THE GOVERNOR'S OFFICE of STUDENT ACHIEVEMENT

APPLIED LEARNING STUDENT QUESTIONNAIRE: *ANALYSIS*

Morehouse College Daily and Residential Programs
Summer 2014

Executive Summary

Participants and Methods

During the summer 2014, 43 students participating in the Morehouse College Daily and Residential Programs completed the Applied Learning Student Questionnaire (ALSQ). The ALSQ is designed to measure pre and post gains related to student problem solving and communication skills, self-management and engagement.

The ALSQ is a self-report questionnaire that includes 36 items to assess students' attitudes on the following survey constructs:

1. **Intrinsic Motivation**: motivation stemming from goals of mastery, learning and challenge. Example, "It is important for me to learn what is being taught in this program."
2. **Self-Management/Self-Regulation:** effortful and persistent behaviors that are used to guide, monitor, and direct the success of one's learning and performance. Example, "I turn all my assignments in on time."
3. **Intent to Persist:** aspirations, plans, and goals to pursue additional education and a career in STEM. Example, "I intend to get a college degree in STEM (Science, Technology, Engineering, and Math)."
4. **Problem Solving:** inquiry-based learning environment that provides higher-order cognitive tasks and real-world applications. Example, "I work out explanations on my own."
5. **Implementation Activities:** hands-on activities designed to increase exposure to STEM topics and real-world applications. Example, "We learn what scientists/technicians/engineers/ mathematicians or other STEM professionals do."

Results & Discussion

- **ALSQ Survey Constructs**
  Table 1 summarizes students' responses to the ALSQ survey constructs. Students show statistically significant increases in *Intrinsic Motivation*, *Self-Management/Self-Regulation Skills* and *Intent to Persist* in STEM-related education and careers. That is, students are more likely to a) derive value from and see the importance in learning about STEM, b) engage in behaviors that enhance their academic success, and c) pursue a degree or career in STEM after participating in the program. Students also indicated that the programs were successful in cultivating a highly interactive learning environment where they engaged in meaningful, hands-on activities. For example, students indicated that they select their own research topics and independently plan and execute projects. Across all survey constructs, students' "now" ratings exceeded the optimal average of 4 on a 5-point Likert scale (1, *strongly disagree* to 5, *strongly agree*). See Figure 1.

Prepared by:
chowell@sagefoxgroup.com

SageFox CONSULTING GROUP
30 Boltwood Walk • Amherst, Mass. 01002
413.256.6169 • www.sagefoxgroup.com

