Technical Manual for Attitudes Towards Teaching All Students (ATTAS-mm) Instrument

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Author note: The authors welcome inquiries to use the ATTAS-mm in research; permission is granted via e-mail requests to gregoryj2@southernct.edu. The instrument and a scoring sheet are included in this document, but we ask that they not be modified without express permission, and that raw data are shared with the authors at the completion of the research to improve the overall reliability measure of the instrument.

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The increase in the practice of educating students with disabilities with their peers has increased steadily since the practice of inclusion was introduced over thirty years ago (Sailor, et. al., 1986; Skirtic, 1991; Stainback & Stainback, 1990). The reauthorization of the Individuals with Disabilities Education Improvement Act (IDEIA, 2004) and the implementation of the No Child Left Behind Act (NCLB, 2001) have amplified the importance of providing effective inclusion opportunities. The commitment to inclusive education has been reaffirmed and strengthened with each reauthorization of the Education for All Handicapped Children Act originally enacted in 1975. While the legislation provides billions of dollars in funding in exchange for assurances that each student is provided a free and appropriate public education in the least restrictive environment, this is no guarantee that the inclusive services will be provided, nor does it ensure that the inclusion effort will be successful. Some of the same pressures that underscore the importance of providing inclusive education, the standardization of expectations and assessment in NCLB, also stress the flexibility and individualization of services necessitated by inclusion of students with disabilities in the regular education classroom.

Inclusion is for the most part, regarded as a general education classroom that includes students with and without disabilities receiving their education together with a general education teacher as the primary instructor (Mastropieri & Scruggs, 2010, Villa, et. al., 1996, Villa & Thousand, 2003). There may be additional supports in the classroom, such as a paraprofessional or a special education teacher, but the general education teacher is primarily responsible for designing the educational experiences for the whole class.

Not all general education teachers and other educational professionals favor inclusion (Moores, 2011; Volition & Sigmund, 2007, Zigmond, Kloo, & Volonino, 2009). Despite this, inclusion is the accepted mode of education to ensure all students, whether they have been identified with a disability or not, have access to the same educational opportunity and are

expected to perform at the same benchmarks on standardized assessments that are aligned to curricular standards (NCLB, 2001). Therefore the highly-qualified, general education teacher, with appropriate support, is best suited to develop students knowledge and skills as outlined by the curriculum.

The general education teacher has the greatest influence on a students success in school, and a teacher's attitude towards inclusion is a major factor in determining whether inclusion will be successful (Van Laarhoven, Munk, Lynch, Bosma, & Rouse, 2007). Since the early 1990's researchers have been developing instruments to measure the feelings and attitudes of people when they interact with people with disabilities. Angelides states that teacher training has "a serious role…in the development of inclusive practices" (p. 318) and others concur (Carroll, Forlin, and Jobling, 2003, p.77; Loreman, Earle, Sharma and Forlin, 2007, p. 150). Avramidis et al. (2000) remarked on several earlier studies: Center & Ward, 1987; Clough & Lindsay, 1991; and Dickens-Smith, 1995 that all indicate that training regarding inclusion and special education had a positive impact on the attitudes of pre- and in-service teachers.

Since attitudes have three components, cognitive, affective, and behavioral, it was important to include all three in evaluating teachers' attitudes towards inclusion. The cognitive component is made up of one's thoughts, ideas or beliefs about something or someone, this may be stereo-typing. The affective dimension of attitude includes the feelings, the emotional response to something or someone, while the conative part of attitude is the behavioral dimension. The behavioral or conative component is a description of the tendency to act in a way towards something. When studying attitudes it is important to include all three dimensions (Fishbein & Ajzen, 1972, p. 529). Fishbein and Ajzen asserted that the conative intentions will affect behavior and that the affective and cognitive components of attitude impact the conative intentions, therefore in this study the conative intentions will be described as the behavioral component of attitude. While these three constructs are not wholly independent of each other they are measurably distinct components.

