EDUCATION ADJUSTMENT PROGRAM
EDUCATION ADJUSTMENT PROGRAM BEGINNING SCHOOL PROFILE
(EAP BSP)

A report to the Performance Monitoring and Reporting Branch
Education Queensland

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EXECUTIVE SUMMARY

In April 2005 Education Queensland commissioned a research team from the University of Queensland to examine, report and make recommendations on the characteristics of an instrument to extend the application of the *Education Adjustment Program* Profile (EAP Profile). A new version of the EAP Profile had been constructed for use with children who have not yet begun the formal years of schooling or who were in the beginning years. The instrument was called the EAP *Education Adjustment Program Beginning School Profile* (EAP BSPEAP BSP).

The terms of reference for the project included the following deliverables:

- a description of the methodologies developed to analyse the data collected during the trialing of the EAP BSPEAP BSP;
- a description of the relationship between the EAP BSP scores for children with disabilities and their ascertainment levels, across various disability groups and educational locations; and
- the ranking of children with disability that will inform the development of a series of algorithms.

This report addresses these project deliverables.

The EAP BSP was intended to examine a similar range of adjustments as found in the EAP Profile and was trialed in April and May 2005.

The analyses undertaken by the research team indicate that the EAP BSP administered during the trial has the requisite psychometric characteristics and integrity and is a valid and reliable instrument. As such, it provides a clear and accurate picture of the needs of young children requiring a range of learning supports.

The research team makes the following recommendations:

1. Some minor adjustments are made to the EAP BSP according to suggestions contained in this report and an on-line form created and trialed forthwith.

2. The EAP BSP to be introduced within a suitable timeframe to provide salient information on children identified as likely to have education adjustment needs in the early years of schooling.

3. Use of the EAP BSP is monitored in its introduction and application alongside similar procedures operating following the introduction of the EAP Profile in accordance with existing Education Queensland procedures and protocols.

4. A child's EAP BSP Total Score to be used to assist with the distribution of resources to children with disability.

LIST OF ABBREVIATIONS

Below is a list of abbreviations found in the report, and their definitions.

ASD	Autism spectrum disorder
EAP BSP	Education Adjustment Program Education Adjustment Program Beginning School Profile
EAP	Education Adjustment Program
EAP Profile	Education Adjustment Program Adjustment Profile
df	Degrees of freedom in the statistical analysis
HI	Hearing impairment
IEP	Individual education plan
II	Intellectual impairment
M	mean score
N	Number
PI	Physical impairment
Poss	(in relation to) the maximum possible EAP BSP Total Score achievable
Prep	refers to the preparatory year of full-time attendance for a child with a disability at school in advance of compulsory school attendance
SCOLR	Students with Disabilities Central On-Line Reporting database
SD	standard deviation
SEU	Special Education Unit located in a primary school
SEDU	Special Education Development Unit
SLI	Speech-language impairment
SWDs	Students with disabilities (an Education Queensland classification)
Total EAP BSP Score	Score achieved by the sum of the six focus adjustment domains
VI	Vision impairment

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BACKGROUND

In November 2004 Education Queensland commissioned a research team from the School of Education and the Centre for Economic Policy Modelling at the University of Queensland to examine and report on the characteristics of a newly developed Education Adjustment Program Adjustment Profile (EAP Profile) intended to identify the adjustment needs of Queensland students with disability (SWDs) and to recommend one, or a series of, algorithms that would allow for the ranking of students according to the education adjustments needed.

In their report, the University team found that the EAP Profile had many advantages over the existing ascertainment process. It could deal with the magnitude and frequency of adjustments required by individual students and enabled comparisons across impairment groups and across education settings. The data from the trial showed that the profile had content, concurrent, and construct validity and, with some limitations, was internally consistent. The structure of the instrument (globally and in the six focus areas) was coherent to the extent that items in each scale deal with preparation/planning, implementation of teaching strategies, the monitoring of student performance, and appropriate instructional support.

The Performance Monitoring and Reporting Branch of Education Queensland was keen to apply the same format to identify the adjustments required by children prior to their commencement at school to enable better estimation of the level of support required as these students enter the compulsory years of schooling.

In April 2005, the same team from the University of Queensland was approached to conduct an examination of data collected subsequent to the development and trialing of the Education Adjustment Program Beginning School Profile Education Adjustment Program Beginning School Profile (EAP BSP). The terms of reference for the project were as follows:

- examine the distribution of data from the EAP BSP, its reliability and validity of based upon data collected in April and May 2005;
- examine the relationship between the EAP BSP profile and the existing ascertainment process in terms of describing student educational needs;
- examine the relationship between EAP BSP scores for children in the year prior to formal schooling, and those in their first year of formal schooling; and
- develop an algorithm (or series) that will allow for a link with resource distribution and on-going statistical analysis of the EAP BSP as an on-line instrument that would provide feedback to schools and districts.

Project deliverables were to include the following (listed here in summary form only):

- a description of the methodologies developed to analyse the data collected during the trial of the EAP BSP profile;
- a report on the relationship between students' EAP BSP scores and ascertainment level for student groups;
- a method for ranking students according to the teaching adjustments needed across all education jurisdictions and disability categories;
- a consideration of the likely costs of maintaining the analysis of data and quality control; and
- a verbal report to the contractor following completion of the final report.

When the research team became involved in the project, meetings were held with representatives of the Performance Monitoring and Reporting Branch to discuss the project and to agree upon the timeline for reporting. The research team met with Education Queensland staff on approximately a weekly basis (by phone and in person) to discuss the data analysis and preliminary findings.

The Education Adjustment Program Beginning School Profile

The *Education Adjustment Program Beginning School Profile* (EAP BSP) is an adaptation of the *Education Adjustment Program Adjustment Profile* (EAP Profile) designed in 2004 to assess student eligibility for adjustment support funded under the Education Adjustment Program. The Education Adjustment Program replaced the existing ascertainment process in 2005 , and the EAP Profile, a component of this program, provides additional information beyond the student's diagnosis and level of need..

The trial EAP BSP sought biographical information including Aboriginality, any known or suspected diagnosis (e.g., intellectual impairment, hearing impairment), and details of ascertainment if this had been undertaken. Participants in the trial were the stakeholders involved in the target children's life and they were asked to record the frequency of adjustments made across six focus areas relating to the delivery of an educational program. The focus areas were the same as in the EAP, namely

- Curriculum;
- Communication;
- Social Participation/Emotional Well-being;
- Health and Personal Care;
- Safety; and
- Learning Environment/Access.

In addition, the participants were asked to complete competency ratings (using a 10-point scale) in five areas. These ratings were included as they have been

employed in other education jurisdictions to determine a student's eligibility for educational support.

These scales dealt with cognitive development, expressive and receptive language, personal care, social skills and mobility, extent of adjustments made across all areas; and pervasiveness of adjustments made across all areas. A rating of "1" was given where minor assistance or support was required to "10" where substantial assistance or support was required.

The EAP BSP trial instrument has 77 questions (in comparison to the 74 in the EAP Profile). Each question sought an evaluation from persons who were familiar with the educational performance and needs of the students in terms of the education adjustments being made.

The number of items in each focus area varied, as did the number of response options. In general, six adjustment options were provided ranging in frequency from "Rarely, if ever" to "More frequently than once per day."

If more than one child was assessed from one education location using the EAP BSP, participants were asked to rank the children in order based upon the level of support required from staff with the rank of "1" being given to the child with most support needs.

The EAP BSP was completed by personnel Education Queensland personnel providing programs within both pre-compulsory and compulsory educational settings.

Structure of the report

The balance of this report is presented in the following chapters:

- Trial of the EAP BSP profile
- Descriptive statistics
- Consistency and validity of the EAP BSP
- Profiles of specified student groups
- Comparison of the EAP Profile and EAP BSP
- Maintaining an EAP BSP database
- Recommendations

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TRIAL OF THE EAP BSP

The administration of the EAP BSP was conducted in education settings across Queensland in April and May 2005. A state-wide stratified sample was generated based on disability and children's location in non-compulsory or compulsory settings. For those children selected prior to the compulsory years of schooling, they were chosen on the basis of known or suspected disability. Students already in the formal years of schooling were selected on the basis of their ascertainment category and level. Geographic region was also taken into consideration.

Members of the research team had some informal discussions about the construction of the EAP BSP during the reporting process associated with the earlier EAP project. The main recommendations related to consistency in response options in the instrument (from "Rarely, if ever" to "More frequently than once per day") and the need for special attention to the communication domain, which is known to be important in the early years of a child's development. The research team played no part in the selection of education settings from which data would be collected or the children who would be the subject of the assessments. The research team had no direct involvement in the construction of the trial instrument.

Methodology

Early in June 2005, the research team received the full data set from the trial via CD from Performance Monitoring and Reporting Branch, Education Queensland. Some conversions were made from alphabetic to numerical data and variables were combined to enable further statistical analysis.

Data analysis was designed to explore the characteristics of the full scale and the six area subscales according to the project terms of reference. Principal component analyses were undertaken to reveal the dimensionality of the sub-scales and to identify non-discriminating items.

Univariate and multivariate analyses of variance and regression analyses were performed to elaborate the psychometric characteristics of the instrument, including internal consistency, and aspects of validity.

Profiles of student sub-populations were then prepared using a range of parametric and nonparametric statistical procedures with a view to establishing the relationship between students' EAP BSP scores and ascertainment information.

The sample

The trial was conducted in 204 education settings. There were 284 boys and 101 girls in the sample. Seventeen children were from Aboriginal background, 1 from Torres Straight Islander background, and 2 had both Aboriginal and Torres Straight Islander heritage.

At the time of writing this report (27th June 2005), the students in the sample ranged in age from 4 years 5 months to 8 years 5 month (mean = 5 years 10 months; standard deviation (*SD*) = .70 years). The average age of the boys was 5 years 10 months and the girls 5 years 9 months. This was not a statistically significant difference.

Table 1 shows the breakdown of students by gender and impairment category.

Table 1
Impairment Category by Gender for the Sample (N =385)

Impairment	**Male**	**Female**	**Total**
Intellectual	69	44	113
Speech-language	59	18	77
Autism	91	14	105
Hearing	24	7	31
Vision	10	6	16
Physical	25	11	36
No category given	6	1	7

Of the total sample of 385 children, 198 attended Special Education Developmental Units, 23 attended Special Schools, 77attended Special Education Units attached to primary schools, 20 attended Special Education Classrooms, 41 were included in mainstream Year one classrooms, 14 attended preschools and 11 attended a prep year class. One child located in a small rural school was recorded as attending Year 2.

Because ascertainment information in Queensland is only available for children within the compulsory years of schooling, a percentage estimation of the adequacy of the selected sample, compared to the possible sample was conducted on this group. From a pool of some 840 children ascertained in the first year of their compulsory schooling, 164 children were selected, represented 19.5% of the total possible SCOLR sample, see Figure 1. Statistically, such a random selected sample of this size is considered more than adequate to estimate the characteristics of the research population. Of the 164 children in the compulsory years of schooling, 153 children were recorded in the data set as having an identified disability and information on this ascertainment distribution is given in Table 2. Level 1 children are awaiting finalisation of ascertainment, but

what is interesting in Table 2 is the lack of ascertainment Level 2 and Level 3 children, who are the cases in the “mild” range, and the limited number of children (8 only) at Level 4. 46% of the sample is at ascertainment Level 6, the highest disability level.

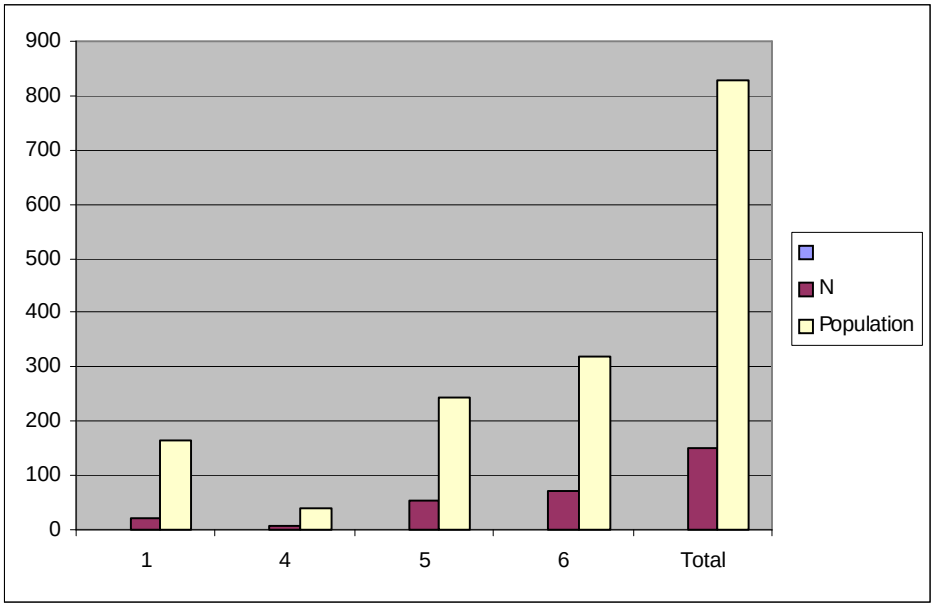

Figure 1 Comparison of the Trial Sample to the Total for the 1st Year of Compulsory Schooling SCOLR Sample by Ascertainment Levels.

