

Technical Report on

Developmental Skills, Supports, & Challenges

from the

2013-2016 **Minnesota Student Survey**

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Developmental Skills, Supports, & Challenges
2013-2016 Minnesota Student Survey Technical Report

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Developmental Skills, Supports, & Challenges Measurement Models
2013-2016 Minnesota Student Survey Technical Report

The Minnesota Student Survey

The Minnesota Student Survey (MSS) is designed by an interagency team from the MN Departments of Education, Health & Human Services, Public Safety, and Corrections to monitor important trends and support planning efforts of the collaborating state agencies and local public school districts, as well as youth serving agencies and organizations.

Beginning in 2013, the MSS is administered every three years to students in grades 5, 8, 9, and 11. All operating public school districts are invited to participate. The study design is correlational, thus no causal arguments can be made from these data

A number of developmental skills and supports and contextual challenges youth face were identified in subsets of items from the MSS, based on close attention to the Developmental Asset Framework of Search Institute and the more general ecological model of youth development described below. Components of the Developmental Asset Profile (DAP, from Search Institute) were introduced in 2013 to the MSS and are identified as such in these technical summaries.

Positive Youth Development & Developmental Assets

There are perhaps six essential principles regarding positive youth development about which there is broad consensus (Benson, Scales, Hamilton, & Sesma, 2006), including:

1. youth have the inherent capacity for positive development;
2. positive development is enabled through relationships, contexts, and environments that nurture development;
3. positive development is enhanced when youth participate in multiple meaningful relationships, contexts, and environments;
4. all youth benefit from these opportunities, the benefits of which generalize across gender, race, ethnicity, and family income;
5. community is a critical delivery system for positive youth development; and
6. youth themselves are major actors in their own development, serving as a central resource for creating the kinds of relationships, contexts, environments (ecologies), and communities that facilitate optimal development.

The developmental contexts from an ecological perspective where youth are located interact with the inherent capacity of youth to grow and thrive; their developmental strengths, skills, competencies, values and dispositions; and two related aspects of developmental success, the reduction of high-risk behaviors and the promotion of healthy well-being or thriving (Benson, et al., 2006). The work in this area is exploring many aspects of context, all which might influence positive youth development, including success in school and beyond – providing useful information for strong policy development and prevention and intervention programming.

More generally, the field of youth development has welcomed the positive psychology movement – embracing a positive vision of youth potential (Damon, 2004) and recognizing the dynamic relations between youth and multiple levels of the ecology of human development, including self, family, peers, school, community, and broader cultures (Bronfenbrenner, 1979; Lerner, 2002).

The concept of developmental assets comes from a line of research guided by the work of Benson (1990, 2002, 2006) and others at Search Institute who created a theory-based framework of developmental assets linking features of ecologies (external assets) and personal skills and capacities (internal assets), guided by the hypothesis that these assets form developmental building blocks that prevent high-risk behaviors and enhance thriving.

This report applies the Development Asset framework and identifies relevant challenges facing youth to extract information from the MSS. With this information, we are able to develop community-based profiles, here, addressing differences due to grade, race, and ethnicity.

Minnesota Youth Development Research Group

The Minnesota Youth Development Research Group¹ has conducted research with the Minnesota Student Survey (MSS) over the past decade employing MSS data from 2001 to 2016. These studies have contributed to our knowledge base regarding out-of-school-time activities, risk factors, and noncognitive or social-emotional skills. Some of the earlier reports were submitted to the Applied Research Collaborative on Youth Development, Extension Service at the University of Minnesota. Most of the reports have been presented at the annual meetings of the American Educational Research Association and the National Council on Measurement in Education (see the Appendix for a list of papers).

The 2013 MSS underwent a relatively major revision, including more information on student background and demographics, and more information regarding school-based experiences and developmental skills, what some have called developmental assets or social-emotional skills. These items were the basis for proposing a new set of measures including developmental skills, supports, and challenges faced by MN students. They include:

<i>Developmental Skills</i>	<i>Developmental Supports</i>	<i>Developmental Challenges</i>
1. Commitment to Learning	1. Empowerment	1. Bullying
2. Positive Identity	2. Family/Community Support	2. Bullied
3. Social Competence	3. Teacher/School Support	3. Mental Distress
		4. Family Violence

¹ Directed by Michael C. Rodriguez, Professor of Quantitative Methods in Education, Department of Educational Psychology, College of Education & Human Development, University of Minnesota.

Through preliminary presentations of student profiles on these skills, supports, and challenges, and associated school-related information from the MSS, educators, school leaders, community leaders, and researchers reported to see promise in the value of reporting on these measures at the state, district, and school levels. In addition, these measures and related information have been presented to members of the MSS Interagency Team with very positive responses and encouragement to pursue further investigations using the measures.

In concordance with the professional standards (AERA, APA, & NCME, 2014) for test design and score use, this *Technical Report* is provided to describe relevant methods of constructing each measure and the quality evidence gathered to defend score interpretation and use.

With the recent administration of the 2016 MSS, and due to a number of minor changes in the survey (described as needed), the measures were all rescaled in 2016 to provide a common score scale for each measure across the two administration periods. The 2013 and 2016 data were combined, to create a composite data file, and all analyses in this report are based on that file.

Numbers of 2013 and 2016 MSS Participants

Grade		Year		Total
		2013	2016	
5	n	39854	41865	81719
	%	24.6%	24.8%	
8	n	42841	44983	87824
	%	26.4%	26.7%	
9	n	42381	45309	87690
	%	26.2%	26.9%	
11	n	36958	36576	73534
	%	22.8%	21.7%	
Total		162034	168733	330767

References

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Interpretation of Developmental Skills & Supports

Developmental Skills

Commitment to Learning

caring about doing well in school, paying attention in class, going to class prepared, interested in learning, finding school learning useful, and being a student is an important part of who I am.

Positive Identity

having a sense of control of one's life, feeling good about self and future, dealing well with disappointment and life's challenges, and thinking about one's purpose in life.

Social Competence

saying no to dangerous/unhealthy things, building friendships, expressing feelings appropriately, planning ahead and making good choices, resisting bad influences, resolving conflicts without violence, accepting differences in others, and recognizing the needs and feelings of others.

Developmental Supports

Empowerment

having a sense of safety at home, at school, and in the neighborhood; feeling valued and appreciated; being included in family roles; and having responsibilities

Family/Community Support

being able to talk with mothers (if available) and feeling cared for by parents, other adult relatives, friends, and other adults in the community.

Teacher/School Support

reporting that adults at school treat students fairly and listen to students; that school rules are fair; that teachers care about students and care about and are interested in you.

Out-of-School-Time (OST) Positive Experience

Students report that when they spend time doing activities outside of the regular school day, they feel safe, learn skills like teamwork and leadership, develop trusting relationships with peers and adults, help make decisions, do things that give them joy and energy, and learn skills they can use in future jobs.

Interpretation of Developmental Challenges

Developmental Challenges

Bullied

student experiences as a victim of bullying, such as being harassed or bullied because of race, religion, gender, sexual orientation, disabilities, weight or physical appearance, by means of social media; being pushed around or hit, threatened, lied about, being the recipient of inappropriate jokes or comments, or being excluded from friends and activities. The focus here is on the prior 30 days of school from MSS administration (late-winter).

Bullying

student experiences as a perpetrator of bullying, such as physical assault or fighting, threatening others, spreading rumors, making inappropriate jokes or comments, or excluding others from friends and activities. The focus here is on the prior 30 days of school from MSS administration (late-winter).

Mental Distress

involves significant emotional, behavioral, and mental health problems, including having long-term mental health, behavioral, or emotional problems; having been treated for mental health, emotional, or behavioral problems; having considered or attempted suicide; or purposively hurting or injuring oneself.

Family Violence

the presence of excessive alcohol use or drug use in the family, or verbal, physical, or sexual abuse from adults in the family.

DEVELOPMENTAL SKILLS

Commitment to Learning

None of the DAP² Commitment to Learning items appear on the MSS. The MSS measure of CtL is based on pre-existing MSS items that are related to DAP items.

- 18. How often do you care about doing well in school?
- 19. How often do you pay attention in class?
- 20. How often do you go to class unprepared? (reversed)
- 21a. If something interests me, I try to learn more about it.
- 21b. I think things I learn at school are useful.
- 21c. Being a student is one of the most important parts of who I am.

CtL as measured in the DAP:

- I enjoy reading or being read to.
- I care about school.
- I do my homework.
- I enjoy learning.
- I am trying to learn new things.
- I am encouraged to try things that might be good for me.
- I am eager to do well in school and other activities.

Positive Identity (MSS Question 60) – All items are stated exactly as in the DAP.

- a. I feel in control of my life and future. [Replaced with W57L1a in Grade 5]
- b. I feel good about myself.
- f. I feel good about my future.
- g. I deal with disappointment without getting too upset.
- h. I find good ways to deal with things that are hard in my life.
- n. I am thinking about what my purpose is in life. [Replaced with W57L1n in Grade 5]

Social Competence (MSS Question 60) – All items are stated exactly as in the DAP.

- c. I say no to things that are dangerous or unhealthy.
- d. I build friendships with other people.
- e. I express my feelings in proper ways.
- i. I plan ahead and make good choices.
- j. I stay away from bad influences.
- k. I resolve conflicts without anyone getting hurt.
- m. I accept people who are different from me.
- q. I am sensitive to the needs and feelings of others.

² Developmental Asset Profile, by Search Institute, Minneapolis, MN.

DEVELOPMENTAL SUPPORTS

Empowerment – All items are stated as in the DAP.

- 22b. I feel safe at school
- 22c. I feel safe in my neighborhood
- 22d. I feel safe at home
- 60l. I feel valued and appreciated by others
- 60o. I am included in family tasks and decisions
- 60p. I am given useful roles and responsibilities

Family/Community Support

- 8. Can you talk to your mother about problems you are having? (reversed)
- 59a. Your parents care about you
- 59b. Other adult relatives care about you
- 59c. Friends care about you
- 59e. Adults in your community care about you

Teacher/School Support

- 21d. Overall, adults at my school treat students fairly
- 21e. Adults at my school listen to the students
- 21f. The school rules are fair
- 21g. At my school, teachers care about students
- 21h. Most teachers at my school are interested in me as a person
- 59d. Teachers/other adults at school care about you

<>

OST Positive Experience (only in 2016)

- W34a. feel safe
- W34b. learn skills like teamwork or leadership
- W34c. develop trusting relationship with peers your age
- W34d. develop trusting relationship with adults
- W34e. help make decisions
- W34f. do something that gives you joy and energy
- W34g. learn skills that you can use in a future job

DEVELOPMENTAL CHALLENGES

Bullied (victim)

During the last 30 days, how often have other students harassed or bullied you for any of the following reasons?

Y25a Your race, ethnicity or national origin

Y25b Your religion

Y25c Your gender (being male or female) ["transgender, etc." added in 2016]

Y25d Because you are gay or lesbian or because someone thought you were [Not 5th grade]

Y25e A physical or mental disability

Y25f Your weight or physical appearance [Not in 2016]

W27gh Combined the following two items to emulate Y25f [Not in 2013]

W27g Your size or weight

W27h Your physical appearance

Y26 During the last 30 days, how often have you been bullied through e-mail, chat rooms, instant messaging, websites or texting?

During the last 30 days, how often have other students at school...

Y27a pushed, shoved, slapped, hit or kicked you when they weren't kidding around?

Y27b threatened to beat you up?

Y27c spread mean rumors or lies about you?

Y27d made sexual jokes, comments or gestures towards you? [Not 5th grade]

Y27e excluded you from friends, other students or activities?

Bullying (perpetrator)

During the last 30 days, how many times at school have YOU...

28a. pushed, shoved, slapped, hit or kicked someone when you weren't kidding around?

28b. threatened to beat someone up?

28c. spread mean rumors or lies about someone else?

28d. made sexual jokes, comments or gestures towards someone else? [Not 5th]

28e. excluded someone from friends, other students or activities?

During the last 12 months, did you do any of the following TWO OR MORE TIMES? [Not 5th]

62d. be a bully or threaten other people?

62e. start fights with other people?

During the last 12 months, how often have you...

77c. hit or beat up another person?

DEVELOPMENTAL CHALLENGES

Mental Distress [not grade 5]

Y42 Do you have any long-term mental health, behavioral or emotional problems? Long-term means lasting 6 months or more.

treat_mh combined the two questions below into one

0=No, 1=One of the two, 2=Both

Y43 Have you ever been treated for a mental health, emotional or behavioral problem?

b. during the last year

c. more than a year ago

Y63 during the last 12 months, how many times did you do something to purposely hurt or injure yourself without wanting to die, such as cutting, burning or bruising yourself on purpose?

suic_con combined the two questions below into one

0=No, 1=One of the two, 2=Both

Y64 Have you ever seriously considered attempting suicide?

b. during the last year

c. more than a year ago

suic_att combined the two questions below into one

0=No, 1=One of the two, 2=Both

Y65 Have you ever actually attempted suicide?

b. during the last year

c. more than a year ago

Family Violence [not grade 5 in 2016]

Y70 Do you live with anyone who drinks too much alcohol?

Y71 Do you live with anyone who uses illegal drugs or abuses prescription drugs?

Y72 Does a parent or other adult in your home regularly swear at you, insult you or put you down?

Y73 Has a parent or other adult in your household ever hit, beat, kicked or physically hurt you in any way?

Y74 Have your parents or other adults in your home ever slapped, hit, kicked, punched or beat each other up?

Y76 Has any older or stronger member of your family ever touched you or had you touch them sexually?

Psychometric Methods -- CONFIRMATORY FACTOR ANALYSIS

This report includes a review of the measurement models for the proposed measures of developmental skills, supports, and challenges from the 2013-2016 MSS.