When considering pre-service attitudes towards inclusion the three dimensions of attitude have been approached differently by different studies. Antonak and Larrivee in their 1995 effort to revise a scale to evaluate educator's attitudes identified eight possible dimensions that they then narrowed to "five factors: General Philosophy of Mainstreaming, Classroom Behavior of Special Needs Children, Perceived Ability to Teach Special Needs Children, Classroom Management of Special Needs Children, [and] Academic and Social Growth of Special Needs Children" (p. 141-142). Upon further review these factors were revised and regrouped into four: "Benefits of Integration, Integrated Classroom Management, Perceived Ability to Teach Students with Disabilities, and Special Versus Integrated General Education" (p. 147).

Slightly more than a decade later, Loreman, Earle, Sharma and Forlin sought to distill several other attitudinal scales into an improved scale measuring pre-service teacher attitudes toward inclusive education. In their 2007 study, Loreman et al. developed the Sentiments, Attitudes, and Concerns about Inclusive Education scale (SACIE) using five factor themes: 1) workload and stress, 2) resources, 3) time, training, competence, 4) other student relationships, and 5) academic impact on rest of class (p.156). Loreman et al. used the work of Martinez (2003) who identified the core values of inclusive education as: "(a) positive attitudes toward increased inclusion of students with disabilities, (b) high sense of teaching efficacy and (c) willingness and ability to adapt one's teaching to meet the individual educational needs of students with disabilities" (p. 474). Martinez addresses all three of the components of attitude while Loreman et al., Antonak and Larrivee, and the researchers who developed the instruments they synthesized did not. In this way, there was a need for another instrument that could measure all three of the dimensions of attitude according to Fishbein and Ajzen.

The TATIS (Cullen, Gregory & Noto, 2010) was used in research around the world, but in a session discussing Structural Equation Modeling (SEM) a possible threat to the instrument was discovered. When preparing to use SEM an instrument must be entirely positively scored to eliminate the possibility that reverse score bias was causing items to load on a single factor

(Finney, 2010). The second factor in the TATIS was reverse scored to slow the respondents cognitive processing, but this reverse scoring may cause the second factor to exist when it would not otherwise be present. Earlier results had demonstrated a higher variance in the scores on the second factor, but this was consistent with the literature on measuring the three dimensions of attitude. Now there was another possible explanation for the higher variance, reverse score bias. To investigate this, the TATIS was revised to be fully positively scored and renamed the TATIS-p. The pilot data showed that the TATIS-p did not load onto the three factors as the literature supports, and so, the second factor of the TATIS was determined to be a result of reverse score bias rather than a measure of one of the three dimensions of attitude.

Method

Knowing that a successful instrument that measures attitudes would need to load onto the three different components of attitude: cognitive, behavioral and affective, existing and new items were brainstormed into three pools. From these pools of items, twenty-seven items were selected by the researchers to be a part of the pilot instrument. The items consisted of positively worded statements to which respondents selected their level of agreement (five point Likert scale). The validity of the items was ensured through their alignment with the literature, narrow focus on the content, and vetting by a small panel of experts. The instrument was piloted using Surveymonkey. Pre-service teachers at a private, New England university were invited to participate in the pilot ($n = 211$) in the Spring semester of 2011.

The data collected were designed to permit factor analyses and item selection to create a scale that would reliably measure the three facets of attitudes. If this pilot was to be a success, there would need to be at least three items for each of the cognitive, affective, and behavioral dimensions of attitude (Fabrigar, Wegener, MacCallum, & Strahan, 1999). Additionally, the entire instrument and each of the subscales would need to be reliable, as measured by Cronbach's alpha ($\alpha = 0.8$, good; $\alpha = 0.6$, acceptable).

Pilot Data / Results

Of the invited sample (n = 211), 22.7%, responded (n = 48). This is lower than the 32.52% average response rate for an online survey and slightly lower than the median response rate (26.45%) (Hamilton, 2009). The response rate may have been impacted by the invitation being e-mailed exclusively to the pre-service teachers' official university e-mail accounts. After the pilot was begun, one item was determined to have grammatically poor wording and would be excluded from the analyses, so the pilot evaluation was on twenty-six items.

Statistical analyses were run using SPSS (PASWStatistics 18.0). The first step was to conduct an initial factor analysis. In the initial factor analysis, only items with initial correlations of 0.7 or greater were retained (Table 1). This resulted in the retention of twelve items.