Table 2
Ascertainment Category and Level of Children in Compulsory School Settings

	Ascertainment level				Total
Disability group	**1**	**4**	**5**	**6**	
Unidentified	1	0	0	0	1
Intellectual Impairment	8	1	15	28	52
Speech-Language Impairment	5	0	10	3	18
Autistic Spectrum	3	1	17	22	43
Hearing Impairment	2	2	3	8	15
Vision Impairment	1	0	3	5	9
Physical Impairment	2	4	4	5	15
Total	22	8	52	71	153

There is a significant difference by disability group by ascertainment level for children in the first year of compulsory schooling. Chi square = 36.7, *df* = 18, Sig = .006. These data are displayed in Figure 2.

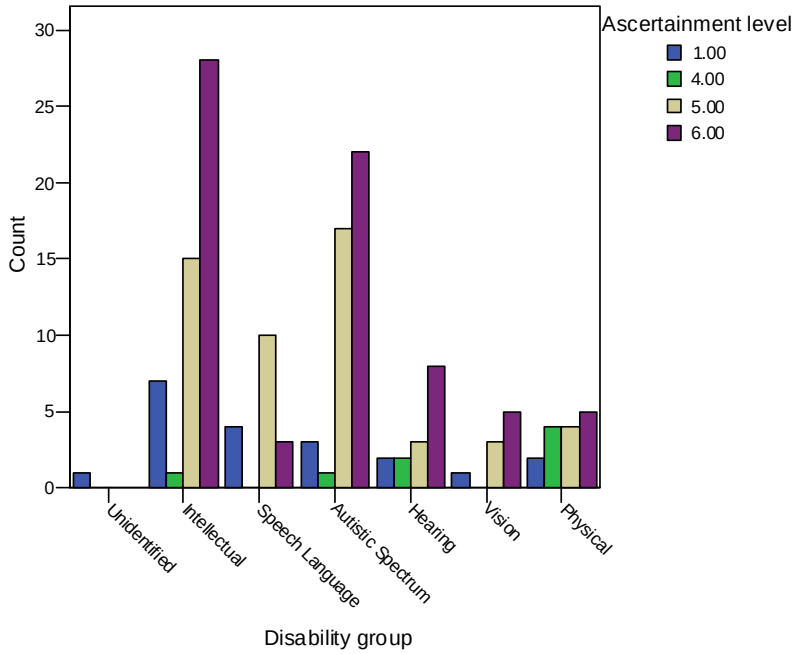

Figure 2 Disability Group by Ascertainment Levels for Children in Compulsory Years of Schooling

The information concerning the children was collected from stakeholders that included parents/carers, education specialists, guidance officers, therapists, advisory visiting teachers, and classroom teachers. Table 3 gives a breakdown of the number of children with whom each stakeholder was involved. We have provided data for children in the non-compulsory and compulsory school years.

Table 3
Ascertainment Category and Level of Children in Compulsory School Settings

Stakeholder	**Period**		**Total**
	Non-compulsory	**Compulsory**	
Parents/Carers	173	108	281
Classroom teacher	172	153	325
Advisory visiting teacher	49	38	87
Guidance officer	48	43	91
Therapist	35	20	55
Education specialist	164	111	275

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DESCRIPTIVE STATISTICS

In this section, we report the general characteristics of the EAP BSP. We provide details of the distribution of scores and the dimensions that appear to form the structure of the instrument. Throughout, the research team were concerned only with matters related to the terms of reference. They did not explore every detail relating to the characteristics of the sample and sought explanations for particular distributions only when this was necessary to inform or clarify the analysis of the EAP BSP profile.

Total and subscale scores

A EAP BSP Total Score was calculated for each student. This was the sum of scores for all items to which participants responded. The EAP BSP Total Score, therefore, represents the *magnitude of adjustments* needed across the six focus areas. EAP BSP Total Scores ranged from 97 (indicating relatively few adjustments — the minimum score is 77) to 447. The distribution is shown in Figure 3 below. The mean score was 280.0 (*SD* = 66.80) out of a maximum possible of 461.

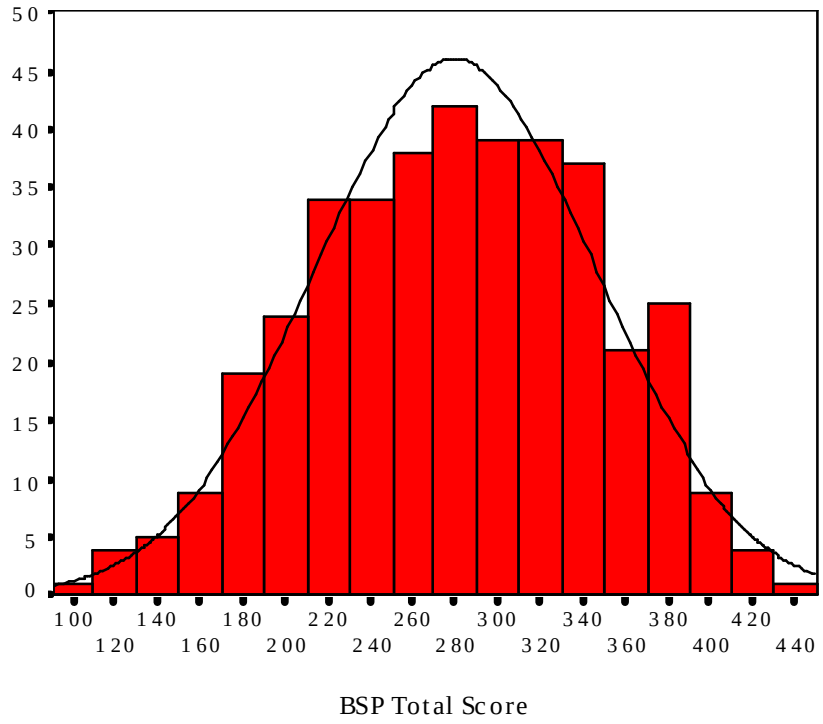

Figure 3 Distribution of Students' EAP BSP Total Scores

As was the case with the EAP Profile, the EAP BSP Total Scores form a distribution that approximates the normal curve (shown in the Figure by the black bell-shaped curve). Table 4 gives the summary of means (*M*), standard deviations (*SD*), lowest score achieved (*Low*), highest score achieved (*High*), and maximum possible scores for each scale (*Poss*), plus the EAP BSP Total Score.

Table 4
Means, Standard Deviations, Lowest Score, Highest Score, and Maximum Possible Scores for Each of the EAP BSP six Focus Areas and EAP BSP Total Score

Focus area	**M**	**SD**	**Low**	**High**	**Poss**
Curriculum	74.2	15.66	20	96	96
Communication	75.4	20.55	18	116	118
Social/emotional	50.0	16.01	14	77	77
Health	20.1	10.51	0	50	50
Safety	25.1	10.97	0	59	59
Environment	35.2	13.04	0	61	61
EAP BSP Total Score	280.0	66.80	97	447	461

Distributions for each of the subscale total scores are shown in Figures 4 to 9. The black curve over the distribution shows the relationship between the scores and a predicted normal distribution.

The distribution of scores in each focus area reflects the students' level of need. Figure 4 is a negatively skewed distribution showing that the bulk of curriculum adjustments are relatively extensive for the sample with few students receiving low Curriculum Total Scores.

In contrast, Figure 5 demonstrates a close to normal distribution for communication adjustments with the exception of the slight elevation at the low score end, representing those students who require no language or communication adjustments.

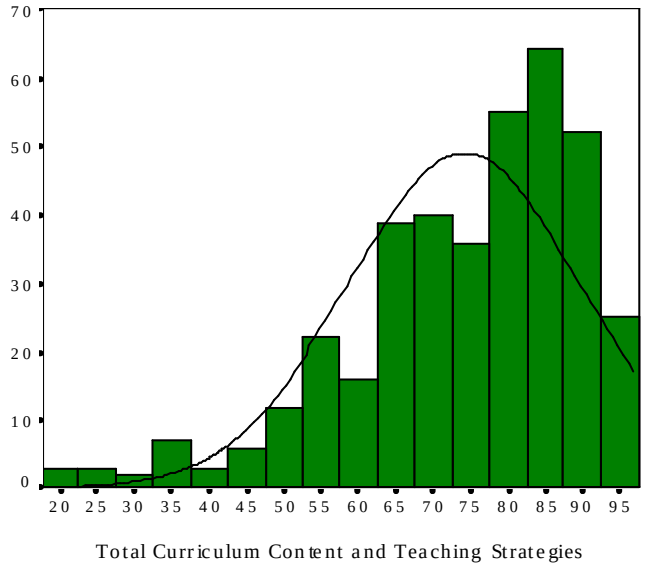

Figure 4 Distribution of Students' Total Curriculum Adjustment Scores

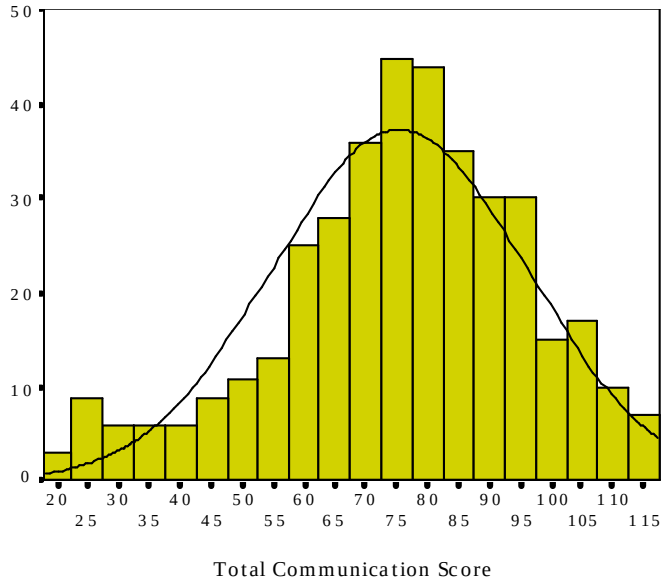

Figure 5 Distribution of Students' Total Communication Adjustment Scores

Figure 6 is the flattest distribution showing a relatively even spread of students across this range of subscale scores with the exception of the peak toward the top of the distribution. This suggests that social participation and emotional well-being are common issues for most of the children.

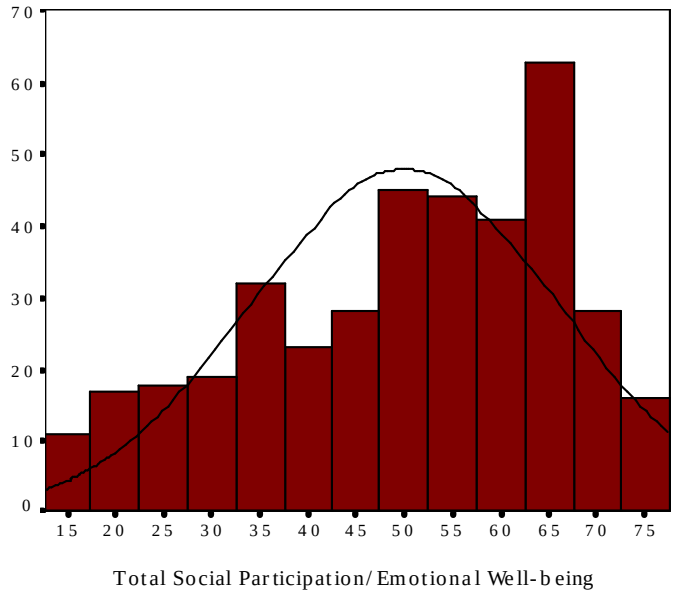

Figure 6 Distribution of Students' Total Social Participation/Emotional Well-being Adjustment Scores

Figure 7 presents a highly positively skewed distribution showing that most students with disabilities require few health and personal care adjustments.

A similar, although not as pronounced, pattern of scores is shown in Figure 8 for Safety adjustments. Health and personal care adjustments are more likely for students with physical impairments.

Safety adjustments might be made as a consequence of the violent or aggressive behaviour of some children, and for others adjustments, but for a different reason. For example, these adjustments might be necessary for a child in danger of accidental injury because of impairment, such as very limited vision.

