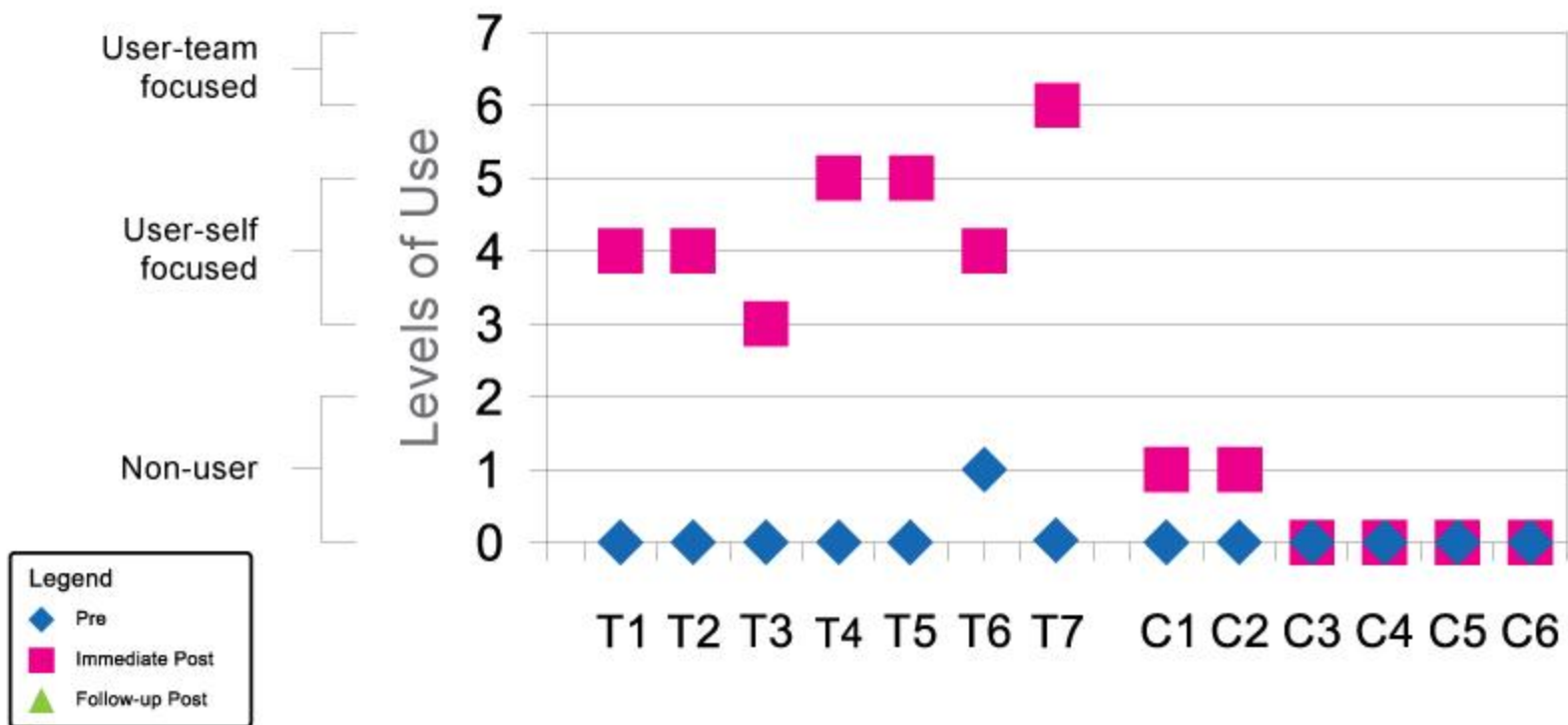
Trained Group (T): post-test condition: Asymptomatic (two tailed) = .002 (significant)
Control Group (C): pre-post condition : Asymptomatic (two tailed) = .157(non-significant)

Planning



Trained Group (T): post-test condition: Asymptomatic (two tailed) = .002(significant)
Control Group (C): pre-post condition : Asymptomatic (two tailed) = .157(non-significant)

Status Reporting



What does this data tell us about the implementation of the program?

- High degree of teacher use and application
- Ideas applicable to teachers from a range of teaching faculties.
- Use sustained over a period of time without further direct support.



- The ripple effect: Collaborative sharing of ideas across the school.

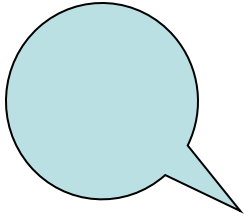
Further quantitative analyses

Teachers:

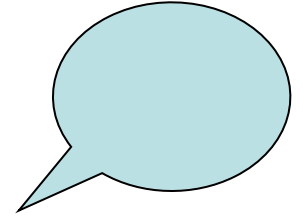
- The Stages of Concern teacher questionnaire (Concerns Based-Adoption Model, Hall & Hord, 2006)
- Data from questionnaire on teachers' knowledge and support of students with LI.

Students:

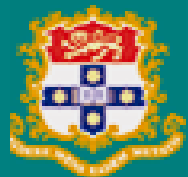
- Pre and post testing involving the use of standardised oral and written language tests and interview-based questionnaires.
- Data from participating students' in-class written work, including pre and post topic vocabulary tests.



Quotes from teachers



- “Because (the students) can understand better, they can perform better”.
 - “They’re not so scared of big words as before the intervention”.
- “They love to write, I just couldn’t believe it! It’s a Maths lesson and they actually enjoy writing about the specific terms and what they know!”
 - “The (program’s) brought back the awareness that some kids, behaviour-wise, may play up simply because they can’t do the work”.
- “Some teachers have used (the ideas) with a different year group and found that they worked really well.”



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THANK YOU!

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