Table 1. Initial factor analysis, rotated component matrix

Item	Component		
	1	2	3
1. All students with mild to moderate disabilities should be educated in regular classrooms with non-handicapped peers to the fullest extent possible.	**.763**	-.081	.409
2. Most or all regular classrooms can be modified to meet the needs of students with mild to moderate disabilities.	.629	.135	.494
3. Students with mild to moderate disabilities can be trusted with responsibilities in the classroom.	**.745**	.255	.358
4. I would like people to think that I can create a welcoming classroom environment for students with mild to moderate disabilities.	**.817**	.281	.106
5. I have a high regard for teachers who use a variety of data (e.g., health, academic, behavioral, etc.) to make instructional decisions.	.319	.567	.246
6. It is seldom necessary to remove students with mild to moderate disabilities from regular classrooms in order to meet their educational needs.	.234	.001	.614
7. Most or all separate classrooms that exclusively serve students with mild to moderate disabilities should be eliminated.	-.109	-.032	**.721**
8. Students with mild to moderate disabilities can be more effectively educated in regular classrooms as opposed to special education classrooms.	.317	.159	**.707**
9. Inclusion is a more efficient model for educating students with mild to moderate disabilities because it reduces transition time (i.e., the time required to move from one setting to another).	.212	.089	.367
10. Students with mild to moderate disabilities should be taught in regular classes with non-disabled students because they will not require too much of the teacher's time.	-.219	.187	**.772**

11. I believe including students with mild/moderate disabilities in regular classrooms is effective because they can learn the academic skills necessary for success.	.220	.681	.422
12. I would like to be mentored by a teacher who models effective differentiated instruction.	.445	**.790**	.060
13. I want to emulate teachers who know how to design appropriate academic interventions.	.392	**.822**	.122
14. Students with mild to moderate disabilities have the ability to contribute meaningfully to their educational program.	**.778**	.418	.121
15. I would like my mentor to believe that I work well with students with mild to moderate disabilities.	**.747**	.492	-.040
16. I believe including students with mild/moderate disabilities in the regular classrooms is effective because they can learn the social skills necessary for success.	.274	**.736**	.403
17. I find that general education teachers often succeed with students with mild to moderate disabilities, when they try their best.	.065	.605	.369
18. I would welcome the opportunity to team teach as a model for meeting the needs of students with mild/moderate disabilities in regular classrooms.	.589	.453	.119
19. All students benefit from team teaching: that is, the pairing of a general and a special education teacher in the same classroom.	-.010	.689	.215
20. The responsibility for educating students with mild/moderate disabilities in regular classrooms should be shared between the general and special education teachers.	.362	.505	.082
21. Students with mild to moderate disabilities can be equal contributors in group work.	.599	.329	.227
~~22. It is important to be seen by colleagues as a teacher who can differentiate instruction.~~ Wording in pilot was grammatically poor.			
23. I believe that students with mild and moderate disabilities benefit from active learning.	**.731**	.475	-.006
24. I would like people to think that I can use flexible grouping to ensure that students with mild to moderate disabilities are effectively participating in lessons.	.605	.650	-.006
25. I respect teachers who find ways to create a homogeneous class.	.144	.318	-.106
26. I admire teachers who successfully design behavioral interventions.	.583	.593	.035
27. I would welcome the opportunity to participate in a consultant teacher model (i.e., regular collaborative meetings between special and general education teachers to share ideas, methods, and materials) as a means of addressing the needs of students with mild/moderate disabilities in regular classrooms.	.681	.455	.256

These twelve items were subjected to Principal Component Analysis and the solution rotated identify the strongest loading items for each of the three factors in the pattern matrix (Table 2). Items labeled 9, 10 and 12 in Table 2 appeared to cross load on components one and two, so they

were eliminated. This resulted in a nine item instrument with three items identified for each component of attitude.