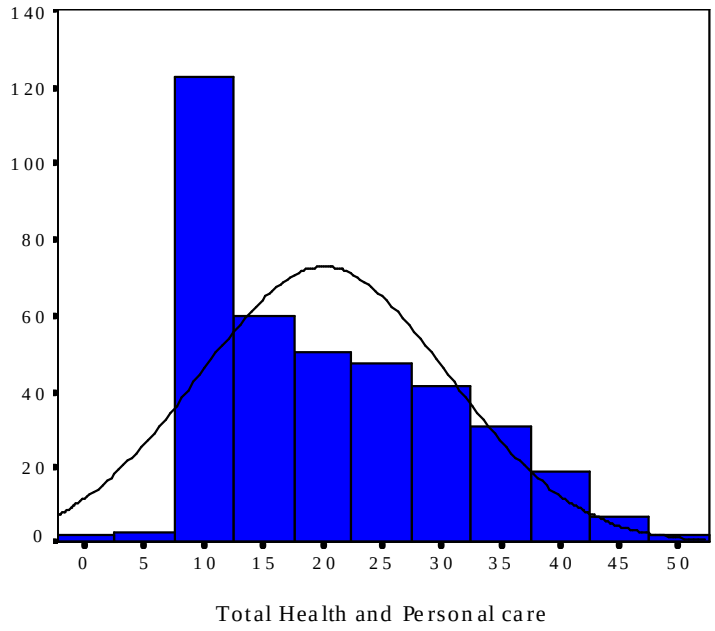

Figure 7 Distribution of Students' Total Health and Personal Care Adjustment Scores

The distribution of Safety total scores is displayed in Figure 8. As was the case in the analysis of the EAP Profile, the distribution is positively skewed with few students having very high adjustments to their teaching-learning environment.

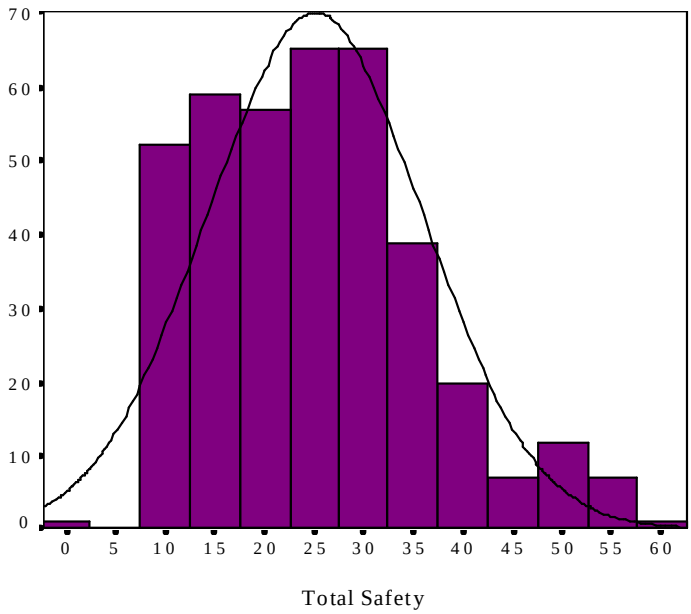

Figure 8 Distribution of Students' Total Safety Adjustment Scores

The distribution of Learning Environment/Access scores shown in Figure 9 approximates a normal curve with the exception of elevated scores near the lower end of the scale.

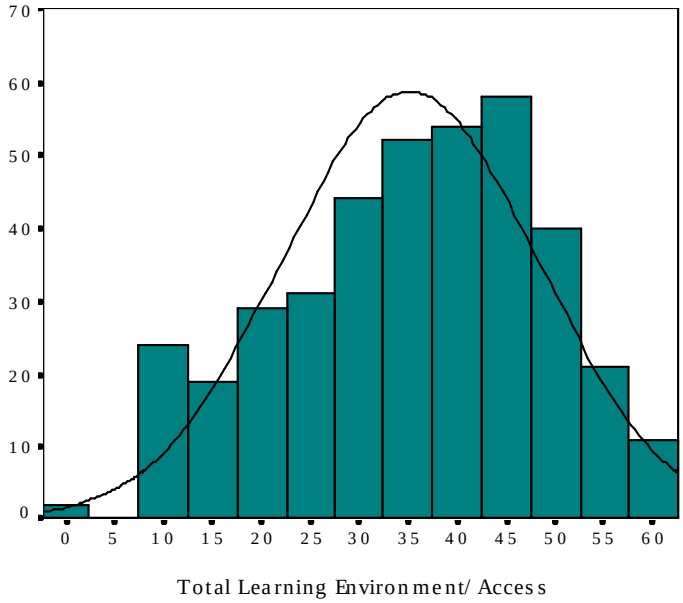

Figure 9 Distribution of Students' Total Learning Environment/Access Adjustment Scores

These several distributions reflect the expected range of scores in each focus area for the young children involved in the trial of the EAP BSP.

Component analysis of the EAP BSP

As the EAP BSP is an adaptation of the EAP Profile its foundation is located in practical procedures and actions undertaken at the level of the education setting to support SWDs. In other words, the items reflect what teachers and other education personnel do to support students in a range of teaching-learning environments and the six focus areas are named according to the purpose of the actions taken. As in the earlier project, the research team turned its attention to the structure of the instrument to determine if these focus areas reflect discrete and consistent perceptions of what adjustments are made, or needed.

Principal components analyses were undertaken using items in each focus area, one area at a time. Principal components analysis (factor analysis) is based upon the assumption that second order constructs (factors), smaller in number than the number of items in the instrument, are responsible for the relationship between scores on items. In other words, factor analysis connects those items that respondents score in a consistent way and identifies a statistical structure

within the data set (i.e., factors). Factors represent new, hypothetical constructs and, as such, can be named.

Principal components analyses produces a factor loadings for each item equivalent to correlation coefficients in that the higher (or lower) the number, the greater is the relationship between the scores on the item and the factor. Tables 5 to 10 provide factor analytic solutions for data collected on the six focus areas. Factor loadings < .300 are commonly considered to be of minimal interest because they contribute little to the "best" factor solution. Prominence is given to the factor on which the loading on a particular item is highest.

Table 5 provides the principal component analysis with Oblimin factor rotation for the Curriculum subscale. Oblimin rotation produces factor solutions that are, conceptually, correlated (i.e., not necessarily at 90% to each other, or unrelated) and may provide a more coherent solution to some principal component analyses when it is thought that the second order variables (the factors) may be linked in some way. Three factors were extracted with eigenvalues > 1.00, according to the convention.

Examination of the items in each factor cluster suggests factor labels, although labels for factors are always open to interpretation. Factor 1 included items that are related to the support needed by teachers and schools to provide the programs required to assist students. The factor might, therefore, be called ***instructional procedures***. Factor 2 reflects **disability *program planning***. Factor 3 is not clearly defined as the two items cross-load on the other factors. This factor is defined by two items and appears to relate to intensive support.

Table 5
Rotated Component Matrix for Curriculum Area Items

		Factor		
Item	Name	1	2	3
Cur 9	Modelling and reinforcing	.950		
Cur 10	Small increments	.857		
Cur 8	Extra time	.757		
Cur 4	Lesson adjustment	.713		
Cur 11	Extended introduction	.611		
Cur 15	Continuous assessment	.546		
Cur 16	Data collection	.403	.306	
Cur 12	Teach in different settings	.270		
Cur 5	Disability specific		.713	
Cur 7	Use of specific equipment		.712	
Cur 6	Preparing specific resources	.233	.629	
Cur 3	Assistive technology		.562	
Cur 1	Specific IEP		.472	
Cur 2	Planning	.398	.426	.222
Cur 13	Extensive use of aids	.314	.272	-.492
Cur 14	High assistance	.316	.271	-.466

In the Communication area three factors with eigenvalues > 1.00 were extracted, again using the Oblimin criterion for rotation. Factor 1 appear to relate to **Communication program planning,** Factor 2 to the use of **specific communication systems** and Factor 3 to **complex communication practices**, for example students with VI or HI.

Table 6
Rotated Component Matrix for Communication Area Items

		Factor		
Item	Name	1	2	3
Com 9	Training language skills	.894		
Com 13	Targeted strategies	.738		
Com 4	Structured program	.685		
Com 12	Social language skills	.664		
Com 3	Context of language	.656		
Com 8	Minor program adjustments	.648		
Com 10	Delivery of special programs	.580		
Com 2	Clear language goals	.479		
Com 1	Consultation	.413		
Com 16	Integration program	.382	.354	
Com 11	Oro-motor			
Com 7	Alternative language program		.759	
Com 6	Augmentative system		.736	
Com 5	Amplification devices		.573	
Com 18	Signing		.555	
Com 15	Visual aids incorporated			-.767
Com 14	Visual aids resources	.302		-.533
Com 17	All teachers use signing			-.447
Com 19	Interpret non-verbal			-.395

In the area of Social Participation/Emotional Well-being (Table 7), three factors were extracted using the same process. The factors reflect ***instructional planning*** (Factor 1), ***consultation*** *beyond the education setting* (Factor 2), and ***interpersonal skill development*** (Factor 3).

Table 7
Rotated Component Matrix for Social Participation/Emotional Well-being Area Items

Item	Name	Factor 1	Factor 2	Factor 3
Soc 6	Social management plan	.870		
Soc 5	Review of participation	.694		
Soc 3	Support plan	.661		
Soc 7	Reporting of progress to others	.652		
Soc 4	Adjustment	.612		
Soc 13	Behaviour management plan	.606		
Soc 1	Consultation	.522		
Soc 12	Specific instruction	.412		.329
Soc 14	External to school therapy programs		.946	
Soc 2	Participate in community based		.353	
Soc 8	Group work			.913
Soc 9	Play activities			.726
Soc 11	Social engagement			.595
Soc 10	Social modelling			.432

Three factors with eignvalues > 1.00 were again extracted using the Health and Personal Care items, Factor 1 refers quite explicitly to the need for **medical monitoring**, Factor 2 to ***self-care***, and Factor 3 to **program consultations** (Table 8).

Table 8
Rotated Component Matrix for Health and Personal Care Area Items

Item	Name	Factor 1	Factor 2	Factor 3
Hea 6	Monitoring condition	.573		
Hea 8	Medical care monitoring	.566		
Hea 3	Terminal conditions monitoring	.467		-.361
Hea 5	Personal care		-.891	
Hea 4	Personal hygiene		-.717	
Hea 7	Assistance in health care	.357	-.651	
Hea 2	Consultation with specialists			-.700
Hea 1	Consultation with the team			-.696

Table 9 shows the two-factor solution in the focus area of Safety with Factor 1 reflecting ***mobility support*** and Factor 2, ***risk management***.

Table 9
Rotated Component Matrix for Safety Area Items

Item	Name	Factor 1	Factor 2
Saf 8	Assistance with mobility	.920	
Saf 4	Manual handling	.789	
Saf 7	Wheelchairs	.751	
Saf 10	Alternative transport to school	.639	
Saf 9	Adaptive equipment	.537	
Saf 2	Monitoring in school		.779
Saf 5	Encourage independence		.768
Saf 6	Data collection on safety issues		.737
Saf 1	Collaboration		.719
Saf 3	Risk Management		.620

Finally, a three-factor solution based on eigenvalues > 1 was generated for the items in the Learning Environment/Access area (shown in Table 10). Factor 1 reflects ***environmental adaptations***, Factor 2, adaptations involvement ***special equipment***, and Factor 3 to **issues relating to inclusion**. As indicated earlier the labels are open to interpretation.

Table 10
Rotated Component Matrix for Learning Environment/Access Area Items

Item	Name	Factor 1	Factor 2	Factor 3
Lea 7	Adaptation to develop independence	.846		
Lea 3	Adaptation for learning environment	.691		
Lea 8	Personal assistance	.591		
Lea 2	school-wide Adaptation	.449		
Lea 1	Consultation	.402		.331
Lea 9	Specialist equipment		.781	
Lea 10	Assistive technology		.725	
Lea 5	Social transition into the school			.669
Lea 4	Safe place			.477
Lea 6	Personal independence	.387		.410

The six solutions do not appear to demonstrate the same coherence found during the analysis of the EAP Profile. These principal component analyses have a more narrow focus on specific adaptations and related second order dimensions. It seems, for example, that the Curriculum and Communication factors reflect similar dimensions, and comparable factor structures are found in the Social Participation/Emotional Well-being and Learning Environment/Access items, and in the Safety and Health and Personal Care analyses.

While there are still aspects of each factor structure that deal with planning and preparation, with consultation, and specific instructional strategies or procedures,

these generic labels have not emerged as clearly as they did in the analysis of the EAP Profile.

Competency ratings

Respondents were asked to provide ratings of each child's support needs in five key areas: Cognitive development, Communication, Personal care, Social skills, and Mobility. These support needs ratings were made from "1" if the child would require minimal assistance or support to "10" if the child required substantial support. For example, in the area of communication the descriptor for "1" was: "Child has a language delay and requires support to develop receptive and/or expressive language OR Child has some sensory impairment requiring aids to vision/hearing and some modification of educational programs." For "10" the descriptor read: "Child is nonverbal and may require augmentative or alternative modes of communication." It was noted that these dimensions have been used in other jurisdictions to determine eligibility for educational support beyond what is typically provided to school-age children. It is of interest that two of the areas (Communication, Social skills) reflect EAP BSP focus area while the remaining three, although seemingly related, do not have a one-to-one correspondence with the other focus areas. The total support need score was calculated for each child and these were then correlated with the six EAP BSP focus areas and EAP BSP Total score (Table 11).