Based on the positive youth development research of Search Institute and many others, and three scales adopted from the Developmental Asset Profile (DAP, Search Institute), as well as four prominent challenges facing youth that were featured in the 2013-2016 MSS, several proposed measures were identified and tested for model-data fit. In some cases, as with the DAP, items within measures were prespecified – for others, a series of expert and researcher reviews of items and exploratory factor analyses were evaluated. The evidence that supports the reporting of resulting scores is provided through Confirmatory Factor Analysis (CFA) of each proposed measure, which indicates the extent to which the proposed skills, supports, and challenges as measured with the MSS fit the observed data (responses). The CFAs, completed with Mplus³, provide three pieces of relevant evidence:

1. Model-Data fit information, regarding the consistency of the meaning and stability of the scale as defined by the MSS items;
2. Item-Factor loadings, which indicates the extent to which each item contributes to the intended measures; and
3. Correlations among measures (within developmental skills and developmental supports), which provides evidence of the relative independence of each score.

Three measures of model fit provide different aspects of fit, including the root mean-squared error of approximation (RMSEA), the extent to which the model fits reasonably well in the population; comparative fit index (CFI), the relative fit to a more restricted baseline model; and the Tucker-Lewis index (TLI), which compensates for the effect of model complexity. It is generally agreed that multiple indicators of fit should be examined. The general criteria for model-data fit are as follows⁴.

Model fit is indicated such that:

RMSEA < .05 is Good Fit;	RMSEA < .08 is Adequate Fit
CFI > .95 is Good Fit;	CFI > .90 is Adequate Fit
TLI > .95 is Good Fit;	TLI > .90 is Adequate Fit

We adopt a relatively liberal guideline for assessing fit to suggest the use of a measure holds promise – we strive to achieve adequate fit by at least one indicator. All measures achieved adequate fit to support group-level interpretation of results and more than enough fit to support the use of these measures for research purposes (investigating correlates and associations to other important student characteristics and educational outcomes). One proposed measure that failed to achieve minimal fit regarded Sense of Safety. It was dropped from further consideration.

³ Muthén, L.K., & Muthén, B.O. (2012). *Mplus*. (Version 7). [Software program]. Los Angeles, CA: Authors.

⁴ Brown, T.A. (2006). *Confirmatory factor analysis for applied research*. New York, NY: Guilford.

Commitment to Learning

MODEL: CtL BY Y18 Y19 Y20r Y21a Y21b Y21c ;

MODEL FIT INFORMATION

RMSEA (Root Mean Square Error Of Approximation)

Estimate	0.108	
90 Percent C.I.	0.107	0.109
Probability RMSEA <= .05	0.000	

CFI/TLI

CFI	0.945
TLI	0.909

STANDARDIZED MODEL RESULTS

		Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
CTL	BY				
	Y18	0.788	0.001	604.767	0.000
	Y19	0.724	0.001	539.509	0.000
	Y20R	0.326	0.002	166.287	0.000
	Y21A	0.363	0.002	174.708	0.000
	Y21B	0.671	0.001	475.256	0.000
	Y21C	0.695	0.001	523.659	0.000

Positive Identity

GRADES 8/9/11

MODEL: PosId BY Y60a Y60b Y60f Y60g Y60h Y60n ;

MODEL FIT INFORMATION

RMSEA (Root Mean Square Error Of Approximation)

Estimate	0.167	
90 Percent C.I.	0.166	0.167
Probability RMSEA <= .05	0.000	

CFI/TLI

CFI	0.956
TLI	0.926

STANDARDIZED MODEL RESULTS

POSID	BY	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
Y60A		0.758	0.001	735.129	0.000
Y60B		0.780	0.001	889.396	0.000
Y60F		0.844	0.001	1121.154	0.000
Y60G		0.719	0.001	695.599	0.000
Y60H		0.829	0.001	1063.612	0.000
Y60N		0.466	0.002	272.545	0.000

GRADE 5

MODEL: PosId BY W57L1a Y60b Y60f Y60g Y60h W57L1n ;

MODEL FIT INFORMATION

RMSEA (Root Mean Square Error Of Approximation)

Estimate	0.117	
90 Percent C.I.	0.116	0.118
Probability RMSEA <= .05	0.000	

CFI/TLI

CFI	0.971
TLI	0.952

STANDARDIZED MODEL RESULTS

POSID	BY	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
W57L1A		0.555	0.004	144.276	0.000
Y60B		0.775	0.001	806.186	0.000
Y60F		0.793	0.001	843.046	0.000
Y60G		0.737	0.001	700.601	0.000
Y60H		0.859	0.001	1073.263	0.000
W57L1N		0.529	0.004	122.618	0.000

Social Competence

MODEL: SoComp BY Y60c Y60d Y60e Y60i Y60j Y60k Y60m Y60q ;

MODEL FIT INFORMATION

RMSEA (Root Mean Square Error Of Approximation)

Estimate	0.126	
90 Percent C.I.	0.125	0.127
Probability RMSEA <= .05	0.000	

CFI/TLI

CFI	0.941
TLI	0.917

STANDARDIZED MODEL RESULTS

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
SOCOMP BY				
Y60C	0.710	0.001	606.212	0.000
Y60D	0.635	0.001	493.836	0.000
Y60E	0.719	0.001	675.567	0.000
Y60I	0.748	0.001	762.174	0.000
Y60J	0.788	0.001	833.933	0.000
Y60K	0.748	0.001	751.924	0.000
Y60M	0.614	0.001	416.324	0.000
Y60Q	0.638	0.001	492.369	0.000

Empowerment

MODEL: Empow BY Y22b Y22c Y22d Y60l Y60o Y60p ;

MODEL FIT INFORMATION

RMSEA (Root Mean Square Error Of Approximation)

Estimate	0.227	
90 Percent C.I.	0.226	0.228
Probability RMSEA <= .05	0.000	
CFI/TLI		
CFI	0.913	
TLI	0.854	

STANDARDIZED MODEL RESULTS

		Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
EMPOW	BY				
	Y22B	0.650	0.001	522.001	0.000
	Y22C	0.757	0.001	678.219	0.000
	Y22D	0.790	0.001	688.552	0.000
	Y60L	0.684	0.001	629.996	0.000
	Y60O	0.834	0.001	999.097	0.000
	Y60P	0.834	0.001	972.934	0.000

Family/Community Support

Treats "Mother not available" as lowest possible level (0):

MODEL: FCSupprt BY Y8r Y59a Y59b Y59c Y59e ;

MODEL FIT INFORMATION

RMSEA (Root Mean Square Error Of Approximation)

Estimate	0.129	
90 Percent C.I.	0.128	0.130
Probability RMSEA <= .05	0.000	

CFI/TLI

CFI	0.975
TLI	0.950

STANDARDIZED MODEL RESULTS

SUPPORT	BY	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
	Y8R	0.532	0.002	312.210	0.000
	Y59A	0.872	0.001	849.480	0.000
	Y59B	0.881	0.001	1006.546	0.000
	Y59C	0.658	0.001	487.396	0.000
	Y59E	0.720	0.001	597.664	0.000

Treats "Mother not available" as missing:

MODEL: Support BY Y8rm Y59a Y59b Y59c Y59e ;

MODEL FIT INFORMATION

RMSEA (Root Mean Square Error Of Approximation)

Estimate	0.128	
90 Percent C.I.	0.126	0.129
Probability RMSEA <= .05	0.000	

CFI/TLI

CFI	0.976
TLI	0.951

STANDARDIZED MODEL RESULTS

SUPPORT	BY	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
	Y8RM	0.549	0.002	312.662	0.000
	Y59A	0.871	0.001	840.058	0.000
	Y59B	0.882	0.001	1008.990	0.000
	Y59C	0.658	0.001	486.523	0.000
	Y59E	0.720	0.001	597.082	0.000

Teacher/School Support

MODEL: TSS BY Y21d Y21e Y21f Y21g Y21h Y59d ;

MODEL FIT INFORMATION

RMSEA (Root Mean Square Error Of Approximation)

Estimate	0.125	
90 Percent C.I.	0.124	0.126
Probability RMSEA <= .05	0.000	
CFI/TLI		
CFI	0.983	
TLI	0.972	

STANDARDIZED MODEL RESULTS

		Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
TSS	BY				
	Y21D	0.817	0.001	1051.576	0.000
	Y21E	0.851	0.001	1242.218	0.000
	Y21F	0.715	0.001	699.448	0.000
	Y21G	0.887	0.001	1439.744	0.000
	Y21H	0.772	0.001	871.521	0.000
	Y59D	0.708	0.001	664.288	0.000

Developmental SKILLS

MODEL: CtL BY Y18 Y19 Y20r Y21a Y21b Y21c ;
 PI BY Y60a Y60b Y60f Y60g Y60h Y60n ;
 SC BY Y60c Y60d Y60e Y60i Y60j Y60k Y60m Y60q ;

MODEL FIT INFORMATION

RMSEA (Root Mean Square Error Of Approximation)

Estimate	0.084	
90 Percent C.I.	0.083	0.084
Probability RMSEA <= .05	0.000	

CFI/TLI

CFI	0.923
TLI	0.912

STANDARDIZED MODEL RESULTS

		Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
CTL	BY				
	Y18	0.792	0.001	578.959	0.000
	Y19	0.729	0.001	512.709	0.000
	Y20R	0.373	0.002	174.008	0.000
	Y21A	0.437	0.002	199.009	0.000
	Y21B	0.636	0.002	406.323	0.000
	Y21C	0.665	0.001	457.571	0.000
PI	BY				
	Y60A	0.733	0.001	651.289	0.000
	Y60B	0.755	0.001	795.843	0.000
	Y60F	0.844	0.001	1109.579	0.000
	Y60G	0.708	0.001	671.823	0.000
	Y60H	0.834	0.001	1098.739	0.000
	Y60N	0.591	0.002	374.530	0.000
SC	BY				
	Y60C	0.672	0.001	544.270	0.000
	Y60D	0.674	0.001	573.034	0.000
	Y60E	0.777	0.001	856.038	0.000
	Y60I	0.805	0.001	974.615	0.000
	Y60J	0.747	0.001	733.667	0.000
	Y60K	0.721	0.001	691.786	0.000
	Y60M	0.575	0.002	377.714	0.000
	Y60Q	0.595	0.001	437.828	0.000

Construct Correlations

PI WITH CTL	0.571	0.002	346.841	0.000
SC WITH CTL	0.680	0.001	470.166	0.000
PI	0.852	0.001	1167.577	0.000

Developmental SUPPORTS

MODEL: Emp BY Y22b Y22c Y22d Y60l Y60o Y60p ;
 FCS BY Y8r Y59a Y59b Y59c Y59e ;
 TSS BY Y21d Y21e Y21f Y21g Y21h Y59d ;

MODEL FIT INFORMATION

RMSEA (Root Mean Square Error Of Approximation)

Estimate	0.133	
90 Percent C.I.	0.132	0.133
Probability RMSEA <= .05	0.000	

CFI/TLI

CFI	0.886
TLI	0.866

STANDARDIZED MODEL RESULTS

		Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
EMP	BY				
	Y22B	0.719	0.001	574.679	0.000
	Y22C	0.684	0.001	527.831	0.000
	Y22D	0.748	0.001	561.960	0.000
	Y60L	0.794	0.001	801.078	0.000
	Y60O	0.817	0.001	945.675	0.000
	Y60P	0.802	0.001	877.658	0.000
FCS	BY				
	Y8R	0.530	0.002	321.519	0.000
	Y59A	0.843	0.001	793.397	0.000
	Y59B	0.807	0.001	867.911	0.000
	Y59C	0.648	0.001	506.983	0.000
	Y59E	0.860	0.001	928.822	0.000
TSS	BY				
	Y21D	0.779	0.001	897.226	0.000
	Y21E	0.811	0.001	1030.694	0.000
	Y21F	0.683	0.001	617.808	0.000
	Y21G	0.847	0.001	1183.684	0.000
	Y21H	0.753	0.001	834.564	0.000
	Y59D	0.908	0.001	1256.358	0.000

Construct Correlations

FCS WITH EMP	0.771	0.001	764.043	0.000
TSS WITH EMP	0.625	0.001	513.553	0.000
FCS	0.725	0.001	643.907	0.000

Developmental CHALLENGES: BULLIED & BULLYING with 2013 DATA

Because Y25f (2013) and W27gh (2016) never occur together, two models were estimated.

MODEL: Bullied BY y25a y25b y25c y25d y25e y25f
 y26 y27a y27b y27c y27d y27e;
 Bullying BY y28a y28b y28c y28d y28e y62d y62e y77c ;

MODEL FIT INFORMATION

RMSEA (Root Mean Square Error Of Approximation)

Estimate	0.050	
90 Percent C.I.	0.050	0.050
Probability RMSEA <= .05	0.918	

CFI/TLI

CFI	0.910
TLI	0.899

STANDARDIZED MODEL RESULTS

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
BULLIED BY				
Y25A	0.598	0.003	225.457	0.000
Y25B	0.602	0.003	207.818	0.000
Y25C	0.683	0.003	270.393	0.000
Y25D	0.725	0.003	259.569	0.000
Y25E	0.692	0.003	257.351	0.000
Y25F	0.689	0.003	260.543	0.000
Y26	0.657	0.002	301.693	0.000
Y27A	0.750	0.002	439.027	0.000
Y27B	0.809	0.002	511.486	0.000
Y27C	0.792	0.001	610.522	0.000
Y27D	0.753	0.002	394.103	0.000
Y27E	0.702	0.002	443.657	0.000
BULLYING BY				
Y28A	0.811	0.002	393.255	0.000
Y28B	0.810	0.002	399.717	0.000
Y28C	0.767	0.002	335.521	0.000
Y28D	0.736	0.003	270.261	0.000
Y28E	0.691	0.002	300.786	0.000
Y62D	0.707	0.003	212.418	0.000
Y62E	0.676	0.003	194.626	0.000
Y77C	0.599	0.003	207.719	0.000
BULLYING WITH BULLIED	0.702	0.002	298.535	0.000

Developmental CHALLENGES: BULLIED & BULLYING with 2016 DATA

Because Y25f (2013) and W27gh (2016) never occur together, two models were estimated.