Table 2. Initial factor analysis, rotated component matrix

Item	Component		
	1	2	3
1. All students with mild to moderate disabilities should be educated in regular classrooms with non-handicapped peers to the fullest extent possible.	.050	**.858**	.187
2. Students with mild to moderate disabilities can be trusted with responsibilities in the classroom.	.315	**.790**	.236
3. I would like people to think that I can create a welcoming classroom environment for students with mild to moderate disabilities.	.425	**.758**	-.052
4. Most or all separate classrooms that exclusively serve students with mild to moderate disabilities should be eliminated.	-.086	.066	**.809**
5. Students with mild to moderate disabilities can be more effectively educated in regular classrooms as opposed to special education classrooms.	.230	.482	**.684**
6. Students with mild to moderate disabilities should be taught in regular classes with non-disabled students because they will not require too much of the teacher's time.	.115	-.126	**.848**
7. I would like to be mentored by a teacher who models effective differentiated instruction.	**.920**	.276	.039
8. I want to emulate teachers who know how to design appropriate academic interventions.	**.951**	.208	.123
9. Students with mild to moderate disabilities have the ability to contribute meaningfully to their educational program.	.626	.646	.036
10. I would like my mentor to believe that I work well with students with mild to moderate disabilities.	.699	.584	-.131
11. I believe including students with mild/moderate disabilities in the regular classrooms is effective because they can learn the social skills necessary for success.	**.770**	.209	.320
12. I believe that students with mild and moderate disabilities benefit from active learning.	.555	.661	-.076

With nine items identified, the factor analyses were run a third time, and the 9 remaining items in the scale explained nearly 80% of the variance (Tables 3 & 4). The first subscale (Component 3) measures the cognitive dimension of attitude. This scale was labeled, *believing all students can succeed in general education classrooms*. It consists of items 4, 5, and 6 in the

pilot, and in the final instrument is listed first. The second subscale (Component 1), titled *developing personal and professional* relationships, measures the affective dimension through items 7, 8, and 9 in the pilot and in the final version of the instrument is listed as the middle items. The third subscale (Component 2) assesses the behavioral aspect of attitude with items 1, 2, and 3 of the pilot and the last items on the final instrument. This subscale is titled *creating an accepting environment for all students to learn*. Together the three subscales measure an individual's three elements of attitude.

Table 3. ATTAS-mm, rotated component matrix

Item	Component		
	1	2	3
1. All students with mild to moderate disabilities should be educated in regular classrooms with non-handicapped peers to the fullest extent possible.	.076	**.897**	.112
2. Students with mild to moderate disabilities can be trusted with responsibilities in the classroom.	.341	**.801**	.171
3. I would like people to think that I can create a welcoming classroom environment for students with mild to moderate disabilities.	.431	**.747**	-.112
4. Most or all separate classrooms that exclusively serve students with mild to moderate disabilities should be eliminated.	-.074	.084	**.836**
5. Students with mild to moderate disabilities can be more effectively educated in regular classrooms as opposed to special education classrooms.	.261	.474	**.639**
6. Students with mild to moderate disabilities should be taught in regular classes with non-disabled students because they will not require too much of the teacher's time.	.147	-.076	**.849**
7. I would like to be mentored by a teacher who models effective differentiated instruction.	**.919**	.265	-.006
8. I want to emulate teachers who know how to design appropriate academic interventions.	**.952**	.199	.079
9. I believe including students with mild/moderate disabilities in the regular classrooms is effective because they can learn the social skills necessary for success.	**.818**	.266	.235

Table 4. ATTAS-mm, total variance explained

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	2.822	31.353	31.353
2	2.421	26.905	58.258
3	1.943	21.591	**79.849**

With the scale defined, the reliability coefficients for the full scale and the subscales were determined. The unstandardized Cronbach alpha for the entire ATTAS-mm scale was 0.833. The three subscales also demonstrated acceptable reliability values (Table 5). It was interesting to note that the subscale that measured the affective portion of attitude had the highest reliability. This is inconsistent with the earlier TATIS instruments (Noto & Gregory, 2011) and with literature on measuring affects (Fishbein & Ajzen, 1972). The emphasis on school climate and building inclusive school cultures may be impacting the reliability of measures of affect. Pre-service and in-service teachers and administrators are expected to explicitly address issues surrounding personal and professional relationships. This attention to relationships would necessitate respondents clarifying how they feel and therefore increase the consistency of responses in this domain.

Table 5. Reliability analysis for ATTAS-mm full scale and subscales.