Table 11

Inter-correlations between the Support Need Ratings and EAP BSP Total Scores for the Sample (N = 385)

	Support Need Rating						**Beginning School Profile**					
	Cogn	Comm	Pers	Social	Mobil	Total Rating	EAP BSP Curr	EAP BSP Comm	EAP BSP Social	EAP BSP Health	EAP BSP Safety	EAP BSP Envir
Support Need												
Communication	.628											
Personal care	.463	.466										
Social	.500	.511	.534									
Mobility	.370	.388	.649	.300								
Total rating	**.763**	**.774**	**.829**	**.742**	**.714**							
EAP BSP												
Curriculum	.579	.561	.391	.436	.340	.598						
Communication	.479	.672	.300	.441	.176	.533	**.769**					
Social	.277	.261	.304	.607	.142	.415	.504	.517				
Health	.325	.356	**.722**	.291	.561	.601	.410	.350	.292			
Safety	.276	.281	**.716**	.373	.583	.595	.411	.316	.388	**.772**		
Environment	.264	.289	.541	.384	.471	.516	.531	.466	.538	.644	.699	
Total score	.498	.559	.594	.565	.444	**.697**	**.827**	**.810**	**.732**	.683	**.709**	**.808**

NB: Correlation are all significant at the 0.01 level (2-tailed); Cognit = Cognitive Development; Comm = Communication; Pers = Personal Care; Social = Social Skills; Mobil = Mobility

Given the size of the sample, it is not surprising that all correlations are statistically significant. The issue here is the relevance of the coefficient, not its statistical significance. We have highlighted those coefficients that are .7 and above, thereby accounting for approximately 50% of the variance. The high correlations between the support needs scores are expected given that they are single items (except for the Total rating which is a linear combination of the individual scores). The high correlations between Personal Care support need and the EAP BSP Health and EAP BSP Safety area are also understandable as Personal Care refers to toileting, dressing, eating, drinking, and safety needs. The correlation between the Total Support Need Rating and the EAP BSP Total Score is r = .697 suggesting reasonable overlap although this coefficient accounts for only 48.5% of the variance in the data set.

It is our view that the support need ratings add little to the evaluation of any child's adjustment needs (in terms of the objectives of the EAP BSP) but might be of some value as a quick screening instrument while a child is awaiting full assessment. Our recommendation would be to use the Total Rating in this case.

Relative influence of the different EAP BSP six focus domains

Regression procedures were used to identify the relative influence of each of the six focus areas on the participants' view of each student. The six EAP BSP focus areas provide one dimension, that is, the adjustments to assist each child in the education process. Another dimension is provided by the support need ratings. Taken together, these data might reflect an evaluation of students' learning (or performance) characteristics, that is, perceived support needs plus learning adjustments, which we have called the Capability score. This variable was entered as the dependent measure in the regression equation with the focus area total scores as the independent variables. All six areas were shown to make significant contribution but, in terms of the beta, ß values, Curriculum and Communication areas contributed most to the solution. This is reported in Table 12.

Table 12
Influence of the Focus Area Total Scores on the EAP BSP Total Score

Independent variables	Standardised Coefficients (ß)	*t-value*	Level of Sig.
Constant	-3.322	-1.75	.081
Total Curriculum	.250	29.42	.000
Total Communication	.296	35.55	.000
Total Social	.224	33.66	.000
Total Health	.181	21.35	.000
Total Safety	.185	20.63	.000
Total Learning Environment	.159	19.11	.000

The plots associated with Table 12 provide some interesting thoughts for the instructional process. Figures for Curriculum, Health, and Communication only are displayed (Figures 10, 11, and 12). The distributions are located on the basis of deviations from the mean (zero) on each axis. In the case of Figure 10, each coloured point plot represents the intersect between a child's score on the Curriculum items (Total Curriculum score) against the child's Capability score. The regression trajectory line, often called the line of best fit, is given (red).

While all six focus (adjustment) factors demonstrated a significant influence on the children's programming needs, the Communication factor had the highest beta value ß. Such a result indicates that Communication adjustment is very influential in the program adaptation for young children with special needs.

These scatter plots and regression trajectory lines illustrate a number of instruction patterns, with the horizontal axis reporting the level of teacher adjustment in that domain and the vertical axis the combination of total support need and adjustment of the child. The figures demonstrate that teachers are able to make systematic instructional adjustments that corresponded to the increasing or decreasing special needs of the child.

Comparing Figure 10 (Curriculum) with Figure 12 (Communication) the Figure 12 scatter plot demonstrates fewer outliers from the regression trajectory line. Such a pattern suggests that teachers in this domain are able to systematically match instructional adjustments to the changing communication and language demands of the child with special needs.

Figure 11 (Health) suggest that teachers make the majority of their instructional adjustments in this domain when the child's health needs are high. In this plot the majority of the interaction points fit within the top right hand corner, the high need and high instructional sector of the graph.

These graphs demonstrate two issues: first that the EAP BSP assessment instrument is able to discriminate level of adjustment by child across different academic domains, and second that teachers working with young children with special needs demonstrate professional judgements that adjust instructional programs to children's needs.

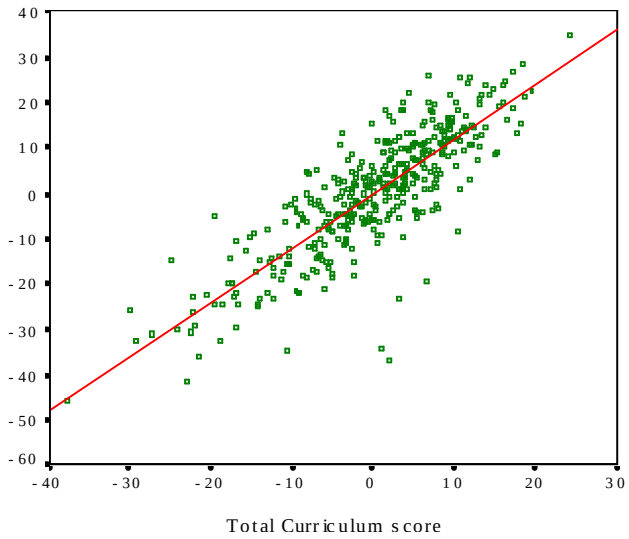

Figure 10 Distribution of Children's Capability Score Against Total Curriculum Score

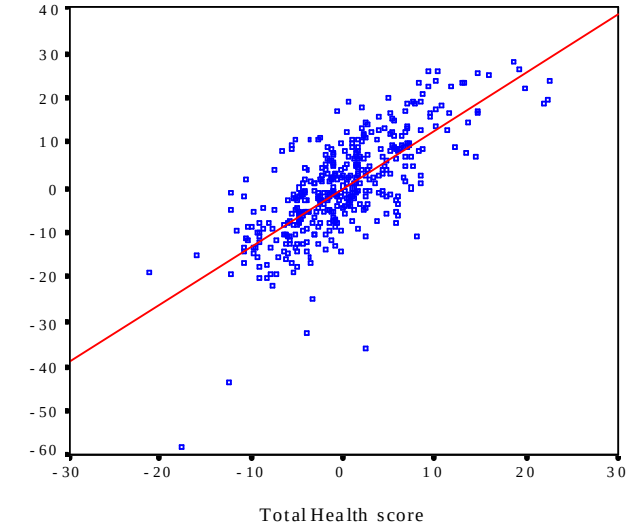

Figure 11 Distribution of Children's Capability Score Against Total Health Score

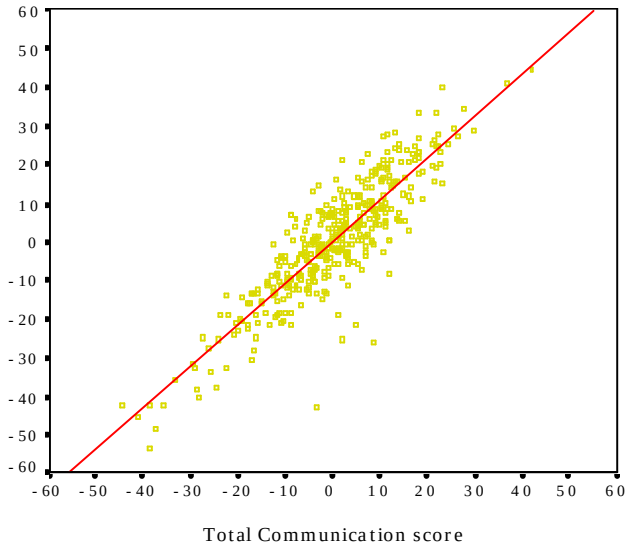

Figure 12 Distribution of Children's Capability Score Against Total Communication Score

4
CONSISTENCY AND VALIDITY OF THE EAP BSP

Newly developed instruments must satisfy several criteria to ensure that they collect information consistently (across administration occasions) and provide information on the target areas of knowledge sought. These criteria refer to reliability and validity.

Reliability and Internal consistency

Measures of reliability seek to establish whether an instrument will yield assessment data in a consistent way. The most common evaluation is test-retest reliability that involves determining the correlation between scores following two administrations of the instrument, generally undertaken about two weeks apart. Such data were not available in the present study. Determining internal consistency is a second way to examine the integrity of an instrument. Internal consistency relates to the relationship between items and a total score and can be judged by calculation of an alpha coefficient or split-half procedures. In the present study, we considered the former.

The alpha coefficients for the focus areas are given in Table 13. Alpha coefficients are based upon the relationship between all items in a scale thus requiring responses to all. In the present study, students may not have required adjustments in all focus areas and, thus, there were considerable missing data. Notwithstanding this, the Alpha coefficients provide evidence of suitable consistency and were similar to the results reported in the psychometric analysis of the EAP Profile. Cronbach's Alpha scores above .7 are considered to be significant.

Table 13
Alpha Coefficients, Cases and Items for the Six Focus Areas

EAP BSP Focus area	Number of items	Cronbach's Alpha
Curriculum content and teaching strategies	16	.907
Communication	19	.895
Social participation/Emotional well-being	14	.909
Health and personal care	8	.858
Safety	10	.853
Learning environment/Access	10	.872

Validity

Validity refers to the ability of an instrument to measure what it is intended to measure or perform the intended function. There are four forms of validity commonly considered during an instrument's construction: *content*, *concurrent*, *construct*, and *predictive*.

Predictive validity. Predictive validity is determined by correlating test scores with an outcome measure. This was not possible in this project but is recommended as an extension to the data analysis exercise.

Content validity. Content validity refers to the extent to which the items represent the range or spread of information contained in the target domain and is typically determined by expert judgments of the suitability of the instrument to perform its function. For example, if a test were designed to assess self-perception, it would need to assess an individual's view of him or herself in relation to others in a number of domains (body image, scholarly competence, interpersonal competence) and experts would judge the extent to which the items in the instrument sample one's perceptions across those domains.

The EAP BSP was constructed using information already contained in the EAP profile, which was generally considered to have content validity. Several items were added to the Communication domain to cover the spread of issues relevant at the preschool level. In addition, the items represented existing practices within schools. Overall, the content was thought to reflect an appropriate range of adjustments that might be made for young children with impairments at the preschool or in the very early school years.

Concurrent validity. Concurrent validity is judged by the way in which an instrument provides information about known characteristics or phenomena based upon a criterion, generally scores from an existing instrument. A new test of reading comprehension, for example, would have concurrent validity if it provided reading age similar to that obtained on another test, such as an early reading test. In the present data analytic study, students were identified as having a certain level of need as a result of the ascertainment process (i.e., Levels 1 through 6). The concurrent validity of the EAP BSP could be confirmed if the results of the EAP BSP Score reflected similar student characteristics.

Figure 13 shows the mean EAP BSP Total Scores based upon the students' highest ascertainment levels. Here, data were recoded to show students with multiple impairments, given a "7" in the data and shown as "Multiple" in the Figure. It is worth recalling that Level 1 mainly refers to students awaiting ascertainment; Level 2 primarily involves monitoring the student's progress; Level 3 relates to in-class support mainly provided to the teacher; Level 4 refers to in-class support to both student and teacher; Level 5 involves some withdrawal support and the preparation of an Individualised Education Plan (IEP); and Level

6 involves development and enactment of a full IEP. Again the lack of students in ascertainment Levels 2 and 3, the mild range, is one of the features of the EAP BSP data.