MODEL: Bullied BY Y25a Y25b Y25c Y25d Y25e W27gh
 Y26 Y27a Y27b Y27c Y27d Y27e;
 Bullying BY Y28a Y28b Y28c Y28d Y28e Y62d Y62e Y77c ;

MODEL FIT INFORMATION

RMSEA (Root Mean Square Error Of Approximation)

Estimate	0.050	
90 Percent C.I.	0.050	0.050
Probability RMSEA <= .05	0.919	

CFI/TLI

CFI	0.913
TLI	0.902

STANDARDIZED MODEL RESULTS

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
BULLIED BY				
Y25A	0.601	0.003	228.476	0.000
Y25B	0.603	0.003	209.410	0.000
Y25C	0.685	0.002	274.782	0.000
Y25D	0.726	0.003	260.715	0.000
Y25E	0.695	0.003	260.294	0.000
W27GH	0.729	0.002	316.171	0.000
Y26	0.655	0.002	300.768	0.000
Y27A	0.749	0.002	437.270	0.000
Y27B	0.808	0.002	510.226	0.000
Y27C	0.790	0.001	609.946	0.000
Y27D	0.753	0.002	394.608	0.000
Y27E	0.701	0.002	443.655	0.000
BULLYING BY				
Y28A	0.811	0.002	393.009	0.000
Y28B	0.810	0.002	398.696	0.000
Y28C	0.767	0.002	336.065	0.000
Y28D	0.737	0.003	270.123	0.000
Y28E	0.692	0.002	301.312	0.000
Y62D	0.707	0.003	212.208	0.000
Y62E	0.674	0.003	193.824	0.000
Y77C	0.598	0.003	207.516	0.000
BULLYING WITH BULLIED	0.702	0.002	301.631	0.000

Developmental CHALLENGES: MENTAL DISTRESS & FAMILY VIOLENCE

MODEL: MentDis BY Y42 Y63 suic_con suic_att treat_mh ;
 FamViol BY Y70 Y71 Y72 Y73 Y74 Y76 ;

MODEL FIT INFORMATION

RMSEA (Root Mean Square Error Of Approximation)
 Estimate 0.052
 90 Percent C.I. 0.052 0.053
 Probability RMSEA <= .05 0.000

CFI/TLI
 CFI 0.959
 TLI 0.948

STANDARDIZED MODEL RESULTS

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
MENTDIS BY				
Y42	0.856	0.002	457.040	0.000
Y63	0.791	0.002	418.829	0.000
SUIC_CON	0.885	0.001	609.502	0.000
SUIC_ATT	0.901	0.002	496.180	0.000
TREAT_MH	0.765	0.002	359.646	0.000
FAMVIOL BY				
Y70	0.593	0.004	166.703	0.000
Y71	0.641	0.004	152.303	0.000
Y72	0.820	0.003	322.191	0.000
Y73	0.804	0.003	312.034	0.000
Y74	0.766	0.003	250.255	0.000
Y76	0.656	0.005	119.450	0.000
FAMVIOL WITH MENTDIS	0.605	0.003	205.382	0.000

Out-of-School-Time POSITIVE EXPERIENCE [only for 2016]

MODEL: Quality BY W34a W34b W34c W34d W34e W34f W34g ;

MODEL FIT INFORMATION

RMSEA (Root Mean Square Error Of Approximation)

Estimate	0.153	
90 Percent C.I.	0.152	0.154
Probability RMSEA <= .05	0.000	

CFI/TLI

CFI	0.953
TLI	0.929

STANDARDIZED MODEL RESULTS

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
QUALITY BY				
W34A	0.607	0.002	296.472	0.000
W34B	0.803	0.001	742.609	0.000
W34C	0.855	0.001	901.404	0.000
W34D	0.826	0.001	806.352	0.000
W34E	0.676	0.002	433.726	0.000
W34F	0.702	0.002	457.508	0.000
W34G	0.654	0.002	432.528	0.000

2016 MSS Item Displacement Results

Prior to scaling, the 2016 data were scored using the 2013 item parameters as fixed values. This allowed us to evaluate the functioning of items between 2013 and 2016. All item scoring was done using Winsteps. Once the items were scored, we reviewed the Displacement results.

Displacement for an item location is the size of the change in the parameter estimate if the given parameter was free (not anchored) and all other parameter estimates were anchored at their current locations. When an item is anchored in the calibration, the Displace value indicates the size of the disagreement between the anchored value and an estimate based on the current data. It is calculated using Newton-Raphson estimation.

It is difficult to identify a clear and consistent criterion for determining whether displacement is large enough to consider freely calibrating an anchor item (not treat it as an anchor item). Linacre⁵ cites a number of sources that suggest displacements of less than 0.5 logits are unlikely to have much impact on a measure, but with larger measures of 20 items or more.

Methods

2013 Item parameters were used as fixed values, based on 2013 IFILE and SFILE results.

These values were applied to 2016 MSS data.

All scoring was conducted in Winsteps, Linacre⁶.

Result

Because of the negligible Displacement results, with the exception of Positive Identity (due to the revision of two items for the 5th grade survey – which will be treated as unique items across grade 5 and grades 8/9/11), **concurrent calibration** will be conducted to provide the strongest and most stable results for scoring the 2013 and 2016 students on a common scale.

⁵ Linacre, J.M. (2016). Winsteps® Rasch measurement computer program user's guide. Beaverton, Oregon: Winsteps.com. Retrieved from <http://www.winsteps.com/>

⁶ Linacre, J.M. (2016). Winsteps® (Version 3.92.0) [Computer Software]. Beaverton, Oregon: Winsteps.com. Retrieved from <http://www.winsteps.com/>

Developmental Skills

Commitment to Learning

TABLE 14.1 MSS 2013-2016 Commitment to Learning ZOU792WS.TXT Dec 30 2016 12:16
 INPUT: 330767 PERSON 85 ITEM REPORTED: 168084 PERSON 6 ITEM 24 CATS WINSTEPS 3.92.1

 PERSON: REAL SEP.: 1.23 REL.: .60 ... ITEM: REAL SEP.: 161.74 REL.: 1.00

ITEM STATISTICS: ENTRY ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ ZSTD	OUTFIT MNSQ ZSTD	PTBISERL-EX CORR. EXP.	EXACT MATCH OBS% EXP%	DISPLACE	ITEM	G
9	585516	167759	-1.07A	.00	.81 -9.9	.73 -9.9	.53 .36	70.7 64.3	-.05	Y18	0
10	521405	167565	-.61A	.00	.93 -9.9	.92 -9.9	.50 .38	69.2 68.6	.19	Y19	0
11	562455	167196	.81A	.00	1.65 9.9	1.67 9.9	.18 .41	43.5 56.0	-1.07	Y20r	0
12	582805	167028	-1.52A	.01	1.20 9.9	1.29 9.9	.27 .36	63.4 69.8	.32	Y21a	0
13	501218	166661	-.13A	.00	1.10 9.9	1.09 9.9	.47 .41	65.2 65.2	.54	Y21b	0
14	477849	166367	.27A	.00	.98 -7.2	.97 -9.0	.51 .41	59.8 58.9	.43	Y21c	0

Comment:

Displacement values are large and indicate inconsistency from 2013 to 2016. This is likely due to the elimination of two items (Y31a time spent doing homework; and Y62b paying attention at school, work, or home). The following two tables present the item locations for the six remaining items calibrated separately for 2013 and 2016, in order to identify whether they function similarly as a set.

**Commitment to Learning
2013 Calibration**

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT		OUTFIT		PTBISERL-EX		EXACT MATCH		ITEM	G
					MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%		
9	1106E3	322221	-.55	.00	.77	-9.9	.73	-9.9	.52	.36	71.2	64.0	Y18	0
10	992863	321899	.00	.00	.87	-9.9	.86	-9.9	.49	.41	70.6	68.7	Y19	0
11	1087E3	321320	-.06	.00	1.38	9.9	1.49	9.9	.22	.37	61.5	64.8	Y20r	0
12	1115E3	320098	-.99	.00	1.18	9.9	1.23	9.9	.27	.37	64.7	70.2	Y21a	0
13	965592	318047	.61	.00	.93	-9.9	.93	-9.9	.48	.43	66.7	64.1	Y21b	0
14	916346	317879	.99	.00	.90	-9.9	.89	-9.9	.51	.44	62.4	59.0	Y21c	0

2016 Calibration

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT		OUTFIT		PTBISERL-EX		EXACT MATCH		ITEM	G
					MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%		
9	585516	167759	-.62	.00	.75	-9.9	.69	-9.9	.53	.34	70.7	63.7	Y18	0
10	521405	167565	-.05	.00	.87	-9.9	.86	-9.9	.50	.35	70.3	67.5	Y19	0
11	562455	167196	.06	.00	1.44	9.9	1.57	9.9	.18	.36	58.7	62.7	Y20r	0
12	582805	167028	-1.07	.01	1.17	9.9	1.21	9.9	.27	.36	65.0	70.2	Y21a	0
13	501218	166661	.68	.00	.92	-9.9	.93	-9.9	.47	.37	66.4	63.7	Y21b	0
14	477849	166367	1.00	.00	.88	-9.9	.88	-9.9	.51	.42	62.2	58.5	Y21c	0

Comment:

The differences in item location based on independent 2013 and 2016 calibrations were minor, within -.08 to 0.12 logits. The following graph illustrates the association between the item locations for the two years. This suggests that the items function similarly across the two years and concurrent calibration is warranted.

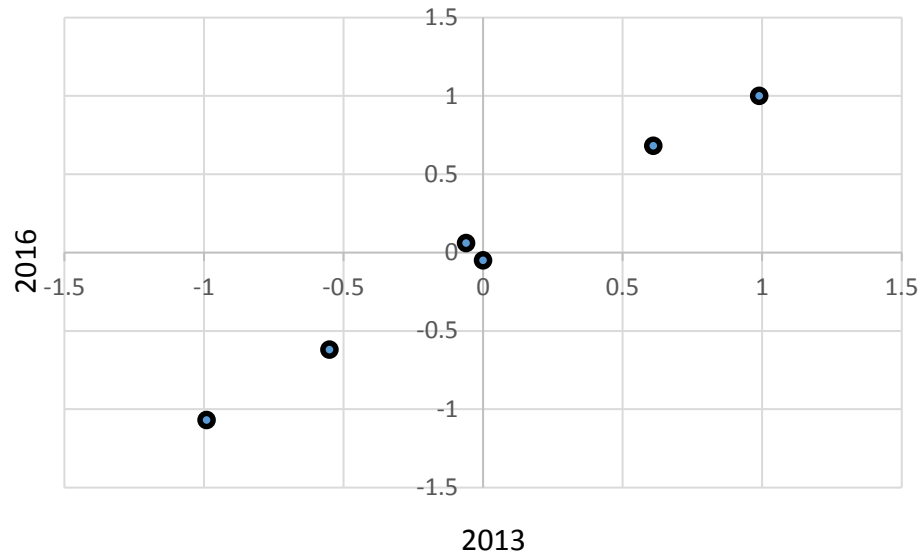


Figure 1. Association of CtL item locations for 2013 and 2016 independent calibrations.

Positive Identity Grades 8/9/11

TABLE 25.1 MSS 2016 Positive Identity L3 ZOU425WS.TXT Nov 20 16:15 2016
 INPUT: 161697 PERSON 6 ITEM REPORTED: 161697 PERSON 6 ITEM 24 CATS WINSTEPS 3.73

 PERSON: REAL SEP.: 1.73 REL.: .75 ... ITEM: REAL SEP.: 82.59 REL.: 1.00

ITEM STATISTICS: DISPLACEMENT ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ ZSTD	OUTFIT MNSQ ZSTD	PTBISERL-EX CORR. EXP.	EXACT MATCH OBS% EXP%	DISPLACE	ITEM	G
4	425603	159554	.64A	.00	1.12 9.9	1.12 9.9	.47 .43	58.1 57.2	.12	W60g	0
1	362372	121320	-.36A	.00	.88 -9.9	.89 -9.9	.66 .59	64.3 58.6	.07	W60a	0
3	493918	159961	-.45A	.00	.78 -9.9	.76 -9.9	.47 .42	67.1 59.0	.07	W60f	0
5	450122	159521	.37A	.00	.79 -9.9	.79 -9.9	.51 .43	66.4 57.7	-.04	W60h	0
6	361796	119482	-.21A	.00	1.71 9.9	1.87 9.9	.35 .62	50.3 56.9	-.06	W60n	0
2	483528	160766	.00A	.00	.90 -9.9	.91 -9.9	.39 .41	61.9 57.3	-.16	W60b	0

Comment:

The items appear to function well across the two data files, with Displacement values ranging from -0.16 to 0.12.

Positive Identity Grade 5

TABLE 25.1 MSS 2016 Positive Identity L1 ZOU425WS.TXT Nov 20 16:18 2016
 INPUT: 161820 PERSON 6 ITEM REPORTED: 161820 PERSON 6 ITEM 24 CATS WINSTEPS 3.73

 PERSON: REAL SEP.: 1.66 REL.: .73 ... ITEM: REAL SEP.: 54.12 REL.: 1.00

ITEM STATISTICS: DISPLACEMENT ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	ZSTD	OUTFIT MNSQ	ZSTD	PTBISERL-CORR.	EX-EXP.	EXACT OBS%	MATCH EXP%	DISPLACE	ITEM	G
1	106379	38528	-.36A	.01	1.91	9.9	1.97	9.9	.48	.55	48.3	59.6	1.07	W60L1a	0
4	425603	159554	.64A	.00	1.02	5.5	1.02	6.6	.38	.43	61.4	57.5	.10	W60g	0
3	493918	159961	-.45A	.00	.80	-9.9	.80	-9.9	.53	.43	66.1	58.6	.01	W60f	0
5	450122	159521	.37A	.00	.72	-9.9	.72	-9.9	.51	.44	69.6	57.9	-.07	W60h	0
2	483528	160766	.00A	.00	.89	-9.9	.90	-9.9	.52	.43	61.4	57.1	-.21	W60b	0
6	129947	39515	-.21A	.01	1.32	9.9	1.28	9.9	.41	.51	55.3	58.7	-.40	W60L1n	0

Comment:

The two revised items for Grade 5, including 60a and 60n resulted in large Displacement values, 1.07 and -0.40 respectively. This suggests that these items are not functioning the same as the original a and n versions. We will treat these items as new items in both data files. The original a and n will be unique items for the 2013 students and L1a and L1n will be unique items for the 2016 students. The remaining items will function as common items in the concurrent calibration process.