Component	Title	Cronbach Alpha
Full scale	Attitudes towards teaching all students	0.833
Subscale 1: Cognitive	Believing all students can succeed in general education classrooms	0.720
Subscale 2: Affective	Developing personal and professional relationships	0.928
Subscale 3: Behavioral	Creating an accepting environment for all students to learn	0.837

With strong internal reliability and validity established through a panel of experts and alignment with cognitive psychology literature, the ATTAS-mm met the criteria set forth in the design of the pilot. The three elements that combine to create attitude were each measured with three items, and the reliability of the scale was greater than the $\alpha = 0.6$ level that was defined as acceptable. Most of the subscales and the full instrument exceeded the 0.8 value for alpha that indicates good internal reliability. Overall, the ATTAS-mm was determined to be a valid and reliable instrument for measuring the attitudes towards teaching all students.

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Appendix A

Attitudes Towards Teaching All Students

ATTAS-mm

Jess L. Gregory
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Lori A. Noto
University of Bridgeport

Directions: The purpose of this survey is to obtain an accurate and valid appraisal of your perceptions of teaching all students including students identified with mild to moderate disabilities. Because there are no "right" or "wrong" answers to these items, please respond candidly.

Definition of Full Inclusion: For the purposes of this survey, fill inclusion is defined as the integration of students with mild to moderate disabilities into regular classrooms for 80% or more of the school day. Under federal special education law, mild to moderate disabilities include: learning disabilities; hearing impairments; visual impairments; physical handicaps; attention deficit disorder; speech/language impairments; and mild/moderate emotional disturbance, mental retardation, autism, or traumatic brain injury.

Respondent Information:

1. What is your current role in education?
- ○ Student not yet in the field
- ○ Intern
- ○ Substitute Teacher/DSAP
- ○ Paraprofessional
- ○ Certified Teacher
- ○ Other _____

2. What is your gender?
- ○ Male
- ○ Female

3. What is the highest degree you have completed?
- ○ Associates
- ○ Bachelors
- ○ Masters
- ○ Masters +30 (6^{th} year)
- ○ Doctorate

4. How many years of experience do you have as an educator?
- ○ 0-4 years
- ○ 5-9 years
- ○ 10-14 years
- ○ 15-19 years
- ○ 20 years or more

5. How would you describe the community in which you work/intern?
- ○ Rural
- ○ Suburban
- ○ Urban
- ○ N/A (not currently in the field)

6. How many college (or higher) courses have you completed in special education?
- ○ None
- ○ 1-3
- ○ 4 or more courses

7. Describe the extent of your experience working with individuals with disabilities in schools and/or human service agencies.
- ○ Minimal (1 hour of fewer per month)
- ○ Some (2-10 hours per month)
- ○ Considerable (11-80 hours per month)
- ○ Extensive (more than 80 hours per month)

8. Which of the following best describes the school in which you work/intern?
- ○ Elementary (k-2, k-3, k-4, k-5, or k-6)
- ○ Middle (4-6, 5-6, 4-8, 6-8, 7-8)
- ○ High (7-12, 8-12, 9-12)
- ○ Other _____

9. How would you describe the socioeconomic status of the community in which you work/intern?
- ○ Poor (income/education in the lowest 20%)
- ○ Moderate (income/education in the middle 60%)
- ○ Affluent (income/education in the highest 20%)

10. How long do you plan to teach?
- ○ fewer than 5 years
- ○ 5-10 years
- ○ 11-20 years
- ○ Greater than 20 years

11. I want to become an administrator. ○ yes ○ no

Attitudes Towards Teaching All Students

ATTAS-mm

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Southern CT State University

Lori A. Noto
University of Bridgeport

The purpose of this survey is to obtain an accurate and valid appraisal of your perceptions of teaching all students including students identified with mild to moderate disabilities. Because there are no "right" or "wrong" answers to these items, please respond candidly.