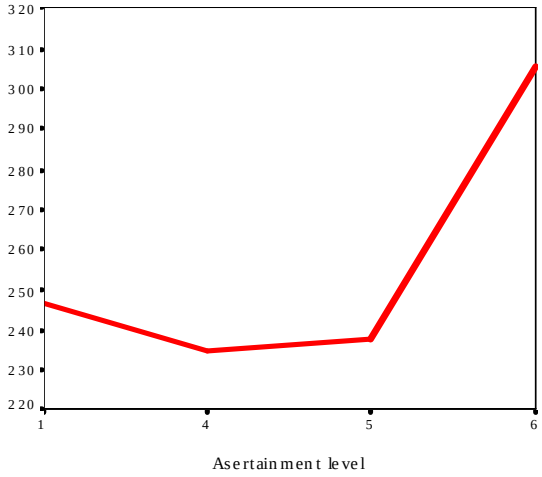

Figure 13 Students' Mean EAP BSP Total Score and Highest Ascertainment Level

Figure 13 confirms expected relationships between special need adjustments required at each ascertainment level. Figures 14 through 19 demonstrate some variable patterns in the EAP BSP focus areas ("Mean" on the y-axis refers the relevant focus area mean score for each ascertainment group). Recall that ascertainment at Level 1 is essentially a nominal evaluation while the student awaits the full evaluation.

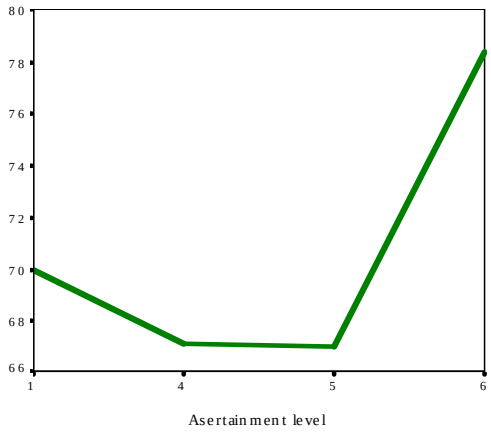

Figure 14 Mean Curriculum Adjustment Scores for Students at their Highest Ascertainment Level

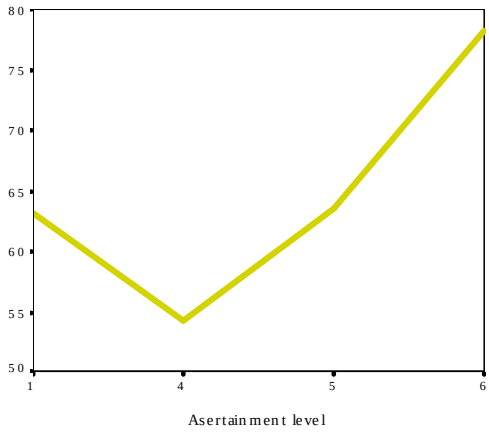

Figure 15 Mean Communication Adjustment Score for Students at their Highest Ascertainment Level

Figures 14, 15, and 16 display the anticipated pattern of increasing EAP BSP Total Domain Score as the ascertainment level increases. However, in Figures 17, 18, and 19 there are anomalous results with children at Level 4 requiring greater levels of adjustment than children at Level 5.

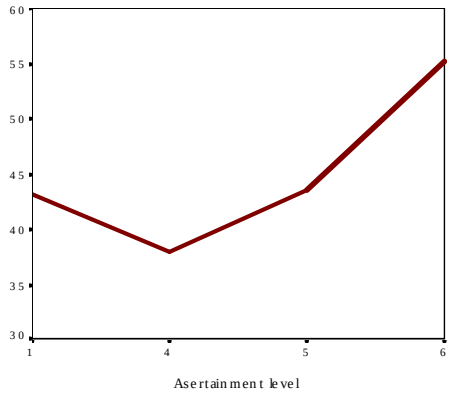

Figure 16 Mean Social Participation/Emotional Well-being Adjustment Score for Students at their Highest Ascertainment Level

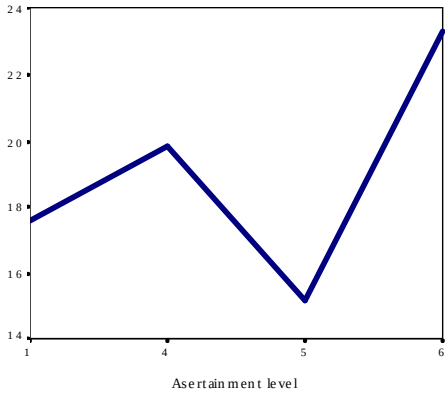

Figure 17 Mean Health and Personal Care Adjustment Score for Students at their Highest Ascertainment Level

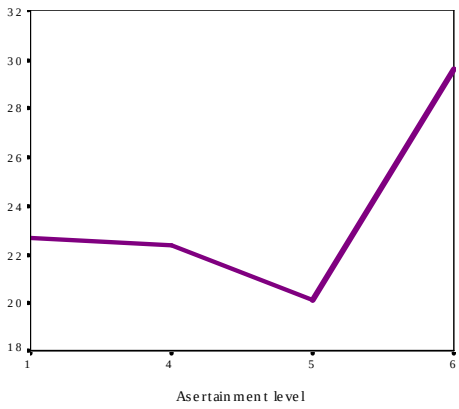

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Figure 18 Mean Safety Adjustment Score for Students at their Highest Ascertainment Level

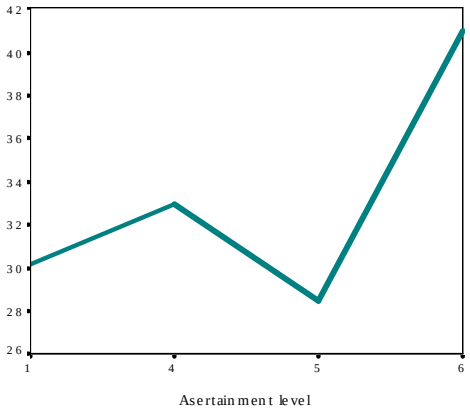

Figure 19 Mean Learning Environment/Access Adjustment Score for Students at their Highest Ascertainment Level

While not obviously explainable by scrutiny of the data, this pattern of a peak at Level 4 (Figures 17, 18, 19) needs to be understood in relationship with Table 2

and Figure 2 data. Table 2 identified that there were only 8 children at Level 4 but 52 children at Level 5. Half of the children at Level 4 were identified as having a Physical Impairment. Therefore, it is logical that issues of Access (Figure 19), Safely (Figure 18) and Heath and Personal Care (Figure 17) are likely to be high for this group. While this peak at Level 4 is not an ideal pattern in some the figures, it likely to be due in part to variability in sampling and the small number of children at ascertainment Level 4.

Construct validity. Construct validity refers to the capability of the instrument to reflect known characteristics or phenomena within the data considered against an independent indicator. An IQ test, for example, would have construct validity if it discriminated between individuals known to have very low, average, and very high academic ability.

In the present case, analysis of the EAP BSP data should reflect characteristics or phenomena associated with students known to have certain impairments or disabilities. Similar analyses were undertaken with the EAP profile.

Table 14 reflects the general high level of support and adjustments that are required by the young children who have been identified as having an intellectual impairment and those with a vision impairment. These are among the children requiring the greatest adjustments in every focus area. As was the case with equivalent data obtained during the trial of the EAP Profile, other student groups had characteristic profiles across the focus areas that corresponded with the particular needs typical of their group. Markers are highlighted in Table 14 using **bold** script.

There are a number of features that suggest impairment-specific needs, such as the high degree of support in:

- Communication for students with HI;
- Health, Safety, and Learning Environment for students with PI; and
- Social Participation and the Learning Environment with ASD.

In addition, there is a relatively low degree of support required in:

- Health and Personal Care and Safety for students with SLI; and
- Communication and Social Participation for students with PI.

Table 14

Means and SDs by Disability Group and EAP BSP Domain

Focus Area/Disability Group	Mean	SD
Total Curriculum		
Intellectual Impairment (*n* = 113)	**79.0**	12.18
Speech Language Impairment (*n* = 77)	72.5	12.12
Autistic Spectrum (*n* = 105)	73.0	15.11
Hearing Impairment (*n* = 31)	68.2	23.48
Vision Impairment (*n* = 16)	**79.1**	17.47
Physical Impairment (*n* = 36)	68.5	21.04
Communication		
Intellectual Impairment	**81.2**	17.80
Speech Language Impairment	75.5	13.40
Autistic Spectrum	73.1	18.52
Hearing Impairment	**80.4**	26.59
Vision Impairment	**79.1**	27.33
Physical Impairment	60.3	28.68
Social Participation		
Intellectual Impairment	**51.2**	16.32
Speech Language Impairment	44.1	13.77
Autistic Spectrum	**58.1**	11.91
Hearing Impairment	44.4	17.37
Vision Impairment	**50.6**	17.41
Physical Impairment	41.6	17.31
Health and Personal Care		
Intellectual Impairment	**24.3**	10.52
Speech Language Impairment	14.0	6.26
Autistic Spectrum	16.5	8.59
Hearing Impairment	16.8	11.13
Vision Impairment	**25.3**	9.76
Physical Impairment	**31.0**	7.90
Safety		
Intellectual Impairment	**28.1**	10.53
Speech Language Impairment	17.5	6.85
Autistic Spectrum	24.2	8.55
Hearing Impairment	19.5	7.58
Vision Impairment	**29.0**	13.47
Physical Impairment	**37.4**	10.98

Focus Area/Disability Group	Mean	SD
Learning Environment		
Intellectual Impairment	**38.6**	12.58
Speech Language Impairment	27.2	11.59
Autistic Spectrum	**35.7**	11.40
Hearing Impairment	32.0	14.40
Vision Impairment	**37.8**	16.17
Physical Impairment	**42.3**	10.01
EAP BSP Total Score		
Intellectual Impairment	**302.4**	65.79
Speech Language Impairment	250.8	48.98
Autistic Spectrum	280.6	59.21
Hearing Impairment	261.3	85.045
Vision Impairment	**300.9**	79.69
Physical Impairment	281.1	77.11

The results of this Table confirm expected difference in the form of support needed by students in the various impairment groups and this lends credibility to the EAP BSP in terms of its construct validity.

The data from the above table are also graphed in Figures 20 to 25. These figures demonstrate differences across the six focus domains by disability groups. Interestingly, children with a visual impairment have similar profiles to many of the children identified with an intellectual impairment. This is because many of the young children with visual impairment, sampled in this study, are multi-disabled and while their primary disability is visual impairment, the children also have an intellectual impairment.

The profile peaks by disability in the Communication domain are also understandable with children with a hearing impairment demonstrating a need for a greater adjustment in this domain.

Similarly, young children identified as having an Autistic Spectrum Disorder produced peaks in adjustment in the Social domain, which is again understandable given that deficits in social relationships is a clinical characteristic of ASD.