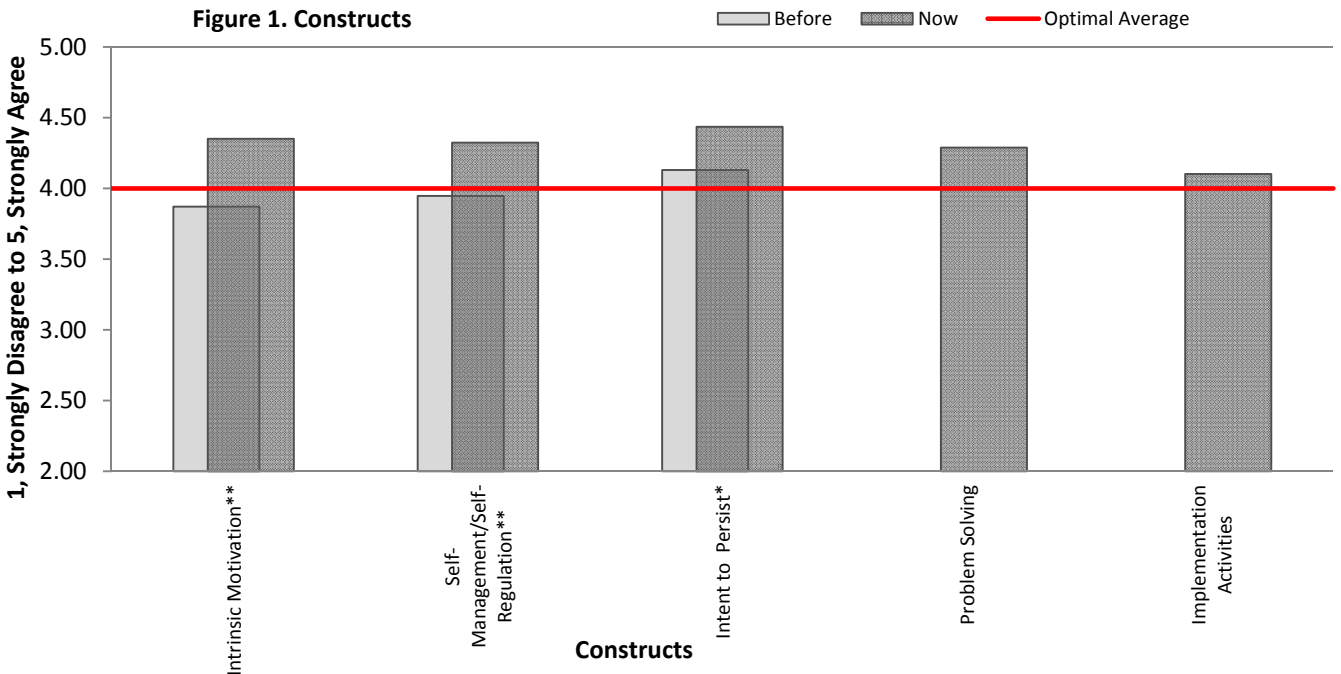
August 2014
tmcklin@sagefoxgroup.com

Executive Summary, continued

Table 1. Summary of Results by Constructs

Overall- Constructs				
Constructs		**n**	**Mean[1]**	**Paired Samples t-test[2]**
Intrinsic Motivation	Before	43	3.87	p<0.000**
	Now	43	4.35	
Self-Management/Self-Regulation	Before	43	3.95	p<0.000**
	Now	43	4.32	
Intent to Persist	Before	43	4.13	p=0.007*
	Now	43	4.44	
Problem Solving	Now	43	4.29	N/A
Implementation Activities	Now	43	4.10	N/A

Note. [1] Reference lines are set at 3.5 and 4. [2]Please note that only students with matched Pre and Post data were assessed for significance. Desired statistically significant changes are highlighted in green and undesired statistically significant changes are highlighted in red. **p<0.001, *p<0.01, †p<0.05. Negatively worded statements were reverse coded for mean computations



**p<0.001, *p<0.01, †p<0.05; Scale is truncated for visual clarity.

- **Program Rating**
  Students rated the combined Morehouse College programs above the optimal average of 4.00. On a 5-point Likert scale where 1 signifies *Very Poor* and 5 signifies *Excellent*, the average score was a 4.19. Over 80% of students rated the programs as being *Good* or *Excellent*. This suggests that students enjoy and have a very positive perception of both the Daily and Residential programs at Morehouse College.
- **Areas for Further Improvement**
  The "now" scores across all survey constructs exceeded the optimal average of 4.00 on a 5-point Likert scale. This speaks to the strength of the program in meeting students' needs and optimizing their learning. To further enhance the efficacy of the program, it is suggested that instructors continue to facilitate student autonomy by taking notice of students' ideas as well as showing the students how new information relates to what they have learned.

Table 2. Intrinsic Motivation

Intrinsic Motivation		n	Mean[1]		Paired Samples t-test[2]		1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
1. I prefer class work that is challenging so I can learn new things.	Before	43		3.56	p=0.001*		7%	7%	30%	35%	21%
	Now	43		4.21			2%	0%	12%	47%	40%
2. It is important to me to learn what is being taught in this program.	Before	43		3.93	p=0.013†		2%	5%	16%	51%	26%
	Now	43		4.35			0%	2%	7%	44%	47%
3. I like what I am learning in this program.	Before	43		3.60	p=0.020†		2%	2%	44%	35%	16%
	Now	43		3.95			0%	5%	26%	40%	30%
4. I think I will be able to use what I learn in this program in other classes.	Before	42		3.88	p<0.001**		2%	5%	26%	36%	31%
	Now	42		4.55			0%	0%	7%	31%	62%
5. Even when I do poorly on a test, I try to learn from my mistakes.	Before	43		4.30	p=0.022†		2%	2%	12%	30%	53%
	Now	43		4.60			0%	0%	0%	40%	60%
6. I think that what I am learning in this program is useful for me to know.	Before	43		3.84	p=0.002*		2%	5%	23%	47%	23%
	Now	43		4.37			0%	2%	9%	37%	51%
7. I think that what we are learning in this program is interesting.	Before	42		3.43	p=0.001*		2%	10%	45%	29%	14%
	Now	42		4.12			0%	5%	10%	55%	31%
8. Understanding STEM (Science, Technology, Engineering, and Math) is important to me.	Before	43		4.14	p=0.003*		2%	7%	9%	37%	44%
	Now	43		4.60			0%	0%	7%	26%	67%
9. I enjoy STEM (Science, Technology, Engineering, and Math) in general.	Before	43		4.16	p=0.133		2%	5%	19%	23%	51%
	Now	43		4.40			0%	5%	9%	28%	58%