	Agree Very Strongly	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree	Disagree Very Strongly
1. Most or all separate classrooms that exclusively serve students with mild to moderate disabilities should be eliminated.	1	2	3	4	5	6	7
2. Students with mild to moderate disabilities should be taught in regular classes with non-disabled students because they will not require too much of the teacher's time.	1	2	3	4	5	6	7
3. Students with mild to moderate disabilities can be more effectively educated in regular classrooms as opposed to special education classrooms.	1	2	3	4	5	6	7
4. I would like to be mentored by a teacher who models effective differentiated instruction.	1	2	3	4	5	6	7
5. I want to emulate teachers who know how to design appropriate academic interventions.	1	2	3	4	5	6	7
6. I believe including students with mild/moderate disabilities in the regular education classrooms is effective because they can learn the social skills necessary for success.	1	2	3	4	5	6	7
7. I would like people to think that I can create a welcoming classroom environment for students with mild to moderate disabilities.	1	2	3	4	5	6	7
8. Students with mild to moderate disabilities can be trusted with responsibilities in the classroom.	1	2	3	4	5	6	7
9. All students with mild to moderate disabilities should be educated in regular classrooms with non-handicapped peers to the fullest extent possible	1	2	3	4	5	6	7

Scoring Sheet

Please use this form (Excel file will be sent) to send your raw data on the ATTASmm to gregoryj2@southernct.edu

For the respondent information (RI), the choices are numbered starting with 1. (ex. RI1: Student=1, Intern=2, Substitute=3…)
As data are entered, the subscale and full scale scores wil automatically calculate. **Subscales and Full scale will autocalculate.**

RI1	RI2	RI3	RI4	RI5	RI6	RI7	RI8	RI9	RI10	RI11	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	SubScale 1	SubScale 2	SubScale 3	Full Scale
																				0	0	0	0
																				0	0	0	0
																				0	0	0	0
																				0	0	0	0
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The authors welcome inquiries to use the ATTAS-mm in research; permission is granted via e-mail requests to gregoryj2@southernct.edu. The instrument and a scoring sheet are included in this document, but we ask that they not be modified without express permission, and that raw data are shared with the authors at the completion of the research to improve the overall reliability measure of the instrument. When requesting permission, a modifiable , auto calculating Excel spreadsheet will be sent to the researcher.

Technical Data and Scoring Charts

Full Scale: ATTAS-mm

Cronbach's Alpha: .833
Item Mean: 3.852
Item Standard Deviation: .7266
Scale Mean: 34.67
Scale Standard Deviation: 4.922

Score	Percentile
23 or lower	1
24	2
25	3
26	4
27	7
28	9
29	13
30	16

Score	Percentile
31	23
32	30
33	39
34	45
35	55
36	60
37	69
38	76

Score	Percentile
39	82
40	85
41	89
42	93
43	95
44	97
45	98
46 or higher	99

Subscale 1 (Sum Items 1, 2, & 3):
Believing all students can succeed in general education classrooms.
Cronbach's Alpha: .720
Item Mean: 2.958
Item Standard Deviation: .4506
Scale Mean: 8.88
Scale Standard Deviation: 2.218

Score	Percentile
4 or lower	1
5	4
6	10
7	20

Score	Percentile
8	35
9	52
10	69
11	83

Score	Percentile
12	92
13	97
14 or higher	99

Subscale 2 (Sum Items 4, 5, & 6):
Developing personal and professional relationships.
Cronbach's Alpha: .928
Item Mean: 4.403
Item Standard Deviation: .1517
Scale Mean: 13.21
Scale Standard Deviation: 2.297

Score	Percentile
8 or lower	1
9	3
10	8
11	17

Score	Percentile
12	30
13	46
14	63
15	78

Score	Percentile
16	89
17	95
18	98
19 or higher	99

Subscale 3 (Sum Items 7, 8, & 9):
Creating an accepting environment for all students to learn.

Cronbach's Alpha: .837
Item Mean: 4.194
Item Standard Deviation: .2366
Scale Mean: 12.58
Scale Standard Deviation: 1.977

Score	Percentile
8 or lower	1
9	4
10	10
11	21

Score	Percentile
12	38
13	58
14	76
15	89

Score	Percentile
16	96
17 or higher	99

Note: Percentiles are provided only as guidance. The sample used to determine these scores was derived from pre-service teachers enrolled in a New England University, and may differ from other samples.

Please contact the authors for permission to use the ATTAS-mm

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