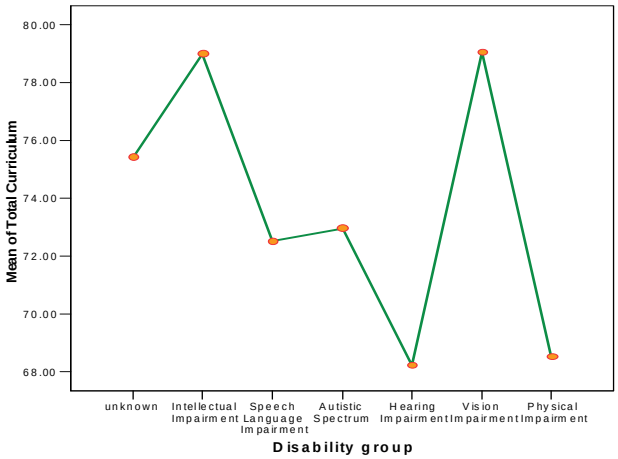

Figure 20 Mean Curriculum Scores by Disability Group

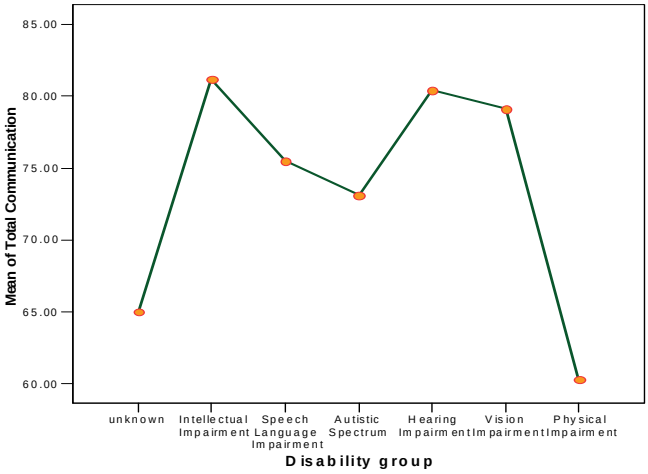

Figure 21 Mean Communication Scores by Disability Group

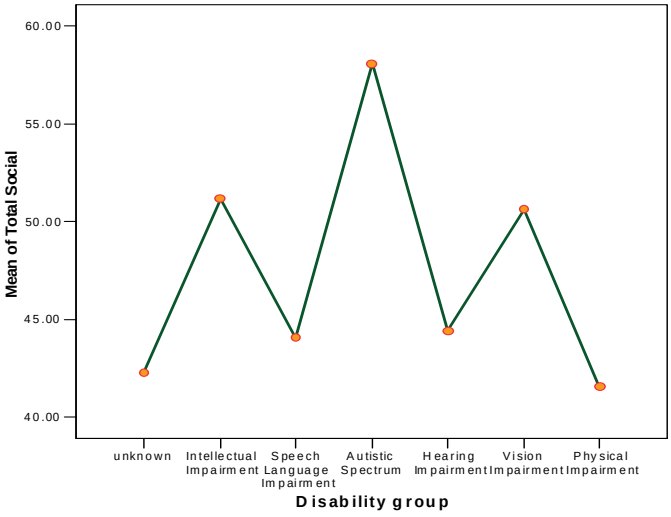

Figure 22 Mean Social Participation Scores by Disability Group

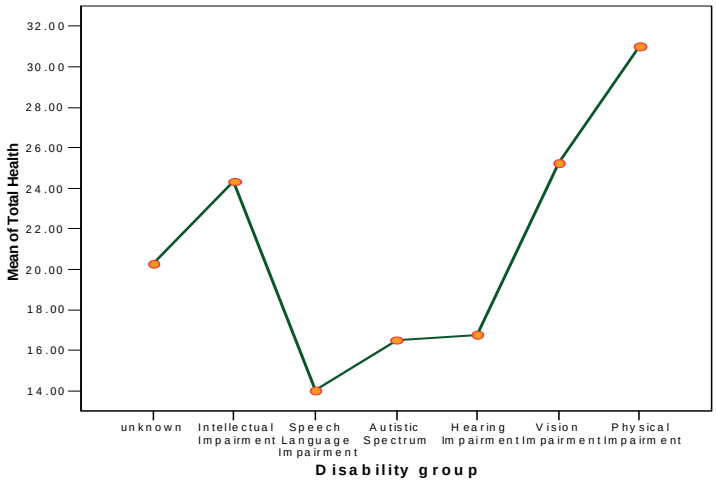

Figure 23 Mean Health and Personal Care Scores by Disability Group

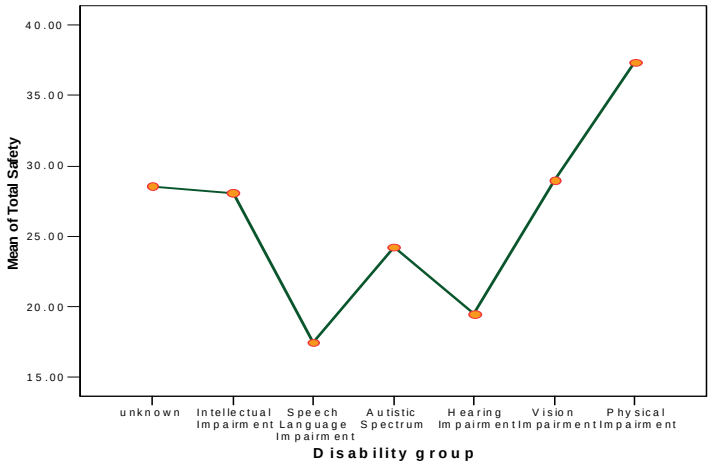

Figure 24 Mean Safety Scores by Disability Group

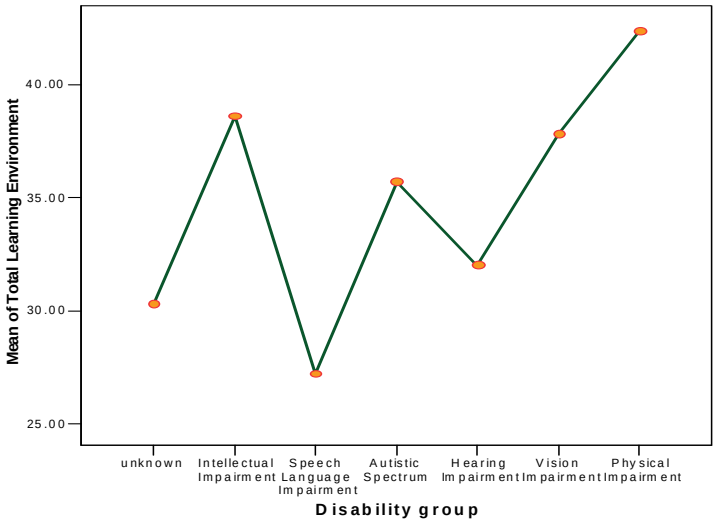

Figure 25 Mean Learning Environment Scores by Disability Group

5
PROFILES OF SPECIFIC STUDENT GROUPS

The terms of reference required an analysis of the EAP BSP profile scores for a number of target groups. In this section we deal with age and gender differences, Indigenous students, and students in various education settings.

Indigenous students

Interest has been expressed in identifying any existing differences between Indigenous and non-Indigenous students in terms of their education adjustments. It will be noted that there were only 20 students with known Indigenous cultural backgrounds, against 365 non-Indigenous. Data were analysed using multivariate analysis of variance based on the focus area and EAP BSP Total Scores. The multivariate statistic was not significant (Wilk's Lambda = .58, $p > .05$) thereby denying examination of the univariate statistics. This result indicates no significant differences based on Aboriginality.

Gender differences

Multivariate analysis of variance was conducted using EAP BSP Total Score and scores from the six focus areas. The multivariate statistic was significant (Wilk's Lambda = 3.99, $p < .001$) allowing examination of the univariate statistics. Table 15 shows two statistically significant differences between the gender groups with the boys needing more Social Participation/Emotional Well-being adjustments than the girls, and the girls more Health and Personal Care adjustments than boys, see Table 15 for means. A similar finding was noted in the report on the analysis of the EAP Profile although, in those data, there was also a difference between gender on Curriculum.

Table 15
Mean EAP BSP Total Score (M) by Gender Across Focus Areas

	Gender	
Focus area	Male (*M*)	Female (*M*)
Curriculum	73.7	75.6
Communication	75.0	76.7
Social Participation/Emotional Well-being	51.1	46.9*
Health and Personal Care	19.2	22.8**
Safety	24.6	26.7
Learning Environment/Access	35.1	35.4
EAP BSP Total Score	278.6	284.0

* $p < .05$
** $p < .01$

Regional location

One issue of continuing concern is the distribution of students with special education needs across Education Queensland zones. In the present study, there were no significant differences between the mean EAP BSP Total Scores for students in urban (*n* = 297), rural (*n* = 77) and remote (*n* = 11) settings. Mean scores were 281.0, 276.6, and 277.5 respectively. The overlap can be seen in Figure 26.

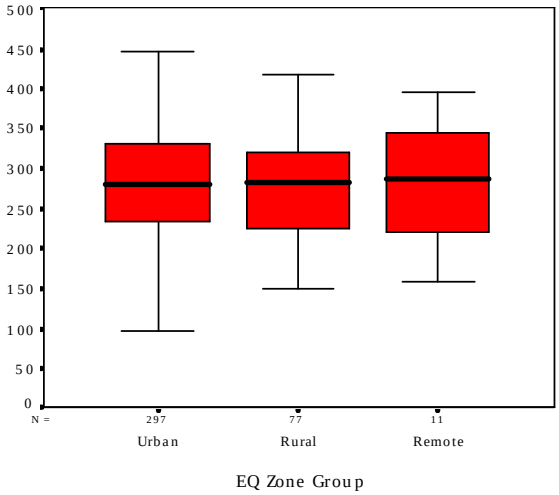

Figure 26 Mean EAP BSP Total Score by Education Zone

Compulsory versus non-compulsory education settings

Data were examined in terms of the children's location in compulsory school settings (i.e., Year 1, Year 2, SEU in primary school, special school) and those located in non-compulsory school settings (i.e., SEDU, preschool and prep year).

Table 16 identify that children in the non-compulsory setting have higher EAP BSP Total scores than children in compulsory settings. This difference between the mean scores is statistically significant F (1,383) = 5.02 $p < .05$. The six focus areas by compulsory school setting are graphed in Figure 27.

Table 16
EAP BSP Total Score by Non or Compulsory Schooling

Schooling Period	*n*	*%*	*M*	*SD*
Non-compulsory	221	57%	286.56	62.92
Compulsory	164	43%	271.21	70.94

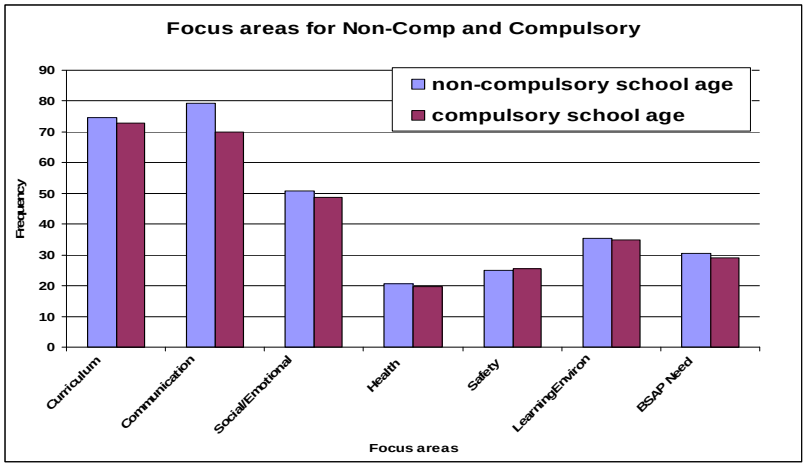

Figure 27 Six Focus Areas by Non or Compulsory School Setting

A series of analyses were undertaken to explore any difference between students in the non-compulsory school years and those at the beginning of the compulsory years (Table 17).

Table 17
Mean Total Focus Area Scores by Non or Compulsory Period

	Means for Period	
Focus area	Non-compulsory	Compulsory
Curriculum	75.0	73.0
Communication	79.6	69.9
Social Participation/Emotional Well-being	51.0	46.7
Health and Personal Care	20.5	19.6
Safety	24.9	25.4
Learning Environment/Access	35.5	34.8
Competence Total Score	29.9	28.9
EAP BSP Total Score	286.6	271.2

Multivariate analysis of variance was undertaken using the focus area total scores and the EAP BSP Total Score (Wilk's Lambda = 6.55, p < .001) thereby allowing examination of the univariate statistics.

Only one univariate difference was significant, Communication, $F = 22.30$, $p < .001$. This is understandable as communication skills vary rapidly in the early years, especially those immediately before a child begins school.

The data here demonstrate the importance of adjustments as early as possible to override any communication delay that a child may be experiencing in the pre-compulsory schooling period.

Univariate analyses of variance were also computed with a view toward discovering any factors that might lead to other differences between students in the non-compulsory and compulsory years (period). Analyses considered the effects of period and location. There was a main effect for period, $F = 4.89$, $p <. 05$) but none for location or for an interaction between period and location, $F = 1.88$, $p > .05$.

Another analysis explored differences between groups using the Total Needs Support Score as the dependent measure. There were no statistically significant difference or interaction effects for period, $F = 3.43$, $p > .05$; for location, $F = .65$, $p > .05$; or for period x location, $F = 2.61$, $p > .05$.

Gender differences were also examined in the same way, and again there were no statistically significant results for period, $F = .55$, $p > .05$; for gender, $F = 3.66$, $p > .05$; or for period x gender, $F = .00$, $p > .05$.

Age differences by location

The children in the sample attended a range of education settings. The distribution of children by age and setting is given in Table 18 and graphed in Figure 28. There was a significant difference by age across the eight educational settings, F (7,377) = 51.74, Sig = .000.

Table 18
Distribution of Students by Age and Class Placement

Location	Descriptive Statistics in Years				
	N	Mean Age	S D	Minimum Age	Maximum Age
Special Education Developmental Unit	198	5.40	.52	4.46	7.21
Prep Year	11	5.65	.44	5.03	6.35
Year one	41	6.44	.51	5.55	7.42
Special School	23	6.17	.49	5.45	7.27
Special Education Unit	77	6.44	.46	5.47	8.38
Special Education Class	20	6.47	.46	5.59	7.27
Preschool	14	5.45	.59	4.62	6.96
Year 2	1	6.99	.	6.99	6.99
Total	385	5.84	.71	4.46	8.38

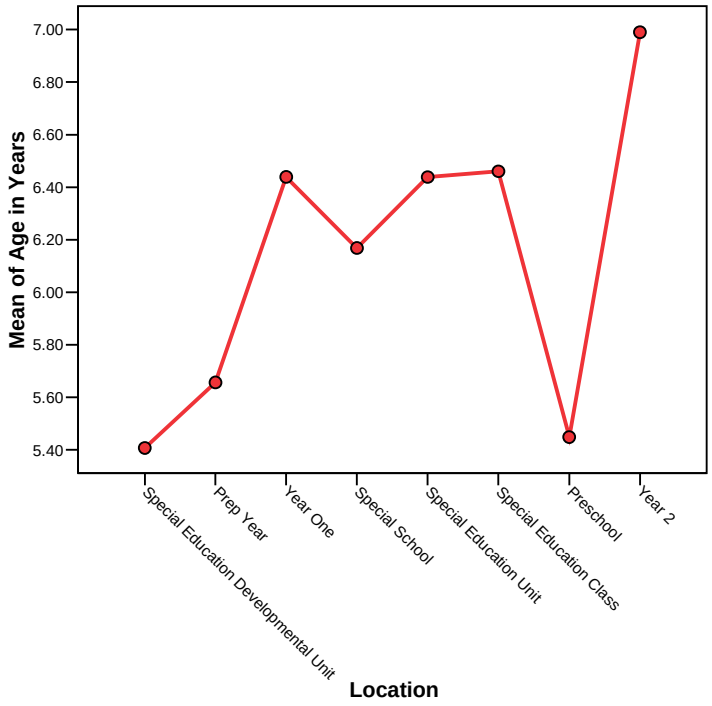

Figure 28 Mean Age of Children by Location

These data generally conform to the age characteristics of children in each of the settings. There is a very narrow age band in all settings with the exception of Year 2 (but it must be noted that there is only children in that group).