Social Competence

TABLE 14.1 MSS 2016 Social Competence ZOU927WS.TXT Nov 28 2016 13: 9
 INPUT: 162024 PERSON 8 ITEM REPORTED: 162024 PERSON 8 ITEM 32 CATS WINSTEPS 3.91.0

 PERSON: REAL SEP.: 1.79 REL.: .76 ... ITEM: REAL SEP.: 96.16 REL.: 1.00

ITEM STATISTICS: ENTRY ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ ZSTD	OUTFIT MNSQ ZSTD	PTBISERL-EX CORR. EXP.	EXACT MATCH OBS% EXP%	DISPLACE	ITEM	G
1	516419	160381	-.19A	.00	1.07 9.9	1.14 9.9	.52 .53	59.1 56.3	.01	W57c	0
2	489838	160643	.00A	.00	1.21 9.9	1.20 9.9	.49 .54	54.0 57.0	-.03	W57d	0
3	435516	159671	.71A	.00	1.01 2.2	1.01 3.6	.57 .56	57.1 54.8	.14	W57e	0
4	470240	159806	.27A	.00	.87 -9.9	.87 -9.9	.62 .56	60.4 55.4	-.01	W57i	0
5	503255	159642	-.03A	.00	.85 -9.9	.85 -9.9	.62 .55	60.6 54.6	-.02	W57j	0
6	481630	159061	.07A	.00	.88 -9.9	.88 -9.9	.64 .56	60.8 55.9	.02	W57k	0
7	548781	159373	-.82A	.00	1.13 9.9	1.12 9.9	.45 .53	60.2 61.7	-.22	W57m	0
8	486558	158302	-.01A	.00	1.18 9.9	1.19 9.9	.52 .57	55.7 56.6	.04	W57q	0

Comment:

The items appear to function well across the two years, with displacement values ranging from -0.22 to 0.14.

Developmental Supports

Empowerment

TABLE 14.1 MSS 2016 Empowerment ZOU819WS.TXT Nov 28 2016 12:45
 INPUT: 167309 PERSON 6 ITEM REPORTED: 167309 PERSON 6 ITEM 24 CATS WINSTEPS 3.91.0

 PERSON: REAL SEP.: 1.49 REL.: .69 ... ITEM: REAL SEP.: 187.03 REL.: 1.00

ITEM STATISTICS: ENTRY ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ ZSTD	OUTFIT MNSQ ZSTD	PTBISERL-EX CORR. EXP.	EXACT MATCH OBS% EXP%	DISPLACE	ITEM	G
1	573232	167308	-.48A	.01	1.17 9.9	1.23 9.9	.43 .45	66.6 67.9	.00	W24br	0
2	591124	167197	-.96A	.01	1.13 9.9	1.18 9.9	.44 .46	71.3 71.0	.13	W24cr	0
3	615685	167026	-1.34A	.01	.96 -8.7	.87 -9.9	.46 .46	76.8 75.5	.04	W24dr	0
4	466970	159956	1.22A	.00	1.12 9.9	1.12 9.9	.58 .60	54.4 58.3	.00	W57l	0
5	487897	158675	.88A	.00	.92 -9.9	.92 -9.9	.64 .60	61.6 57.8	-.06	W60o	0
6	487448	156391	.68A	.00	.93 -9.9	.92 -9.9	.64 .62	64.0 60.0	-.05	w60p	0

Comment:

The items appear to function well across the two years, with displacement values ranging from -0.06 to 0.13.

Family/Community Support

TABLE 14.1 MSS 2016 Supported ZOU986WS.TXT Dec 30 2016 11:42
 INPUT: 168439 PERSON 7 ITEM REPORTED: 168439 PERSON 7 ITEM 33 CATS WINSTEPS 3.92.1

 PERSON: REAL SEP.: 1.79 REL.: .76 ... ITEM: REAL SEP.: 212.42 REL.: 1.00

ITEM STATISTICS: ENTRY ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ ZSTD	OUTFIT MNSQ ZSTD	PTBISERL-EX CORR. EXP.	EXACT MATCH OBS% EXP%	DISPLACE	ITEM	G
1	478426	165060	.68A	.00	1.26 9.9	1.26 9.9	.40 .49	57.6 62.6	.04	Y21h	0
2	752418	162421	-1.17A	.00	.84 -9.9	.75 -9.9	.58 .53	76.6 73.1	-.06	Y59a	0
3	709545	162231	-.79A	.00	.86 -9.9	.84 -9.9	.66 .59	66.2 63.0	.07	Y59b	0
4	666142	162134	-.52A	.00	1.26 9.9	1.29 9.9	.57 .61	56.2 58.4	.22	Y59c	0
5	570087	162085	.97A	.00	.81 -9.9	.78 -9.9	.73 .64	59.0 50.6	-.15	Y59d	0
6	525376	161544	1.37A	.00	.84 -9.9	.82 -9.9	.70 .63	54.0 47.7	-.05	Y59e	0
7	570261	164000	-.54A	.00	1.38 9.9	2.13 9.9	.32 .46	60.2 66.1	-.02	Y8r	0

Comment:

The items appear to function well across the two years, with displacement values ranging from -0.15 to 0.22.

Teacher/School Support

TABLE 14.1 MSS 2016 Teacher & School Support ZOU020WS.TXT Dec 30 2016 11:44
 INPUT: 167596 PERSON 5 ITEM REPORTED: 167596 PERSON 5 ITEM 21 CATS WINSTEPS 3.92.1

 PERSON: REAL SEP.: 1.90 REL.: .78 ... ITEM: REAL SEP.: 105.77 REL.: 1.00

ITEM STATISTICS: ENTRY ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ ZSTD	OUTFIT MNSQ ZSTD	PTBISERL-EX CORR. EXP.	EXACT MATCH OBS% EXP%	DISPLACE	ITEM	G
1	511029	166377	-.13A	.01	.91 -9.9	.90 -9.9	.65 .60	72.3 68.7	.06	Y21d	0
2	501920	166078	.01A	.01	.77 -9.9	.75 -9.9	.69 .63	76.9 69.5	.01	Y21e	0
3	493914	166054	.20A	.01	1.11 9.9	1.11 9.9	.58 .63	68.6 68.7	.08	Y21f	0
4	536709	166016	-.87A	.01	.72 -9.9	.67 -9.9	.72 .60	80.3 71.8	.07	Y21g	0
5	570087	162085	.79A	.00	1.23 9.9	1.26 9.9	.56 .61	54.4 54.3	-.13	Y59d	0

Comment:

The items appear to function well across the two years, with displacement values ranging from -0.13 to 0.08.

Psychometric Methods – SCALING & SCORING

Following evaluation of fit, the Rasch measurement model was used to calibrate items with Winsteps⁷. As a latent-trait model, the assumption is that students' level of a trait causes their responses to the relevant items. Through the response-rates to item response options and response patterns across items, the Rasch model estimates probabilities of responses to items. This process estimates the location of each item on the underlying trait – whether a certain response to an item (given the item's response options) requires a low or high level of the trait.

Each measure is scaled around zero by default, generally ranging from -5 to +5 (much like a standardized score). The location of the average item response defines the zero point on the Rasch score scale (technically in the logit or logistic metric). Once item responses are located on this scale, persons can then be located on the trait scale as defined by the items, based on the likelihood of their trait level given their responses to the items with known (fixed) locations on the scale.

As an Item Response Theory model, several benefits support MSS scoring. First, the model accommodates missing item responses. This supports scoring some skills, supports, and challenges where certain items are not administered to 5th grade students – providing a means to score all students on the same scale with some missingness. However, we employed a strict response-rate requirement to generate scores; students must respond to all items administered at their grade-level to receive a score on a measure. In Winsteps, items are calibrated and student responses are scored simultaneously. This model allows us to put future administrations of these items on the same scale and evaluate the stability of measurement over time.

We completed two checks for scaling sensitivity. (1) Each measure was scaled with students from grades 8, 9, and 11; items parameters were fixed and used to score students in grade 5. For nearly all measures, analysis of item fit indicated that the item calibrations from older students worked well for grade 5 students. Only one item for the measure of Positive Identity functioned differently for grade 5 students – item 60a, regarding feeling in control of life and future. It seems reasonable that this might function different for younger versus older students. Upon comparison of concurrent scaling and anchoring this item to the scale of older students, no discernable difference was detected in final Rasch scaled scores. (2) Finally, the item scaling parameters for 2013 were tested on the data from 2016 with excellent results indicating stability over time as reported above.

Because the Rasch scale is centered at zero, representing the average item location (difficult to interpret), the scores have been transformed to support interpretation. The midpoint of the response scale was transformed to be equal to 10 for each measure. For example, items using Strongly Agree to Strongly Disagree have a midpoint between agree-disagree. For items ranging from None of the Time to All of the Time, the midpoint is about “half of the time.” For each measure, a score of 10 is the midpoint of the response scale, making it a moderate level of the skill, support, or challenge. This is done through the Test Characteristic Curve (TCC) produced by the Rasch analysis – TCC tables are provided below. All skills, supports, and challenges are scaled so that higher values indicate more of the skill, support, or challenge. Because of the transformation, the scores generally range from 5 to 15, although they can range beyond this.

⁷ Linacre, J.M. (2016). *Winsteps* (Version 3.92.1) [Computer Software]. Beaverton, Oregon: Winsteps.com.

Tables of Test Characteristic Curves from Winsteps Rasch Model Analyses

Commitment to Learning: Raw Score to Rasch Scale Score (Measure) Conversion Table with Standard Errors

Raw Score	Rasch Measure	SE (Measure)		Reporting Score
6	-5.10	1.86		5.19
7	-3.83	1.05		6.46
8	-3.03	0.78		7.26
9	-2.51	0.68		7.78
10	-2.08	0.63		8.21
11	-1.70	0.61		8.59
12	-1.34	0.59		8.95
13	-0.99	0.59		9.30
14	-0.65	0.59		9.64
15	-0.29	0.61	Midpoint	10.00
16	0.10	0.64		10.39
17	0.53	0.67		10.82
18	1.01	0.71	Equipped	11.30
19	1.53	0.74		11.82
20	2.11	0.78		12.40
21	2.75	0.82		13.04
22	3.49	0.90		13.78
23	4.48	1.13		14.77
24	5.87	1.89		16.16

Valid Scores: Students must respond to all 6 items to receive a score.

$$\text{Reporting Scale Score} = \frac{(\text{Rasch Measure} - \text{Midpoint}) + 10}{(\text{Rasch Measure} - -0.29) + 10}$$

Equipped Level:

Equipped indicates that the disposition/belief/behavior is more like you than not.

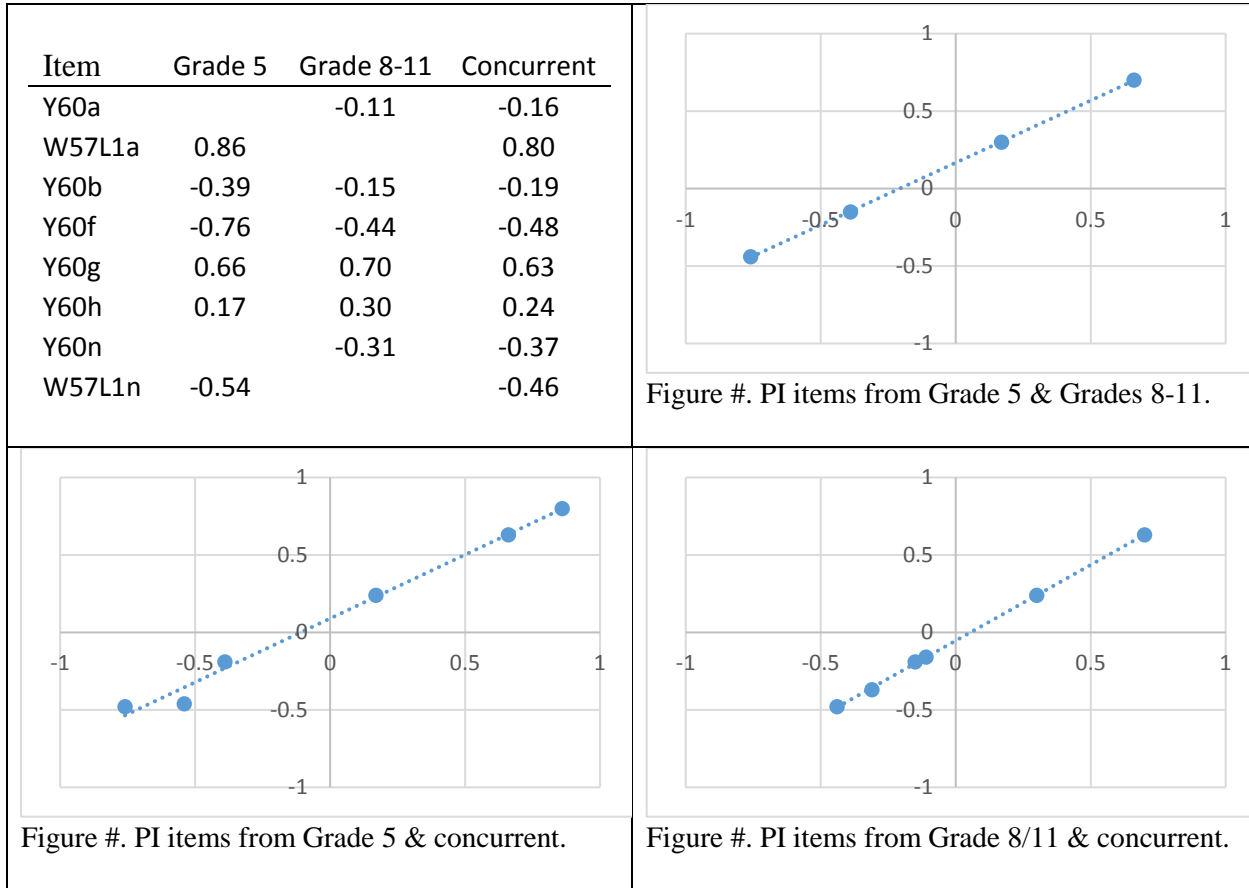
All six items are on a 4-point scale; response rating of 3 indicates Most of the time (Y18-20r) and Agree (Y21a-c). The equipped level = 6 items × rating of level 3 = 18.