Note. [1] Reference lines are set at 3.5 and 4. [2]Please note that only students with matched Pre and Post data were assessed for significance. Desired statistically significant changes are highlighted in green and undesired statistically significant changes are highlighted in red. **p<0.001, *p<0.01, †p<0.05. Highest percentages are highlighted in gray.

Table 3. Self-Regulation/Self-Motivation

Self-Regulation/Self-Motivation		n	Mean[1]	Paired Samples t-test[2]	1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
10. I turn all my assignments in on time.	Before	43	3.65	p<0.001**	2%	21%	19%	26%	33%
	Now	42	4.26		0%	2%	14%	38%	45%
11. I miss class often. (n)	Before	43	1.60	p=0.445	67%	14%	12%	5%	2%
	Now	43	1.53		72%	12%	9%	5%	2%
12. I am often late for class. (n)	Before	43	1.51	p=0.643	67%	16%	14%	2%	0%
	Now	43	1.47		74%	12%	9%	2%	2%
13. I set aside time to do my homework and study.	Before	42	3.12	p<0.001**	12%	17%	24%	43%	5%
	Now	42	4.07		0%	2%	17%	52%	29%
14. When I say I'm going to do something, I do it.	Before	43	3.91	p=0.002*	0%	7%	28%	33%	33%
	Now	43	4.28		0%	0%	14%	44%	42%
15. I am a hard worker.	Before	43	4.23	p=0.018†	0%	2%	14%	42%	42%
	Now	43	4.44		0%	0%	7%	42%	51%
16. I finish whatever I begin.	Before	43	3.84	p=0.001*	2%	7%	26%	35%	30%
	Now	43	4.21		0%	2%	14%	44%	40%

Note. [1] Reference lines are set at 3.5 and 4. [2]Please note that only students with matched Pre and Post data were assessed for significance. Desired statistically significant changes are highlighted in green and undesired statistically significant changes are highlighted in red. **p<0.001, *p<0.01, †p<0.05; (n) negatively worded statement. Highest percentages are highlighted in gray.

Table 4. Intent to Persist

Intent to Persist		n	Mean[1]		Paired Samples t-test[2]		1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
17. I am considering a career in STEM (Science, Technology, Engineering, and Math).	Before	43		3.93	p=0.003*		2%	7%	26%	26%	40%
	Now	42		4.40			0%	5%	7%	31%	57%
18. I intend to get a college degree in STEM (Science, Technology, Engineering, and Math).	Before	43		3.91	p=0.003*		2%	7%	28%	23%	40%
	Now	42		4.33			2%	2%	14%	21%	60%
19. I can see myself working in STEM (Science, Technology, Engineering, and Math).	Before	43		4.02	p=0.058		0%	9%	21%	28%	42%
	Now	43		4.26			0%	7%	9%	35%	49%
20. Someday, I would like to have a career in STEM (Science, Technology, Engineering, and Math).	Before	43		3.91	p=0.005*		5%	2%	33%	19%	42%
	Now	43		4.30			2%	2%	16%	21%	58%
21. I intend to graduate from high school.	Before	43		4.88	p=1.000		0%	0%	5%	2%	93%
	Now	43		4.88			0%	0%	5%	2%	93%

Note. [1] Reference lines are set at 3.5 and 4. [2]Please note that only students with matched Pre and Post data were assessed for significance. Desired statistically significant changes are highlighted in green and undesired statistically significant changes are highlighted in red. **p<0.001, *p<0.01, †p<0.05. Highest percentages are highlighted in gray.