Location and EAP BSP total scores

There was a significant difference by location and EAP BSP Total Scores, *F* (7, 377) = 13.82, Sig = 000. The means and standard deviations of children's EAP BSP Total Scores by location is reported in Table 19 and graphed in Figure 29.

Table 19
Means and Standard Deviations of EAP BSP Total Score of Students by Class Placement

Location	Descriptive Statistics of EAP BSP Total Scores				
	N	Mean	Std. Deviation	Minimum	Maximum
Special Education Developmental Unit	198	291.67	60.05	127.00	428.00
Prep Year	11	269.09	59.53	167.00	335.00
Year One	41	221.02	50.86	124.00	384.00
Special School	23	358.78	55.44	152.00	447.00
Special Education Unit	77	273.34	64.80	97.00	408.00
Special Education Class	20	264.95	51.91	158.00	383.00
Preschool	14	237.86	69.80	113.00	354.00
Year 2	1	263.00	.	263.00	263.00
Total	385	280.39	66.49	97.00	447.00

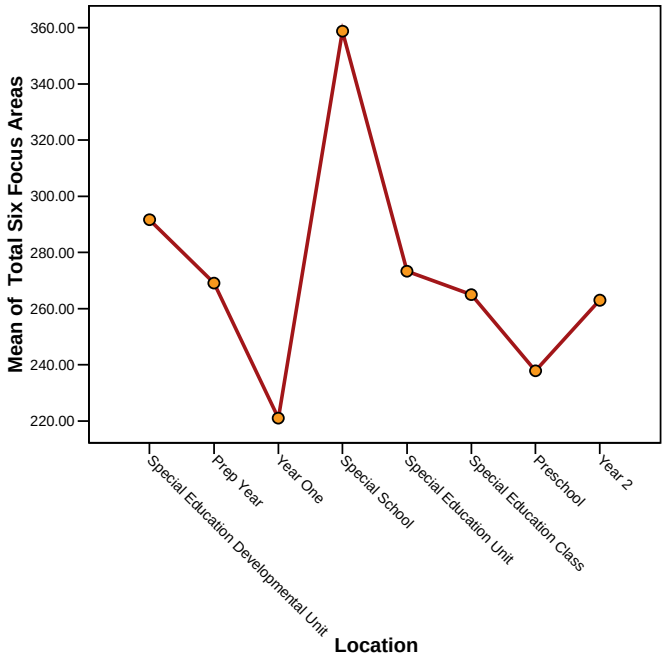

Figure 29 Means EAP BSP Total Score by Location

As illustrated in Figure 30, across the eight educational locations there is a wide range of EAP BSP Total Scores and so levels of disability. Special schools have the greatest cluster of students with the greatest need for educational adjustment, while SEDU and SEU locations have the greatest range of children's scores. (The four numbers in the figure represent outliers within the main distribution.)

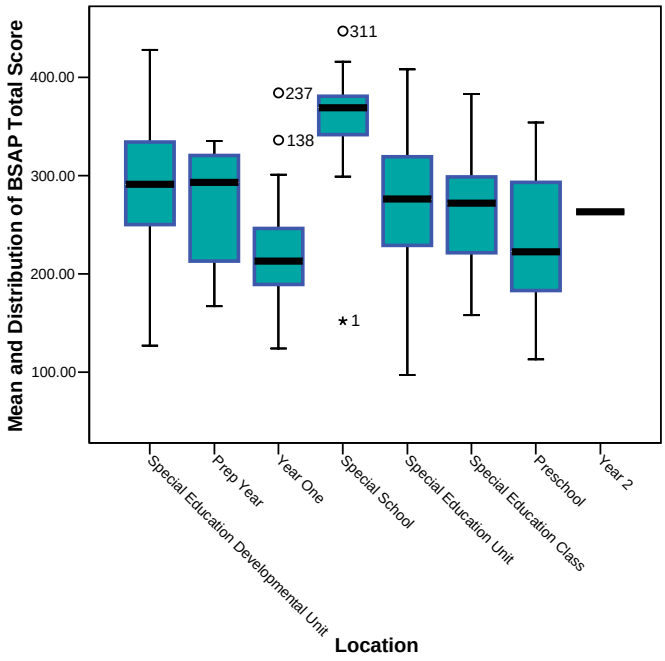

Figure 30
Distribution of EAP BSP Total Scores by Location

Figures 31 to 36 show the relative profile by locations in regard to the six adjustments domains. As can be seen in these figures, children attending special schools required the highest level of adjustment in all focus areas and those attending special education development units the next highest. Children in mainstream "inclusion" settings (Year 1 and Preschool) have the lowest domain focussed adjustment scores. These figures can be interpreted in association with Table 2, which reports disability groups and Table 19, which reports location and numbers. Caution needs to be given to the Year 2 data, as this is based on only one child located in a small rural school, while sampling is stronger for the other locations.

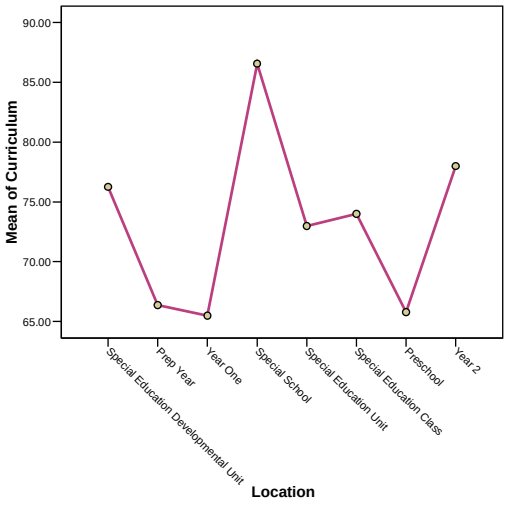

Figure 31 Mean Total Curriculum Scores by Location

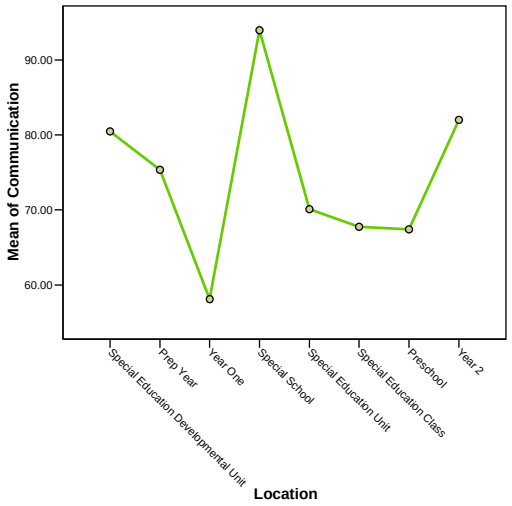

Figure 32 Mean Total Communication Scores by Location

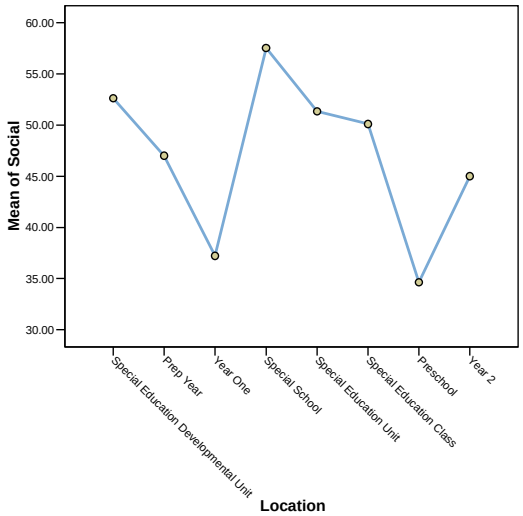

Figure 33 Mean Total Social Participation /Emotional Well-being by Location

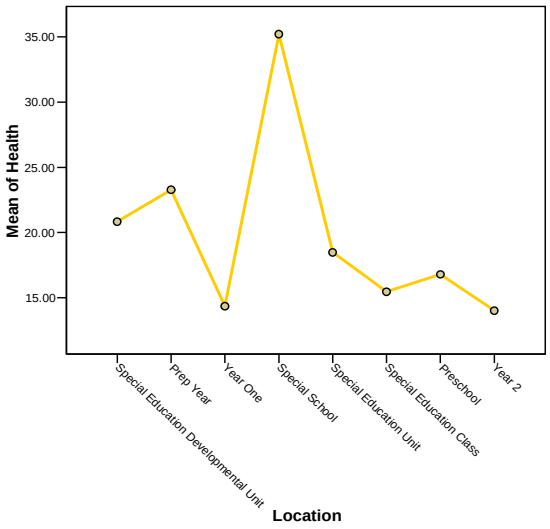

Figure 34 Mean Total Health and Personal Care Scores by Location

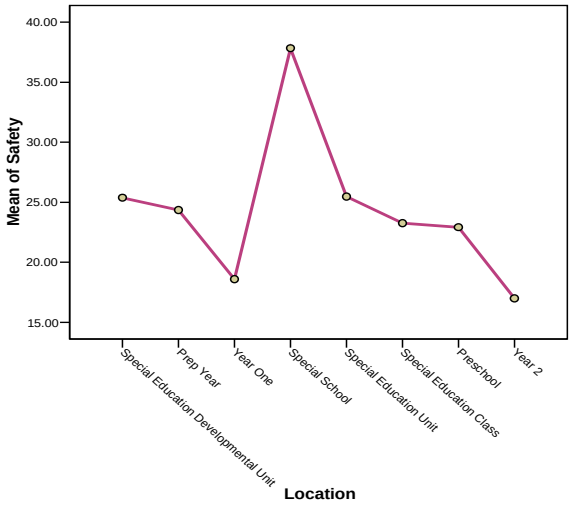

Figure 35 Mean Total Safety Adjustment Scores by Location

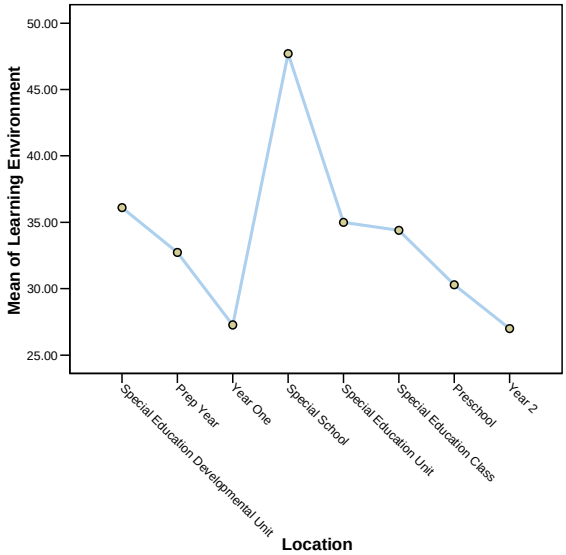

Figure 36 Mean Learning Environment/ Access Adjustment Scores by Location

6
COMPARISON OF THE EAP PROFILE AND EAP BSP

The EAP BSP is an adaptation of the EAP Profile. The instruments appear to have similar psychometric characteristics and discriminate well between students and student groups.

The EAP BSP trial instrument had some advantages over the trial EAP Profile, largely as a function of the more consistent application of response options for each of the items. As recommended, the “Overall Ratings” that were included at the end of EAP items in each focus area were eliminated as these provided little additional information to that available from the analysis of the complete instrument.

It was not unexpected to find that the distribution of the EAP BSP Total Scores approximated a normal curve in the same way as the EAP Profile. Such a distribution demonstrates that there is sufficient range across items to ensure that there are no ceiling or floor effects in the data and that higher order analysis is possible. No student obtained a score with 10 points of the minimum or the maximum score.