Students with scores of 11.30 or greater are equipped in Commitment to Learning.

Positive Identity Scaling Notes

Because of the introduction of modified items in the Grade 5 survey, multiple steps were taken to secure scores on a common scale.

1. PI was calibrated for Grade 5
2. PI was calibrated for Grades 8-11
3. PI was calibrated for all Grades concurrently
4. Item locations were compared for the common items across each of the three calibrations



Because of the excellent functioning of the four common items across grades and in the presence of the modified (unique) items in the Grade 5 survey, the concurrent calibration results are used for scoring students on PI.

Because of the slight shift in PI due to the location of two sets of unique items (W57L1a & W57L1n in Grade 5 and Y60a & Y60n in Grades 8-11), there is a slight shift in Raw Score-to-Rasch Measure transformation. This can be seen in the four common items between Grade 5 and 8-11, where the item locations are slightly lower in Grade 5, largely due to the fact that the Grade 5 version of item a (W57L1a) is much more challenging to endorse than the standard version (Y60a), relative to the common items.

Because the common items are the same (identical), the resulting shift in the test characteristic curve might suggest that Grade 5 students are generally at a higher level of the trait – having higher Positive Identity. At every raw observed score point, the Grade 5 estimated Rasch score is slightly higher.

Because this shift in Rasch measures (scaled scores) might be capturing a slight difference in the PI construct between the elementary school students and secondary school students, this shift was not adjusted. It can be observe in the Test Characteristic Curve below, illustrating the association between Raw Scores and Rasch Measures.

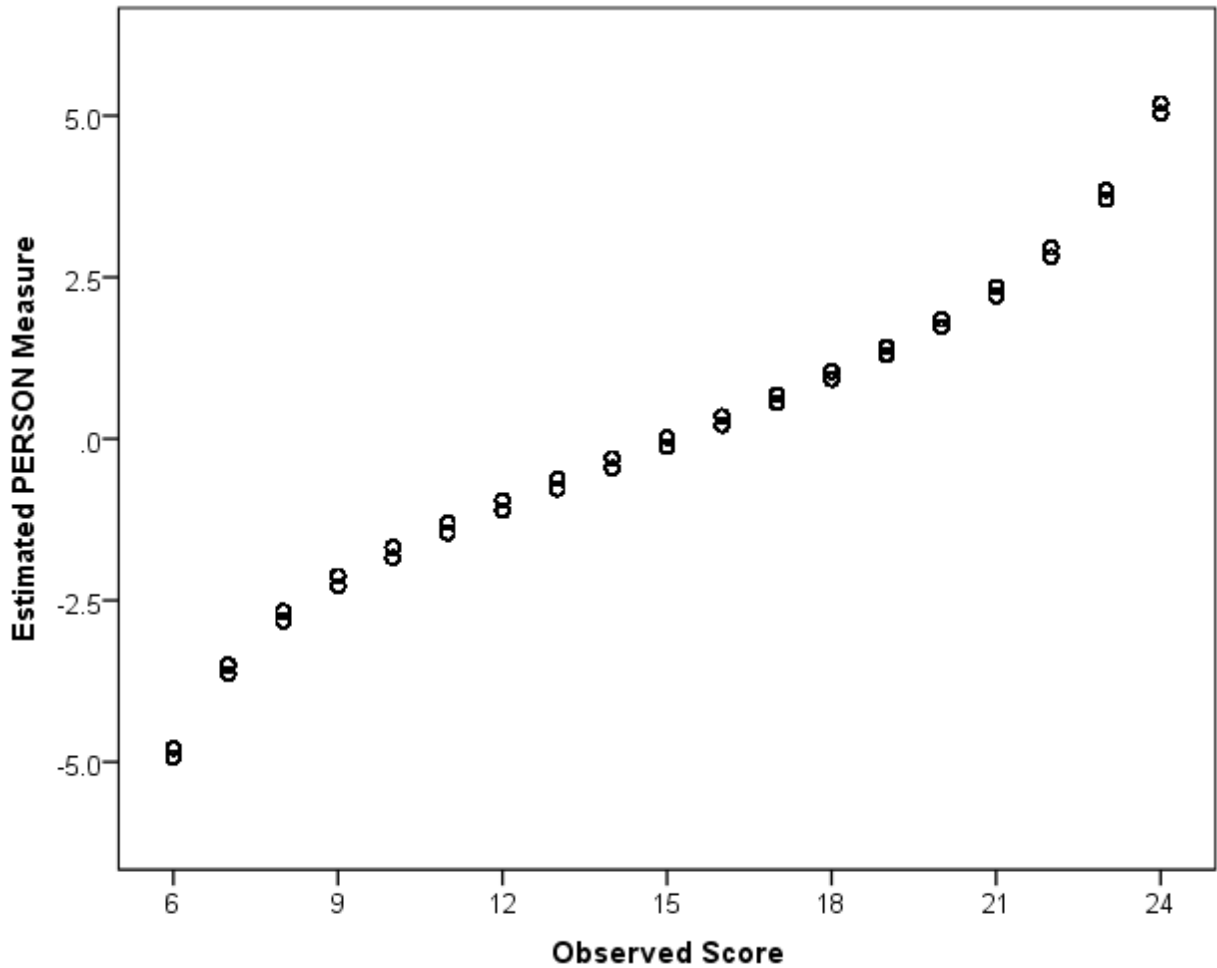


Figure #. Positive Identity Test Characteristic Curve.

When converting this to the 10-point reporting scale, the lower value associated with the midpoint will be used as the centering value. This will be fully represented in the following tables.

Positive Identity: Raw Score to Rasch Scale Score (Measure) Conversion Table with Standard Errors

Raw score	Grade 5		Grades 8-11		Grade 5 Reporting Score	Grds 8-11 Reporting Score	
	Rasch Measure	SE	Rasch Measure	SE			
6	-4.79	1.85	-4.93	1.86	5.33	5.19	
7	-3.50	1.06	-3.64	1.06	6.62	6.48	
8	-2.67	0.79	-2.82	0.80	7.45	7.30	
9	-2.12	0.69	-2.28	0.69	8.00	7.84	
10	-1.68	0.63	-1.84	0.64	8.44	8.28	
11	-1.30	0.60	-1.46	0.60	8.82	8.66	
12	-0.95	0.58	-1.11	0.58	9.17	9.01	
13	-0.62	0.58	-0.78	0.57	9.50	9.34	
14	-0.30	0.57	-0.45	0.57	9.82	9.67	
15	0.02	0.57	-0.12	0.57	Midpoint	10.14	10.00
16	0.35	0.58	0.21	0.57	10.47	10.33	
17	0.68	0.59	0.56	0.59	10.80	10.68	
18	1.04	0.61	0.92	0.61	Equipped	11.16	11.04
19	1.42	0.63	1.30	0.64	11.54	11.42	
20	1.85	0.67	1.73	0.68	11.97	11.85	
21	2.35	0.73	2.21	0.73	12.47	12.33	
22	2.96	0.83	2.82	0.84	13.08	12.94	
23	3.85	1.09	3.70	1.09	13.97	13.82	
24	5.19	1.87	5.04	1.87	15.31	15.16	

Valid Scores: Students must respond to all 6 items to receive a score.

$$\text{Reporting Scale Score} = \frac{(\text{Rasch Measure} - \text{Midpoint}) + 10}{(\text{Rasch Measure} - -0.12) + 10}$$

Equipped Level:

Equipped indicates that the disposition/belief/behavior is more like you than not.

All six items are on a 4-point scale; response rating of 3 indicates Very or Often for all items.

The equipped level = 6 items × rating of level 3 = 18.

Students with scores of 11.04 or greater are equipped in Positive Identity.

Social Competence: Raw Score to Rasch Scale Score (Measure) Conversion Table with Standard Errors

Raw score	Rasch Measure	SE		Reporting Score
8	-4.93	1.85		5.11
9	-3.67	1.04		6.37
10	-2.89	0.77		7.15
11	-2.40	0.65		7.64
12	-2.02	0.59		8.02
13	-1.70	0.55		8.34
14	-1.42	0.52		8.62
15	-1.16	0.50		8.88
16	-0.92	0.48		9.12
17	-0.69	0.47		9.35
18	-0.47	0.47		9.57
19	-0.26	0.46		9.78
20	-0.04	0.46	Midpoint	10.00
21	0.17	0.47		10.21
22	0.39	0.47		10.43
23	0.62	0.48		10.66
24	0.86	0.49	Equipped	10.90
25	1.11	0.51		11.15
26	1.38	0.54		11.42
27	1.69	0.57		11.73
28	2.04	0.62		12.08
29	2.46	0.68		12.50
30	3.00	0.80		13.04
31	3.83	1.07		13.87
32	5.13	1.86		15.17

Valid Scores: Students must respond to all 8 items to receive a score.

$$\text{Reporting Scale Score} = \frac{(\text{Rasch Measure} - \text{Midpoint}) + 10}{(\text{Rasch Measure} - -0.04) + 10}$$

Equipped Level:

Equipped indicates that the disposition/belief/behavior is more like you than not.

All eight items are on a 4-point scale; response rating of 3 indicates Very or Often for all items.

The equipped level = 8 items × rating of level 3 = 24.

Students with scores of 10.90 or greater are equipped in Positive Identity.

Empowerment: Raw Score to Rasch Scale Score (Measure) Conversion Table with Standard Errors

Raw score	Rasch Measure	SE		Reporting Score
6	-4.73	1.8		5.50
7	-3.56	0.99		6.67
8	-2.86	0.73		7.37
9	-2.40	0.64		7.83
10	-2.02	0.6		8.21
11	-1.67	0.59		8.56
12	-1.33	0.59		8.90
13	-0.98	0.6		9.25
14	-0.61	0.61		9.62
15	-0.23	0.63	Midpoint	10.00
16	0.17	0.64		10.40
17	0.59	0.65		10.82
18	1.02	0.67	Equipped	11.25
19	1.49	0.7		11.72
20	2.00	0.73		12.23
21	2.56	0.78		12.79
22	3.23	0.87		13.46
23	4.18	1.11		14.41
24	5.54	1.89		15.77

Valid Scores: Students must respond to all 6 items to receive a score.

$$\text{Reporting Scale Score} = \begin{aligned} & (\text{Rasch Measure} - \text{Midpoint}) + 10 \\ & (\text{Rasch Measure} - -0.23) + 10 \end{aligned}$$

Equipped Level:

Equipped indicates that the disposition/belief/behavior is more like you than not.

All six items are on a 4-point scale; response rating of 3 indicates Agree (Y22b-d) and Very or Often (Y60l,o,p). The equipped level = 6 items × rating of level 3 = 18.

Students with scores of 11.25 or greater are equipped in Empowerment.

Family-Community Support: Raw Score to Rasch Scale Score (Measure) Conversion Table with Standard Errors

Raw score	Rasch Measure	SE		Reporting Score
4	-4.21	1.82		6.06
5	-3.01	1.00		7.26
6	-2.32	0.71		7.95
7	-1.90	0.59		8.37
8	-1.59	0.53		8.68
9	-1.33	0.49		8.94
10	-1.10	0.47		9.17
11	-0.89	0.46		9.38
12	-0.69	0.45		9.58
13	-0.48	0.46		9.79
14	-0.27	0.47	Midpoint	10.00
15	-0.04	0.48		10.23
16	0.20	0.51		10.47
17	0.47	0.54		10.74
18	0.78	0.57		11.05
19	1.13	0.62	Equipped	11.40
20	1.55	0.68		11.82
21	2.08	0.78		12.35
22	2.80	0.93		13.07
23	3.93	1.23		14.20
24	5.52	1.97		15.79

Valid Scores: Students must respond to all 6 items to receive a score.

$$\text{Reporting Scale Score} = \frac{(\text{Rasch Measure} - \text{Midpoint}) + 10}{(\text{Rasch Measure} - -0.27) + 10}$$

Equipped Level:

Equipped indicates that the disposition/belief/behavior is more like you than not.

All five items are on a 5-point scale; response rating of 3 (scale of 0-4) indicates Yes some of the time (Y8r) and a response rating of 4 (scale of 1-5) indicates Quite a bit (Y59a-c,e). The equipped level = 1 item × rating of level 3 + 4 items × rating of level 4 = 19.

Students with scores of 11.40 or greater are equipped in Empowerment.