Table 5. Problem Solving, Now Only

Problem Solving	n	Mean		Assessment		1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
22. In this program, my teacher(s) tells me how to improve my work.	43		4.14	Good ☺		0%	0%	16%	53%	30%
23. In this program, my teacher(s) lets us choose our own topics or projects to investigate.	43		4.26	Good ☺		0%	2%	16%	35%	47%
24. In this program, I work out explanations on my own.	43		4.00	Good ☺		2%	2%	12%	60%	23%
25. In this program, I have opportunities to explain my ideas.	42		4.17	Good ☺		0%	2%	14%	48%	36%
26. In this program, we plan and do our own projects and/or experiments.	43		4.44	Good ☺		0%	0%	2%	51%	47%
27. In this program, we work on real-world problems.	43		4.19	Good ☺		2%	2%	19%	28%	49%
28. In this program, we have class discussions.	42		4.05	Good ☺		0%	5%	21%	38%	36%
29. In this program, we investigate to see if our ideas are right.	43		4.33	Good ☺		0%	2%	5%	51%	42%
30. In this program, we need to be able to think and ask questions.	43		4.65	Good ☺		0%	0%	0%	35%	65%
31. In this program, we are expected to understand and explain ideas.	43		4.67	Good ☺		0%	0%	5%	23%	72%

Note. [1] Reference lines are set at 3.5 and 4. Assessment: Good=Above 4.0; Attention=Below 4.0; Action=Below 3.5. Highest percentages are highlighted in gray.

Table 6. Implementation Activities, Now Only

Implementation Activities	n	Mean	Assessment		1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
32. In this program, my teacher(s) takes notice of students' ideas.	43	3.72	Attention ✓		0%	9%	28%	44%	19%
33. In this program, my teacher(s) shows us how new information relates to what we have already learned.	43	3.95	Attention ✓		0%	7%	21%	42%	30%
34. In this program, we learn what scientists/ technicians/ engineers/ mathematicians or other STEM professionals do.	43	4.28	Good ☺		2%	0%	19%	26%	53%
35. In this program, we do our work in groups.	43	4.49	Good ☺		0%	0%	9%	33%	58%
36. In this program, we interact with scientists/ technicians/ engineers/ mathematicians or other STEM professionals.	43	4.07	Good ☺		5%	5%	16%	28%	47%

Note. [1] Reference lines are set at 3.5 and 4. Assessment: Good=Above 4.0; Attention=Below 4.0; Action=Below 3.5. Highest percentages are highlighted in gray.

Table 7. Educational Plans

What is the highest level of education you plan to achieve?	Before		Now		*Change*[1]	
	n	%	n	%	*n*	*%*
High School	2	5%	2	5%	0	0.00%
2-year college	0	0%	1	2%	+1	+2.44%
4-year college	11	27%	2	5%	-9	-21.95%
Graduate School	7	17%	11	27%	+4	+9.76%
Professional School	21	51%	25	61%	+4	+9.76%
Total	**41**	**100%**	**41**	**100%**		
Average[2]	**3.59**		**3.76**		**p=0.018† (*significant*)**[3]	

Note. [1] Change from Before to Now. Increases are highlighted in green; decreases are highlighted in red.
[2] To compute averages, the following codes were applied: High School (1), 2-year college (2), 4-year college (3), Graduate School (4), Professional School (4).
[3] Paired samples t-test, p-value: **p<0.001, *p<0.01, †p<0.05.

Table 8. Demographics

Gender	n	%
Female	25	58%
Male	18	42%
Total	**43**	**100%**

Ethnicity	n	%
Asian	9	21%
Black	28	65%
Hispanic	1	2%
Native American	0	0%
White	0	0%
Multiracial	2	5%
Other	3	7%
Total	**43**	**100%**

Grade	n	%
6th	0	0%
7th	0	0%
8th	0	0%
9th	0	0%
10th	11	26%
11th	20	47%
12th	12	28%
Other	0	0%
Total	**43**	**100%**

Table 9. Participation

How long have you participated in this program?		n	%
Dosage	0 semesters	0	0%
	1 semester	2	5%
	2 semesters	0	0%
	3 semesters	0	0%
	4 or more semesters	0	0%
	Summer Only	41	95%
	Don't Know	0	0%
	Total	**43**	**100%**

Did you participate in this program during the summer?		n	%
Summer Participation	No	0	0%
	Yes	43	100%
	Don't Know	0	0%
	Total	**43**	**100%**

Table 10. Program Rating

Program Rating: How would you rate this program?	n	Mean[1]	Assessment	Very Poor (1)	Poor (2)	Average (3)	Good (4)	Excellent (5)
	43	4.19	Good ☺	0%	2%	16%	42%	40%

Note. [1] Reference lines are set at 3.5 and 4. Assessment: Good=Above 4.0; Attention=Below 4.0; Action=Below 3.5. Highest percentage is highlighted in gray.