Analysis of the EAP BSP also draws attention to the inadequacy of the ascertainment process. As was the case for the EAP Profile, the EAP BSP shows its ability to discriminate between student groups notably in differentiating the adjustment profiles of those who have already been ascertained. These children were predominately in special education units attached to primary schools, n = 77, special education classes n = 20, included in Year one classrooms n = 41, or attending special schools n = 23. Of continuing interest is evidence of the inappropriateness of ascertainment in terms of that process of being able to provide an accurate indication of students’ needs (in terms of education adjustments). Figure 37 we consider the relationship between the ascertainment category and levels and the EAP BSP profile.

In this report, we used ascertainment as a basis for establishing concurrent validity. Ascertainment is essentially a classification tool. The EAP BSP (and EAP Profile) goes the significant step further by focusing on the actual adjustments (or needed adjustments in terms of children who have not commenced the compulsory years of schooling) in planning, program development, implementation of teaching strategies and programs, and the monitoring of students’ progress.

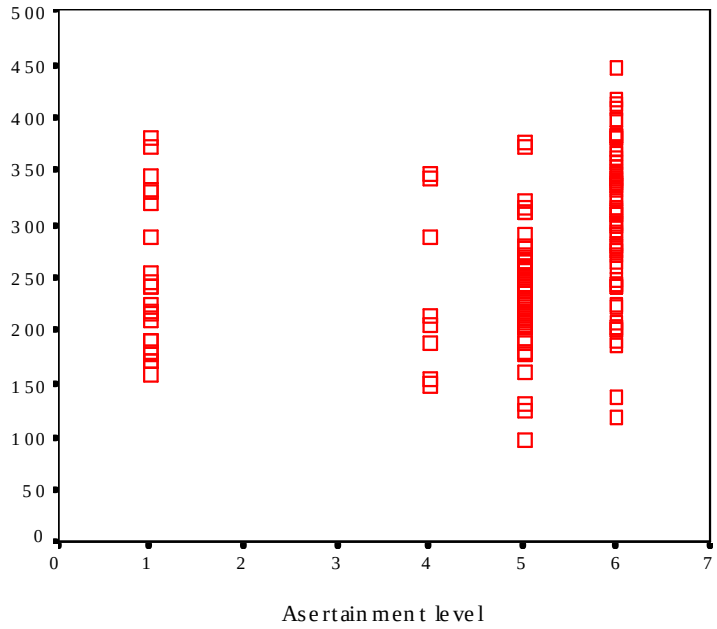

Figure 37 Distribution of Students at the Ascertainment Levels According to EAP BSP Profile Total Score

In the EAP study, we found ascertainment level and EAP Total Score to be moderately correlated (r = .61). The relationship between the EAP BSP and ascertainment level for the younger children is considerably lower (r = .44). We excluded students who were ascertained Level 1. Although r = .44 is still a statistically significant coefficient at p < .01 it reflects only 19% of the variation in scores that is attributable to the relationship between the two variables. In other words, there are still many other factors that account for the relationship between scores.

To clarify the distribution illustrated in Figure 37, Figure 38 displays the combination of children's ascertained level by disability, again excluding children with a Level 1 ascertainment. At all ascertainment levels there are differences between impairment categories (refer back to Table 2 for information on numbers and impairment categories). For example, the magnitude of adjustments (EAP BSP Total Score) for students with hearing impairment (HI) at Level 6 is 275.1 with a high standard deviation (SD = 101.5) reflecting a wide spread within that distribution.

For a student with intellectual impairment (II), it is 338.2 with a much narrower spread of scores (SD = 54.2). In Figure 38 the anomaly of the HI ascertainments is most apparent, with students with a Level 4 ascertainment requiring substantially more adjustments than those with Levels 5 and 6 ascertainments. If must be noted, however, that there are only 2 children at Level 4 and 3 Level 5 for HI children in this sample. The HI group comprises 15 individuals only. Such an anomaly might be removed by a larger sample size.

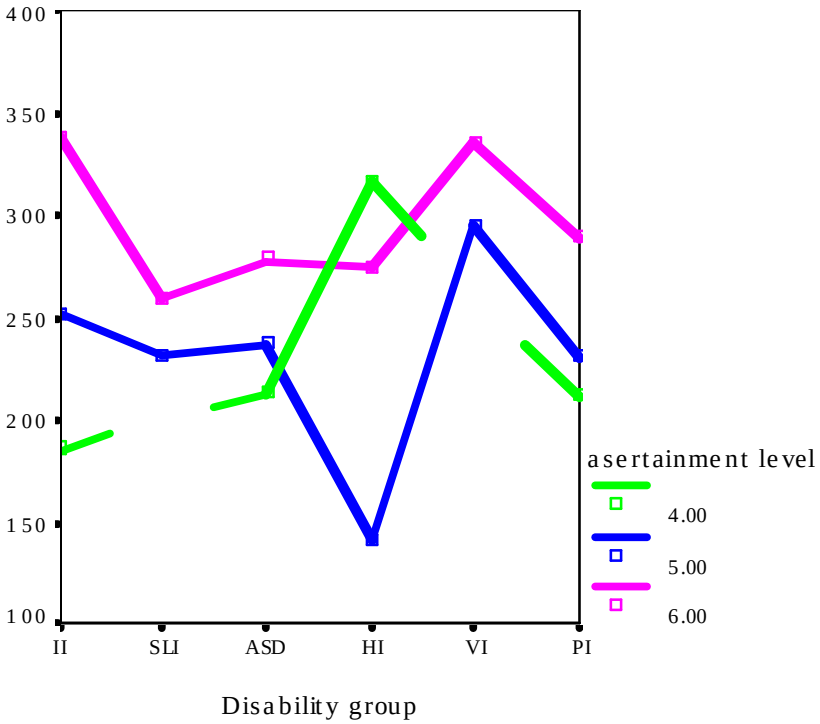

Figure 38 Mean EAP BSP Total Score of Students by Ascertainment Level Score by Disability Group

Conclusion

It is important to emphasise at this point that the research team was engaged to undertake analysis of the data collected during the trial of the EAP BSP to make recommendations concerning its psychometric characteristics.

The information provided in this report confirms findings related to the earlier analysis of the EAP Profile, that these newly developed instruments provide a significant improvement over the ascertainment process.

The profile is based upon actual adjustments to the students' teaching-learning environment, all of which place increased demands upon the school they attend, their teachers, and other education personnel.

In our earlier report, we noted that perhaps the greatest advantage of the EAP Profile was its ability to redress inequities inherent in the funding model based upon ascertainment. It is clear that the EAP BSP and EAP Profile will also provide a mechanism for estimating and establishing advantageous conditions that will optimise students' learning outcomes.

We have not had the opportunity to fully view the current revision of the EAP Profile but would recommend that any future development of the EAP Profile and the EAP BSP consider bringing the form and structure of the two instruments together as closely as possible.

The EAP profile is a relatively straightforward instrument to complete requiring the involvement of stakeholders aware of students' educational circumstances and the adjustments that are already in place and those that might be required in the future.

Data can be collected locally via electronic forms and access can be gained centrally. Simple calculations can be made using the existing students' databases on which to allocate support.

7
MAINTAINING AN EAP DATABASE

In this section, we comment briefly upon the trial instrument and the mechanisms that will allow for on-going statistical analysis of the EAP and EAP BSP. First, we turn our attention to the instruments.

EAP Profile and EAP BSP

In general terms, both instruments are well-constructed and secure in terms of their capability of providing information upon which variations can be made to students' teaching-learning environments and the provision of support to enable those adjustments to be achieved. It is apparent to us that both instruments can provide sound information on administrative, educational programming, and school environment that will facilitate student learning.

Analysis of the EAP BSP was facilitated by the consistency in item construction, an improvement over the original version of the EAP Profile. Our earlier recommendation was for eight response options and realise that some of these may not be relevant in some situations. If the EAP BSP and EAP Profile are to be completed on-line with data analysis being undertaken remotely, then some consideration should be given to the numerical values assigned to each option level. It is noted that some re-coding may have been necessary to convert responses (e.g., "From once per **T**erm to once per month") to a numerical value of 3.

The only other observation we make about the construction of both instruments is the need to provide a diverse set of examples and applications for each item and related to the broadest range of educational settings. This is to assist the different reader's comprehension of the item when completing the profile on a student. It is likely that consultation in the field with those completing evaluations in the future may be of assistance.

Ongoing statistical analysis

In the previous project dealing with the EAP Profile, we presented a case for the use of the EAP Total Score as the basis upon which resources might be allocated to school to support SWDs. It is our view that the EAP BSP Total Score is a similarly valuable assessment of a student's total adjustment needs in the pre-compulsory and early years of compulsory schooling. We are aware that resource allocation is a complex matter and is subject to a variety of influences including those that are political, administrative, and practical. It is our view only minor adjustments may be needed to bring the EAP Profile and the EAP BSP

into closer alignment so that the same distribution of score might be used regardless of the child's education setting.

Both Total Score distributions are shown below (Figures 39 and 40). There would seem to be considerable merit in undertaking a medium-term analysis of the accumulating EAP Profile and EAP BSP data, with a view to some item additions/subtractions or variations that would lead to instruments with closely aligned psychometric characteristics.

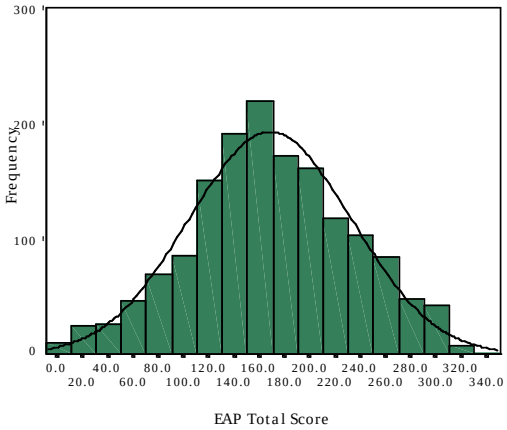

Figure 39 Distribution of Students' EAP Total Scores

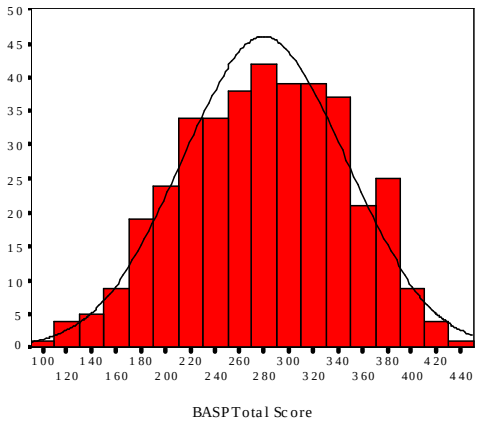

Figure 40 Distribution of Students' EAP BSP Total Scores

We recognise that some amendments have already been made to the EAP Profile. However, to continue our line of thinking, in Table 20 is reported a comparison of the EAP Profile and EAP BSP. We have adjusted the EAP Profile score to reflect the same scoring options as the EAP BSP, that is, we have added 74 to each EAP Profile score (the number of items in the EAP Profile, that is, the addition of another possible minimum of 74 points). Based on this Table it would seem feasible to bring both instruments closer in terms of their metric to

minimise the compilation of data and maximise the interpretation to those working with students in the full range of education settings.

Table 20
A Comparison of EAP Profile and EAP BSP Scores and percentile (EAP Profile has been adjusted to reflect an alternative scoring procedure similar to the EAP BSP)

Variable	**Profile Instrument**	
	EAP BSP Mean score	EAP Mean score
Curriculum Total Score	74.2	63.8
Communication Total Score	75.4	65.5
Social Participation Total Score	50.0	41.7
Health Total Score	20.1	15.7
Safety Total Score	25.1	28.5
Learning Environment Total Score	35.2	29.1
Total Score	280.0	242.0
Percentile rating		
20th percentile	218.2	191.0
40th percentile	260.4	226.0
60th percentile	300.6	257.0
80th percentile	341.0	299.0
100th percentile	447.0	417.0

In conclusion, in the previous report we stated that it is impossible to foresee all of the consequences of a change in the SWD funding model. Even so we advocated for such a change and urged that the implementation process of the EAP Profile, and now the EAP BSP, be considered as a “work in progress” and that the execution is staged and monitored carefully to ensure equity and transparency.

Our dealings with colleagues in the field would suggest that there is widespread acceptance of the new assessment instruments and optimism about the role that the EAP Profile and EAP BSP will play in providing more effective learning outcomes for our most vulnerable students.

We do not see any major complications in terms of maintaining a valuable database on the EAP Profile and EAP BSP along the lines of that, which is already established via SCOLR.

8
RECOMMENDATIONS

Based upon the information provided above, the research team makes the following recommendations:

1) The EAP BSP be introduced within a suitable timeframe as a means of assisting deliberations about the level of support required by children with a disability in an early education setting, and that the EAP BSP be administered and monitored in accordance with existing Education Queensland procedures and protocols.

2) Consideration needs to be given to the alignment of the EAP BSP and EAP Profiles to establish similar psychometric characteristics and, therefore, comparability of scores across age groups.

3) Work to be undertaken to develop an on-line version of the EAP BSP along the lines of the EAP Profile.