Teacher-School Support: Raw Score to Rasch Scale Score (Measure) Conversion Table with Standard Errors

Raw score	Rasch Measure	SE		Reporting Score
6	-5.81	1.86		4.55
7	-4.50	1.07		5.86
8	-3.66	0.81		6.70
9	-3.09	0.71		7.27
10	-2.63	0.66		7.73
11	-2.21	0.64		8.15
12	-1.81	0.63		8.55
13	-1.42	0.63		8.94
14	-1.01	0.64		9.35
15	-0.59	0.67		9.77
15.5	-0.355		Midpoint	
16	-0.12	0.71		10.24
17	0.42	0.76		10.78
18	1.03	0.80		11.39
19	1.68	0.82	Equipped	12.04
F20	2.33	0.80		12.69
21	2.95	0.78		13.31
22	3.56	0.79		13.92
23	4.22	0.86		14.58
24	5.14	1.10		15.50
25	6.48	1.88		16.84

Valid Scores: Students must respond to all 6 items to receive a score.

$$\text{Reporting Scale Score} = \frac{(\text{Rasch Measure} - \text{Midpoint}) + 10}{(\text{Rasch Measure} - -0.355) + 10}$$

Equipped Level:

Equipped indicates that the disposition/belief/behavior is more like you than not.

One item is on a 5-point scale; response rating of 4 indicates Quite a bit (Y59d). Five items are on a 4-point scale; response rating of 3 indicates Agree (Y21d-h). The equipped level = 1 item × rating of level 4 + 5 items × rating of level 3 = 19.

Students with scores of 12.04 or greater are equipped in Teacher-School Support.

Out-of-School-Time Experience Quality: Raw Score to Rasch Scale Score (Measure)
Conversion Table with Standard Errors

Raw score	Rasch Measure	SE	Reporting Score
7	-4.90	1.85	5.14
8	-3.63	1.04	6.41
9	-2.84	0.78	7.20
10	-2.33	0.67	7.71
11	-1.93	0.61	8.11
12	-1.59	0.57	8.45
13	-1.27	0.55	8.77
14	-0.98	0.53	9.06
15	-0.71	0.52	9.33
16	-0.44	0.52	9.60
17	-0.17	0.52	9.87
	-0.035	Midpoint	10.00
18	0.10	0.52	10.14
19	0.37	0.52	10.41
20	0.64	0.53	10.68
21	0.93	0.54	10.97
22	1.23	0.56	11.27
23	1.56	0.59	11.60
24	1.93	0.63	11.97
25	2.36	0.69	12.40
26	2.92	0.81	12.96
27	3.76	1.07	13.80
28	5.07	1.87	15.11

Valid Scores: Students must respond to all 7 items to receive a score.

$$\text{Reporting Scale Score} = \begin{aligned} &(\text{Rasch Measure} - \text{Midpoint}) + 10 \\ &(\text{Rasch Measure} - -0.035) + 10 \end{aligned}$$

Note: The measure of OST Experience Quality is available only in 2016.

Developmental Skills & Supports Summary

Summary Table of Measures Mid-Points for Scale-Score Transformation

Measure	Minimum Raw Score	Maximum Raw Score	Mid-Point Raw Score	Mid-Point-Associated Rasch Score	Equipped Level Reporting Score
Commitment to Learning	6	24	15	-0.29	11.30
Positive Identity	6	24	15	-0.12	11.04
Social Competence	8	32	20	-0.04	10.90
Empowerment	6	24	15	-0.23	11.25
Family/Community Support	4	24	14	-0.27	11.40
Teacher/School Support	6	25	15.5	-0.355	12.035
OST Positive Experience	7	28	17.5	-0.035	NA

Bullied (Victim) Scaling Notes

There were multiple differences over grades and time on the Bullied measure, including questions that were not asked of 5th grade students (Y25d, Y27d) and one question that was split into two different questions in 2016 (Y25f was split into W27g and W27h). The following methods were employed to create a consistent measure of Bullied across grades and years.

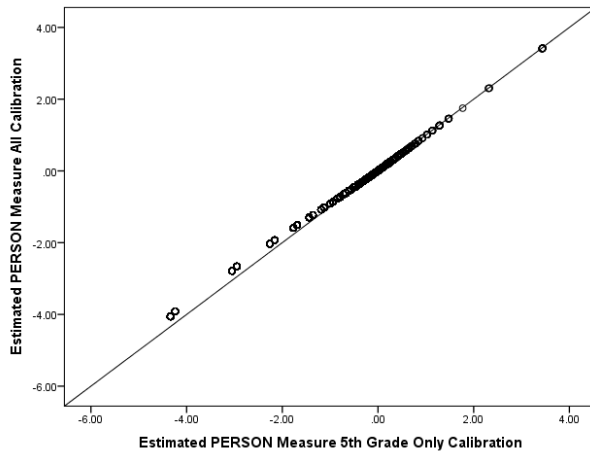
1. The modified item (W27g and W27h) was evaluated regarding the possibility of combining it into a single item to emulate the previous version (Y25f). To do this, a new item was created (W27gh) and coded such that if either component (W27g or W27h) was rated at a level of 5, the combined item (W27gh) was coded 5; if either was rated at a level of 4, the combined item was coded 4; similarly through the case where if both items were rated 1, the combined item was coded 1. Always, the higher rating of either separate item was used to code the combined item.
2. A pair of CFA models was evaluated using all data from 2013 and 2016 with the 2013 version (Y25f) and the 2016 combined item (W27gh). The latent correlations (from the CFA model) between the Bullied and Bullying measures were identical for the two versions ($r = .702$). In addition, the factor loadings for this item were similar between 2013 (Y25f loading = .69) and 2016 (W27gh loading = .73). In the CFA, the model fit with 2013 variable was good (RMSEA = .05, CFI = .91) and identical to 2016 data with the 2016 variable (RMSEA = .05, CFI = .91).
3. Another pair of CFA models was evaluated using the separate data files. In the 2013 data model, Y25f was used, and with the 2016 data model, W27gh was used. The factor loadings were slightly different, with Y25f in 2013 loading at .69 and W27gh in 2016 loading at .73. The latent correlations between Bullied and Bullying was .68 in 2013 and .71 in 2016. The model fit with the 2013 data was good (RMSEA = .049, CFI = .915) and similar to the model fit for the 2016 data (RMSEA = .053, CFI = .910).
4. Finally, a pair of CFA models was evaluated using the 2016 data only, one with the combined W27gh item and one with the two separate items, W27g and W27h. The factor loadings were higher when the two variables were used separately (W27g at .74 and W27h at .79) compared to the combined variable (W27gh at .73). The latent correlation between Bullied and Bullying was slightly smaller with the two separate variables (.696) compared to the combined variable (.714). Finally the model fit was essentially the same, with the separate variables fitting well (RMSEA = .055, CFI = .904) comparing similarly to the combined variable model (RMSEA = .053, CFI = .910).

Because of the similarity of the CFA results, the Rasch model was applied to the data to score students. Because of the elimination of two items for 5th grade students, the question regarding comparability of measures across grades was evaluated by calibrating 5th grade students in two ways. The following methods were employed.

1. First, 5th grade students were calibrated in a concurrent calibration with all other students, using all 12 items identified for the Bullied measure, including the two items (Y25d and Y27d) that were not included in the 5th grade survey. This will essentially score 5th grade students on the 10 items to which they responded.

- Second, 5th grade students were also calibrated separately, using only the 10 items to which they responded, without the item-response data from the older students.

The results provided similar person calibrations. The following figure illustrates the association between person parameter estimates (Rasch locations) from the two different methods of calibration.



Differences were evaluated between the two person calibration methods (using all students versus 5th grade only and 8th-11th grade only). Those differences were all minor. We did notice a slight shift on average for the 5th grade results when calibrated alone – students with lower levels of Bullied scores generally were, on average, slightly lower when calibrated with 5th grade data alone. This is the kind of difference we often see in equating settings, where there is a slight shift in scores due to the presence or absence of other items or other populations. In this case we have both, where the calibration with all students included 5th grade students as well as 8th, 9th, and 11th grade students, as well as two additional items administered to the 8th to 11th grade students.

Differences in Person Calibration Measures

Differences	N	Minimum	Maximum	Mean	SD
5 th v. All	75966	-0.33	0.02	-0.22	0.10
8 th -11 th v. All	238805	-0.01	0.07	0.05	0.02

Finally, the correlation is 1.0 between scores from the two calibration methods for 5th grade students answering all of their 10 items; the correlation is 1.0 between scores from the two calibration methods for 8th to 11th grade students answering all of their 12 items.

Calibration Decision:

Based on the evidence above, the model evaluation and comparison of calibration methods, the method employed to score all students is the concurrent calibration, employing all relevant items. Students who responded to all 10 items administered in 5th grade and to all 12 items administered in grades 8 to 11 will be scored.

Bullied Grade 5: Raw Score to Rasch Scale Score (Measure) Conversion Table with Standard Errors

Raw score	2013		2016		2013 Reporting Score	2016 Reporting Score
	Rasch Measure	SE	Rasch Measure	SE		
10	-3.91	1.85	-4.06	1.86	5.94	5.79
11	-2.66	1.03	-2.79	1.04	7.19	7.06
12	-1.93	0.73	-2.03	0.74	7.92	7.82
13	-1.51	0.58	-1.59	0.59	8.34	8.26
14	-1.23	0.49	-1.30	0.50	8.62	8.55
15	-1.02	0.42	-1.08	0.44	8.83	8.77
16	-0.86	0.38	-0.91	0.39	8.99	8.94
17	-0.73	0.35	-0.77	0.36	9.12	9.08
18	-0.62	0.32	-0.65	0.33	9.23	9.20
19	-0.52	0.30	-0.55	0.31	9.33	9.30
20	-0.44	0.29	-0.46	0.29	9.41	9.39
21	-0.36	0.27	-0.38	0.28	9.49	9.47
22	-0.29	0.26	-0.31	0.27	9.56	9.54
23	-0.22	0.25	-0.24	0.26	9.63	9.61
24	-0.16	0.25	-0.18	0.25	9.69	9.67
25	-0.10	0.24	-0.12	0.24	9.75	9.73
26	-0.04	0.23	-0.06	0.24	9.81	9.79
27	0.01	0.23	0.00	0.23	9.86	9.85
28	0.06	0.23	0.05	0.23	9.91	9.90
29	0.11	0.22	0.10	0.23	9.96	9.95
30	0.17	0.22	0.15	0.23	Midpoint 10.02	10.00
31	0.21	0.22	0.21	0.22	10.06	10.06
32	0.26	0.22	0.26	0.22	10.11	10.11
33	0.31	0.22	0.31	0.22	10.16	10.16
34	0.36	0.22	0.36	0.22	10.21	10.21
35	0.41	0.23	0.41	0.23	10.26	10.26
36	0.47	0.23	0.46	0.23	10.32	10.31
37	0.52	0.23	0.51	0.23	10.37	10.36
38	0.57	0.24	0.57	0.24	10.42	10.42
39	0.63	0.25	0.63	0.25	10.48	10.48
40	0.70	0.25	0.69	0.25	10.55	10.54
41	0.76	0.26	0.76	0.27	10.61	10.61
42	0.84	0.28	0.83	0.28	10.69	10.68
43	0.92	0.30	0.91	0.30	10.77	10.76
44	1.01	0.32	1.01	0.32	10.86	10.86
45	1.13	0.35	1.12	0.35	10.98	10.97
46	1.27	0.40	1.26	0.40	11.12	11.11

47	1.46	0.48	1.45	0.48	11.31	11.30
48	1.75	0.61	1.74		11.60	9.85
49	2.31	0.93	2.30	0.93	12.16	12.15
50	3.42	1.79	3.41	1.79	13.27	13.26

Valid Scores: Students in 5th grade must respond to all 10 items to receive a score.

$$\text{Reporting Scale Score} = \frac{(\text{Rasch Measure} - \text{Midpoint}) + 10}{(\text{Rasch Measure} - 0.15) + 10}$$

Bullied Grades 8/9/11: Raw Score to Rasch Scale Score (Measure) Conversion Table with Standard Errors

Raw score	2013		2016		2013 Reporting Score	2016 Reporting Score
	Rasch Measure	SE	Rasch Measure	SE		
12	-4.09	1.85	-4.21	1.85	5.79	5.67
13	-2.85	1.02	-2.96	1.03	7.03	6.92
14	-2.12	0.72	-2.22	0.73	7.76	7.66
15	-1.71	0.58	-1.78	0.59	8.17	8.10
16	-1.43	0.49	-1.49	0.50	8.45	8.39
17	-1.22	0.43	-1.27	0.44	8.66	8.61
18	-1.06	0.38	-1.10	0.39	8.82	8.78
19	-0.92	0.35	-0.96	0.36	8.96	8.92
20	-0.81	0.32	-0.85	0.33	9.07	9.03
21	-0.71	0.30	-0.74	0.31	9.17	9.14
22	-0.63	0.29	-0.66	0.29	9.25	9.22
23	-0.55	0.27	-0.58	0.28	9.33	9.30
24	-0.48	0.26	-0.50	0.26	9.40	9.38
25	-0.41	0.25	-0.44	0.25	9.47	9.44
26	-0.35	0.24	-0.37	0.25	9.53	9.51
27	-0.30	0.24	-0.31	0.24	9.58	9.57
28	-0.24	0.23	-0.26	0.23	9.64	9.62
29	-0.19	0.22	-0.21	0.23	9.69	9.67
30	-0.14	0.22	-0.16	0.22	9.74	9.72
31	-0.09	0.22	-0.11	0.22	9.79	9.77
32	-0.05	0.21	-0.06	0.21	9.83	9.82
33	0.00	0.21	-0.01	0.21	9.88	9.87
34	0.04	0.21	0.03	0.21	9.92	9.91
35	0.08	0.21	0.07	0.21	9.96	9.95
36	0.13	0.20	0.12	0.21	Midpoint 10.01	10.00
37	0.17	0.20	0.16	0.21	10.05	10.04
38	0.21	0.20	0.20	0.20	10.09	10.08
39	0.25	0.20	0.24	0.20	10.13	10.12
40	0.29	0.20	0.28	0.21	10.17	10.16
41	0.33	0.21	0.33	0.21	10.21	10.21
42	0.38	0.21	0.37	0.21	10.26	10.25
43	0.42	0.21	0.41	0.21	10.30	10.29
44	0.46	0.21	0.46	0.21	10.34	10.34
45	0.51	0.22	0.50	0.22	10.39	10.38
46	0.56	0.22	0.55	0.22	10.44	10.43
47	0.61	0.23	0.60	0.23	10.49	10.48

48	0.66	0.23	0.65	0.23	10.54	10.53
49	0.72	0.24	0.71	0.24	10.60	10.59
50	0.78	0.25	0.77	0.25	10.66	10.65
51	0.84	0.26	0.84	0.26	10.72	10.72
52	0.91	0.28	0.91	0.28	10.79	10.79
53	1.00	0.30	0.99	0.30	10.88	10.87
54	1.09	0.32	1.09	0.32	10.97	10.97
55	1.21	0.36	1.20	0.36	11.09	11.08
56	1.35	0.41	1.35	0.41	11.23	11.23
57	1.55	0.49	1.55	0.49	11.43	11.43
58	1.86	0.63	1.85	0.62	11.74	11.73
59	2.43	0.94	2.43	0.94	12.31	12.31
60	3.56	1.80	3.55	1.80	13.44	13.43

Valid Scores: Students in 8th/9th/11th grade must respond to all 12 items to receive a score.

$$\text{Reporting Scale Score} = \frac{(\text{Rasch Measure} - \text{Midpoint}) + 10}{(\text{Rasch Measure} - 0.12) + 10}$$

Bullying Grade 5: Raw Score to Rasch Scale Score (Measure) Conversion Table with Standard Errors

Raw score	Rasch Measure	SE		Reporting Score
5	-3.26	1.86		6.44
6	-1.97	1.05		7.73
7	-1.20	0.74		8.50
8	-0.78	0.57		8.92
9	-0.50	0.48		9.20
10	-0.31	0.41		9.39
11	-0.15	0.37		9.55
12	-0.02	0.35		9.68
13	0.09	0.33		9.79
14	0.20	0.32		9.90
15	0.30	0.31	Midpoint	10.00
16	0.40	0.31		10.10
17	0.49	0.31		10.19
18	0.59	0.32		10.29
19	0.70	0.33		10.40
20	0.81	0.35		10.51
21	0.95	0.38		10.65
22	1.11	0.44		10.81
23	1.34	0.54		11.04
24	1.76	0.80		11.46
25	2.63	1.66		12.33

Valid Scores: Students in 8th/9th/11th grade must respond to all 12 items to receive a score.

$$\text{Reporting Scale Score} = \begin{aligned} & (\text{Rasch Measure} - \text{Midpoint}) + 10 \\ & (\text{Rasch Measure} - 0.30) + 10 \end{aligned}$$

Bullying Grades 8/9/11: Raw Score to Rasch Scale Score (Measure) Conversion Table with Standard Errors

Raw score	Rasch Measure	SE		Reporting Score
6	-3.71	1.85		6.11
7	-2.45	1.04		7.37
8	-1.69	0.74		8.13
9	-1.26	0.59		8.56
10	-0.96	0.50		8.86
11	-0.74	0.44		9.08
12	-0.57	0.39		9.25
13	-0.42	0.36		9.40
14	-0.30	0.34		9.52
15	-0.19	0.32		9.63
16	-0.09	0.31		9.73
17	0.01	0.30		9.83
18	0.09	0.29		9.91
19	0.18	0.29	Midpoint	10.00
20	0.26	0.29		10.08
21	0.35	0.29		10.17
22	0.43	0.29		10.25
23	0.51	0.29		10.33
24	0.60	0.30		10.42
25	0.70	0.31		10.52
26	0.80	0.33		10.62
27	0.92	0.35		10.74
28	1.05	0.39		10.87
29	1.23	0.45		11.05
30	1.49	0.57		11.31
31	1.97	0.87		11.79
32	2.98	1.75		12.80

Valid Scores: Students in 8th/9th/11th grade must respond to all 12 items to receive a score.

$$\text{Reporting Scale Score} = (\text{Rasch Measure} - \text{Midpoint}) + 10$$

$$(\text{Rasch Measure} - 0.18) + 10$$

Mental Distress Grades 8/9/11: Raw Score to Rasch Scale Score (Measure) Conversion Table with Standard Errors

Raw score	Rasch Measure	SE	Reporting Score
1	-3.80	1.88	6.16
2	-2.45	1.10	7.51
3	-1.56	0.83	8.40
4	-0.98	0.69	8.98
5	-0.57	0.60	9.39
6	-0.25	0.54	9.71
7	0.04	0.53	Midpoint 10.00
8	0.33	0.55	10.29
9	0.66	0.61	10.62
10	1.10	0.72	11.06
11	1.72	0.86	11.68
12	2.66	1.12	12.62
13	4.04	1.90	14.00

Valid Scores: Students in 8th/9th/11th grade must respond to all 5 items to receive a score.

$$\text{Reporting Scale Score} = \begin{matrix} (\text{Rasch Measure} - \text{Midpoint}) + 10 \\ (\text{Rasch Measure} - 0.04) + 10 \end{matrix}$$

Note: The measure of Mental Distress is not available for 5th grade. Four of the five questions were not available on the 5th grade survey.

Family Violence Grades 8/9/11: Raw Score to Rasch Scale Score (Measure) Conversion Table with Standard Errors

Raw score	Rasch Measure	SE		Reporting Score
0	-3.30	1.90		6.74
1	-1.90	1.14		8.14
2	-0.87	0.94		9.17
3	-0.04	0.90	Midpoint	10.00
4	0.82	0.96		10.86
5	1.93	1.19		11.97
6	3.41	1.93		13.45

Valid Scores: Students in 8th/9th/11th grade must respond to all 6 items to receive a score.

$$\text{Reporting Scale Score} = \begin{aligned} &(\text{Rasch Measure} - \text{Midpoint}) + 10 \\ &(\text{Rasch Measure} - -0.04) + 10 \end{aligned}$$

Note: The measure of Family Violence is not available for 5th grade. None of the questions were available on the 5th grade survey in 2016.

Standard Setting: Defining Equipped

One particular use of the developmental skills is to support the efforts of Generation Next, the local Strive program to close achievement gaps in St. Paul and Minneapolis. Prior to the 2016 administration of the MSS, Generation Next adopted the three developmental skill areas to benchmark and monitor progress among 8th grade students, including Commitment to Learning, Positive Identity, and Social Competence. The language adopted for this effort is “to be equipped for learning.” In an effort to define the level of developmental skills needed to be considered equipped for learning, the following process was used to set cut-scores on each measure.

The response scales student use to respond to the relevant items use one of the four sets of options:

- A. Strongly Disagree to Strongly Agree
- B. None of the time to All of the time
- C. Not at all or Rarely to Extremely or Almost Always
- D. Yes or No

To be equipped on a skill, students must respond at a level of Agree to Strongly Agree, Very or Often to Extremely or Almost Always, Most of the time to All of the time, or Yes, on average. That is, since most of the items use a 4-point scale, students must respond at the level of 3 on average. This is accomplished by adding up the points on the items in raw-score points and translating this through the Test Characteristic Curve (TCC) produced by the Rasch measurement model (this associates raw scores to Rasch scale scores). The TCC tables used to translate the equipped-level raw score to Rasch scale score are provided in the tables above.

The point on the Rasch scale score associated with the raw-score associated with the Equipped level response (generally a 3 out of 4) is defined as the Equipped cut score. This is then transformed for each developmental skill to an indicator variable for each developmental skill:

0 = Not Equipped
1 = Equipped

In this sense, to be equipped means that, on average, the student

- recognizes characteristics associated with the developmental skill as being very much or extremely like them;
- agrees or strongly agrees with values, behaviors, and characteristics defining each skill;
- engages in relevant skill-based behaviors most or all of the time.

We find that being equipped on developmental skills is strongly associated with a number of relevant outcomes and behaviors, as reported in the MSS. These are reported in the section on Descriptive Statistics and Associations.

Finally, we note that these equipped to learn levels are not set on the developmental challenges. Although many students do face intense challenges and some do so on a regular basis, these particular challenges (bullied, bullying, mental distress, and family violence) should be eliminated – the goal being that young people should not be facing such challenges.

Creating the Race/Ethnicity Categories Variable: RACEGROUPS

The MSS database includes a set of questions about ethnicity and race. Students are allowed to select as many ethnic and racial groups as they wish. The database includes two race/ethnic variables that combines this information, whereby students are placed in a single category.

[RACE] designates students who identify with a single race and places all multiracial identifications into a group called *Multiple Races*. If students did not select a race (perhaps only an ethnicity), they are designated as *No Answer*.

[RACEETHNIC] uses the [RACE] variable and pulls all students who identify as Hispanic into a separate group, leaving each racial group as “non-Hispanic.”

To create an identification system that emphasis ethnic membership, we recoded the [RACEETHNIC] variable so that it recognizes *Latino* (Hispanic) membership over all, followed by *Somali* membership, *Hmong* membership, and finally *American Indian* membership. The *American Indian* identification was important to prioritize over multiracial, as nearly $\frac{3}{4}$ ths of all *American Indian* students identify as multiracial. In the 2013-2016 data, the MSS original variable [RACEETHNIC] designates 5065 students as *American Indian Non-Hispanic*, whereas our variable [RACEGROUPS] designates 16823 students as *American Indian* and not any of the three ethnic groups.

The following SPSS syntax was used to create the new [RACEGROUPS] variable.

SPSS Syntax Statements	Function
<pre>RECODE raceethnic (4=2) (9=0) (ELSE=Copy) INTO racegroups. VARIABLE LABELS racegroups 'Race Ethnic Groups v1'. EXECUTE.</pre>	<p>Use MSS [raceethnic] variable; Recode <i>Pacific Island</i> as <i>Asian</i>. Recode <i>Race-Missing</i> to 0. Create new variable [racegroups]</p>
<pre>DO IF (Y5a = 1). RECODE racegroups (ELSE=1). END IF. EXECUTE.</pre>	<p>If students identify as <i>American Indian</i> (Y5a) (regardless of other identifications), recode them all as <i>American Indian</i>.</p>
<pre>DO IF (Y4c=1). RECODE racegroups (ELSE=9). END IF. EXECUTE.</pre>	<p>If students identify as <i>Hmong</i> (Y4c) (regardless of other identifications), recode them all as <i>Hmong</i>.</p>
<pre>DO IF (Y4b=1). RECODE racegroups (ELSE=8). END IF. EXECUTE.</pre>	<p>If students identify as <i>Somali</i> (Y4b) (regardless of other identifications), recode them all as <i>Somali</i>.</p>
<pre>DO IF (Y4a=1). RECODE racegroups (ELSE=7). END IF. EXECUTE.</pre>	<p>If students identify as <i>Latino</i> (Y4a) (regardless of other identifications), recode them all as <i>Latino</i>.</p>

Racial and Ethnic Identification by Students

Racial and Ethnic Membership based on Student Identification (duplicated counts)

	2013 Count	2013 %	2016 Count	2016 %
Missing	2727	1.7%	2140	1.3%
American Indian Alaskan	9491	5.9%	10686	6.3%
Asian	11255	6.9%	13255	7.9%
Native Hawaiian Pac Isl	1695	1.0%	2081	1.2%
Black	14536	9.0%	17719	10.5%
White	130551	80.6%	132967	78.8%
Latino	11818	7.3%	15942	9.4%
Somali	2024	1.2%	3619	2.1%
Hmong	4253	2.6%	4815	2.9%

Racial and Ethnic Membership based on the Revised Variable [Racegroups]

	2013 Count	2013 %	2016 Count	2016 %
Missing	2727	1.7%	2140	1.3%
American Indian	8161	5.0%	8662	5.1%
Asian Pacific Island	5151	3.2%	5910	3.5%
Black	7788	4.8%	8806	5.2%
White	115487	71.3%	113313	67.2%
Multiple Races	4776	2.9%	5761	3.4%
Latino	11818	7.3%	15942	9.4%
Somali	1968	1.2%	3555	2.1%
Hmong	4158	2.6%	4644	2.8%
Total	162034		168733	

Note: Recall that one major change in the participants is that Minneapolis Public Schools did not participate in 2013, but did so in 2016.

Special Notes on Racial/Ethnic Identification:

In 2016, 32% of Latino students did not select a race; racial identity among many Latino youth is redundant with their ethnic identity. As described above, 76% of American Indian youth identify as multiracial or multiethnic. About 23% of Asian youth are multiracial; 30% of Black youth are multiracial; 9% of White youth are multiracial.

Differential Item Functioning An Evaluation of Item Bias

Differential Item Functioning (DIF) is a technique to evaluate the functioning of items across groups – so that we can support score interpretation across groups. DIF indicates that for one group, compared to another, the item requires a different level of the trait for students to select a given rating/response. For example: for one group, it is easier to rate an item higher. More generally, this indicates that the item might measure a different level of the trait for one group, where the item might be biased against one group and favor another group. This is often used to flag items for review by content specialists for possible bias.

Differential Item Functioning was evaluated on four student characteristics. For each, we examined differences in item functioning for students in each group based on:

1. Year: between 2013 and 2016.
2. Sex: between males and females.
3. Grade: each grade that was measured
4. Race/ethnicity: between all possible pairs of American Indian (1), Asian (2), Black (3), White (5), Multiracial (6), Latino (7), Hmong (8), and Somali (9) students.

The statistical test is the DIF CONTRAST, the difference in item location (Rasch Measure) for two groups. DIF contrast of 0.64 or greater is equivalent to C-Level DIF, used as a flag in testing programs for moderate to large DIF (as defined by Educational Testing Service). These classifications include:

A = negligible DIF: $| \text{DIF} | < 0.43$

B = slight to moderate DIF: $0.43 \leq | \text{DIF} | < 0.64$ (should review for possible bias)

C = moderate to large DIF: $| \text{DIF} | \geq 0.64$ (definitely review – consider removing)

DIF results at the C-Level are highlighted here. DIF results are always listed as one group having an item measure larger than the second group. This indicates that for one group, the item requires a higher level of trait to respond in a given way, compared to the other group (which requires a lower level of the trait to respond similarly).

Example interpretation: Question Y21a (*If something interests me, I try to learn more about it*) shows DIF for 5th grade students, (0.72 to 1.55 compared to grades 8 to 11). It requires a higher level of Commitment to Learning for 5th grade students to rate this item at a similar level as others. In contrast, it is easier for 5th grade students to rate Y21b (*I think things I learn in school are useful*). This suggests that elements of Commitment to Learning may differ for 5th grade students – given the same level of Commitment to Learning, 5th grade students are more likely to disagree that *if something interests them, they try to learn more about it* and at the same time, given the same level of Commitment to Learning, 5th grade students are more likely to agree that *things they learn in school are useful*. In this particular case, these effects essentially cancel each out. Nevertheless, these effects seem reasonable given the construct and the plausible difference in how students in different grades might express commitment to learning.

Complete DIF results are available in a DIF Report at <http://www.mnydr.org/research>
 A summary of results is provided here. Only C-level DIF is reported here. The Item identification codes are consistent with those reported above (pages 6-9).

Commitment to Learning

PERSON Grade	DIF MEASURE	PERSON Grade	DIF MEASURE	DIF CONTRAST	Joint S.E.	t-test	Welch Prob.	Item
5	0.50	8	-0.16	0.67	0.01	76.82	0.00	Y20r
5	0.50	9	-0.27	0.77	0.01	88.46	0.00	Y20r
5	0.50	11	-0.27	0.77	0.01	85.36	0.00	Y20r
5	-0.21	8	-0.94	0.72	0.01	69.20	0.00	Y21a
5	-0.21	9	-1.16	0.95	0.01	89.94	0.00	Y21a
5	-0.21	11	-1.76	1.55	0.01	137.30	0.00	Y21a
5	-0.26	8	0.64	-0.90	0.01	-95.00	0.00	Y21b
5	-0.26	9	0.88	-1.15	0.01	-122.00	0.00	Y21b
5	-0.26	11	1.03	-1.30	0.01	-134.00	0.00	Y21b
8	-0.94	11	-1.76	0.83	0.01	73.92	0.00	Y21a

RACE

1	0.01	8	0.82	-0.80	0.03	-30.60	0.00	Y20r
3	0.50	5	-0.22	0.72	0.01	54.09	0.00	Y20r
5	-0.22	8	0.82	-1.03	0.02	-44.40	0.00	Y20r
5	-0.22	9	0.44	-0.65	0.02	-34.90	0.00	Y20r
6	-0.03	8	0.82	-0.85	0.03	-29.80	0.00	Y20r
5	1.12	8	0.39	0.73	0.03	28.35	0.00	Y21c
5	1.12	9	0.41	0.71	0.02	36.67	0.00	Y21c

Note: Race/ethnicity: between all possible pairs of American Indian (1), Asian (2), Black (3), White (5), Multiracial (6), Latino (7), Hmong (8), and Somali (9) students.

Positive Identity

PERSON Sex	DIF MEASURE	PERSON Sex	DIF MEASURE	DIF CONTRAST	JOINT S.E.	t-test	Welch Prob.	Item
Male	-0.03	Female	-0.69	0.66	0.01	107.70	0.00	Y60n
Grade								
5	0.97	8	-0.39	1.36	0.01	133.40	0.00	Y60a
5	0.97	9	-0.35	1.32	0.01	129.30	0.00	Y60a
5	0.97	11	-0.26	1.23	0.01	118.30	0.00	Y60a
5	-0.89	8	-0.14	-0.75	0.01	-69.70	0.00	Y60n

Social Competence

None.

Empowerment

PERSON Grade	DIF MEASURE	PERSON Grade	DIF MEASURE	DIF CONTRAST	JOINT S.E.	t-test	Welch Prob.	Item
5	-0.25	9	-0.92	0.67	0.01	65.15	0.00	Y22c
5	-0.25	11	-1.06	0.81	0.01	74.08	0.00	Y22c

Race

5	-0.91	8	-0.23	-0.69	0.03	-23.80	0.00	Y22c
5	-0.91	9	-0.10	-0.81	0.02	-41.30	0.00	Y22c
6	-0.77	9	-0.10	-0.67	0.03	-24.00	0.00	Y22c

Note: Race/ethnicity: between all possible pairs of American Indian (1), Asian (2), Black (3), White (5), Multiracial (6), Latino (7), Hmong (8), and Somali (9) students.

Family/Community Support

None.

Teacher/School Support

PERSON Grade	DIF MEASURE	PERSON Grade	DIF MEASURE	DIF CONTRAST	JOINT S.E.	t-test	Welch Prob.	Item
5	-1.48	9	-0.74	-0.74	0.01	-64.60	0.00	Y21g
5	-1.48	11	-0.73	-0.75	0.01	-63.30	0.00	Y21g

Race

3	-0.05	9	0.59	-0.64	0.03	-24.20	0.00	Y21h
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Note: Race/ethnicity: between all possible pairs of American Indian (1), Asian (2), Black (3), White (5), Multiracial (6), Latino (7), Hmong (8), and Somali (9) students.

Bullied

PERSON Grade	DIF MEASURE	PERSON Grade	DIF MEASURE	DIF CONTRAST	Joint S.E.	t-test	Welch Prob.	Item
5	-0.21	11	0.51	-0.72	0.01	-57.40	0.00	Y27a
Race								
1	0.18	2	-0.60	0.78	0.02	39.20	0.00	Y25a
1	0.50	8	-0.47	0.97	0.03	36.58	0.00	Y25b
2	-0.60	5	0.74	-1.34	0.02	-82.50	0.00	Y25a
3	-0.35	5	0.74	-1.09	0.01	-79.60	0.00	Y25a
3	0.40	8	-0.47	0.87	0.03	32.09	0.00	Y25b
5	0.74	6	-0.35	1.09	0.02	67.53	0.00	Y25a
5	0.74	7	-0.24	0.98	0.01	80.38	0.00	Y25a
5	0.74	8	-0.35	1.09	0.02	49.50	0.00	Y25a
5	0.53	8	-0.47	1.00	0.02	46.92	0.00	Y25b
5	-0.52	8	0.12	-0.64	0.03	-19.00	0.00	Y27d
5	0.74	9	-0.43	1.17	0.02	60.86	0.00	Y25a
6	0.56	8	-0.47	1.03	0.03	31.44	0.00	Y25b
7	0.46	8	-0.47	0.93	0.03	36.87	0.00	Y25b

Note: Race/ethnicity: between all possible pairs of American Indian (1), Asian (2), Black (3), White (5), Multiracial (6), Latino (7), Hmong (8), and Somali (9) students.

Bullying

PERSON Race	DIF MEASURE	PERSON Race	DIF MEASURE	DIF CONTRAST	Joint S.E.	t-test	Welch Prob.	Item
1	-0.44	9	0.24	-0.68	0.08	-8.35	0.00	Y62e
7	-0.45	9	0.24	-0.70	0.08	-8.74	0.00	Y62e
8	-0.53	9	0.24	-0.77	0.11	-7.20	0.00	Y62e

Note: Race/ethnicity: between all possible pairs of American Indian (1), Asian (2), Black (3), White (5), Multiracial (6), Latino (7), Hmong (8), and Somali (9) students.

Mental Distress

PERSON Race	DIF MEASURE	PERSON Race	DIF MEASURE	DIF CONTRAST	JOINT S.E.	t-test	Welch Prob.	Item
1	-1.27	9	-0.14	-1.13	0.07	-16.80	0.00	Y42
2	0.75	5	0.03	0.72	0.05	15.93	0.00	treat_mh
2	-0.62	8	0.08	-0.69	0.08	-8.23	0.00	suic_con
2	0.75	9	1.49	-0.74	0.08	-9.84	0.00	treat_mh
3	-0.89	9	-0.14	-0.75	0.07	-10.40	0.00	Y42
3	0.44	9	1.49	-1.06	0.07	-15.10	0.00	treat_mh
5	0.03	8	0.68	-0.65	0.08	-8.20	0.00	treat_mh
5	-1.23	9	-0.14	-1.09	0.06	-17.80	0.00	Y42
5	0.03	9	1.49	-1.46	0.06	-23.90	0.00	treat_mh
6	-1.10	9	-0.14	-0.96	0.07	-13.30	0.00	Y42
6	0.28	9	1.49	-1.21	0.07	-17.40	0.00	treat_mh
7	-0.95	9	-0.14	-0.81	0.07	-12.30	0.00	Y42
7	0.47	9	1.49	-1.03	0.06	-15.90	0.00	treat_mh
8	0.08	9	-0.71	0.78	0.09	9.07	0.00	suic_con
8	0.68	9	1.49	-0.81	0.1	-8.12	0.00	treat_mh

Note: Race/ethnicity: between all possible pairs of American Indian (1), Asian (2), Black (3), White (5), Multiracial (6), Latino (7), Hmong (8), and Somali (9) students.

Family Violence

PERSON CLASS	DIF MEASURE	PERSON CLASS	DIF MEASURE	DIF CONTRAST	JOINT S.E.	t-test	Welch Prob.	Item
Male	2.47	Female	1.39	1.07	0.04	28.72	0.00	Y76

Race

1	0.29	2	1.29	-1.00	0.08	-12.10	0.00	Y71
1	-0.71	2	-1.67	0.97	0.06	17.25	0.00	Y73
1	-0.71	3	-1.34	0.64	0.05	12.80	0.00	Y73
1	-0.32	8	0.46	-0.78	0.11	-6.91	0.00	Y70
1	0.29	9	1.44	-1.15	0.09	-12.90	0.00	Y71
2	1.29	1	0.29	1.00	0.08	12.05	0.00	Y71
2	-1.67	1	-0.71	-0.97	0.06	-17.20	0.00	Y73
2	1.29	3	0.55	0.74	0.09	8.46	0.00	Y71
2	-0.05	5	-0.71	0.66	0.05	12.58	0.00	Y70
2	1.29	5	0.61	0.68	0.08	9.03	0.00	Y71
2	-1.67	5	-0.76	-0.91	0.05	-19.50	0.00	Y73
2	1.29	6	0.40	0.89	0.09	9.97	0.00	Y71

2	-1.67	6	-1.02	-0.65	0.06	-10.60	0.00	Y73
2	1.29	7	0.68	0.61	0.08	7.44	0.00	Y71
2	-1.67	7	-0.97	-0.70	0.05	-13.30	0.00	Y73
2	1.29	8	0.43	0.86	0.13	6.67	0.00	Y71
2	1.83	8	1.19	0.64	0.16	4.15	0.00	Y76
3	-1.34	1	-0.71	-0.64	0.05	-12.80	0.00	Y73
3	0.55	2	1.29	-0.74	0.09	-8.46	0.00	Y71
3	0.14	5	-0.71	0.86	0.04	19.28	0.00	Y70
3	0.55	9	1.44	-0.89	0.09	-9.52	0.00	Y71
5	-0.71	0	-0.03	-0.69	0.11	-6.20	0.00	Y70
5	-0.71	2	-0.05	-0.66	0.05	-12.60	0.00	Y70
5	0.61	2	1.29	-0.68	0.08	-9.03	0.00	Y71
5	-0.76	2	-1.67	0.91	0.05	19.55	0.00	Y73
5	-0.71	3	0.14	-0.86	0.04	-19.30	0.00	Y70
5	-0.71	8	0.46	-1.17	0.11	-10.90	0.00	Y70
5	1.89	8	1.19	0.70	0.13	5.44	0.00	Y76
5	0.61	9	1.44	-0.83	0.08	-10.10	0.00	Y71
5	0.35	9	-0.37	0.72	0.05	13.57	0.00	Y74
6	0.40	2	1.29	-0.89	0.09	-9.97	0.00	Y71
6	-1.02	2	-1.67	0.65	0.06	10.60	0.00	Y73
6	1.84	8	1.19	0.66	0.15	4.41	0.00	Y76
6	0.40	9	1.44	-1.04	0.1	-10.90	0.00	Y71
7	-0.97	2	-1.67	0.70	0.05	13.28	0.00	Y73
7	-0.22	8	0.46	-0.69	0.11	-6.18	0.00	Y70
7	0.68	9	1.44	-0.76	0.09	-8.60	0.00	Y71
8	0.46	1	-0.32	0.78	0.11	6.91	0.00	Y70
8	0.43	2	1.29	-0.86	0.13	-6.67	0.00	Y71
8	1.19	2	1.83	-0.64	0.16	-4.15	0.00	Y76
8	0.46	5	-0.71	1.17	0.11	10.92	0.00	Y70
8	1.19	5	1.89	-0.70	0.13	-5.44	0.00	Y76
8	1.19	6	1.84	-0.66	0.15	-4.41	0.00	Y76
8	0.46	7	-0.22	0.69	0.11	6.18	0.00	Y70
8	0.46	9	-0.33	0.79	0.12	6.66	0.00	Y70
8	0.43	9	1.44	-1.01	0.13	-7.58	0.00	Y71
8	1.19	9	1.84	-0.65	0.16	-4.13	0.00	Y76

Note: Race/ethnicity: between all possible pairs of American Indian (1), Asian (2), Black (3), White (5), Multiracial (6), Latino (7), Hmong (8), and Somali (9) students.

Out-of-School-Time (OST) Positive Experience

PERSON CLASS	DIF MEASURE	PERSON CLASS	DIF MEASURE	DIF CONTRAST	JOINT S.E.	t-test	Welch Prob.	Item
1	-1.29	9	-0.65	-0.64	0.03	-21.8	0	W34a
5	-1.59	9	-0.65	-0.94	0.02	-40.4	0	W34a
6	-1.45	9	-0.65	-0.80	0.03	-24.2	0	W34a

Note: Race/ethnicity: between all possible pairs of American Indian (1), Asian (2), Black (3), White (5), Multiracial (6), Latino (7), Hmong (8), and Somali (9) students.