

*Sports' Academies as a Pedagogical Instrument  
for Cognitive and Non-Cognitive Development:  
An Impact Evaluation of the Monrovia Football Academy*

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November 2018

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\*\*Beyond coordinating on logistics, MFA had no involvement in this impact evaluation. The research design, implementation, data collection and analysis were all completed by the research team, independent of MFA. Funding for this study came from W&M's Global Research Institute, Reves Center, Government Department, International Relations Department and 1693 Scholars Program. Institutional Review Board approval was granted both from William & Mary's Protection of Human Subjects Committee (PHSC-2018-06-02-13015) and the University of Liberia-Pacific Institute for Research and Evaluation Institutional Review Board (UL-PIRE IRB #17-06-053) before research was undertaken in June 2018. We are grateful to Kou M. Gbaintor-Johnson, Director of CART Liberia, and Felicia Doe-Sumah, the Assistant Minister of Basic & Secondary Education, Liberia Ministry of Education for their help in reviewing and providing feedback on the assessment instruments. We also would like to thank Vernon Washington, Fatu M. Kaba, Kmusa Mkamara, and Patience Koenig from SMART Liberia for their excellent research assistance.

## SUMMARY

Here we report on the results of an impact evaluation of the Monrovia Football Academy (MFA). MFA is a pioneering sport-for-development program that combines high-quality education, professional football training and life skills and leadership curriculum with the aim of transforming the lives of young female and male Liberians and giving them the skills they need to become leaders in Liberian society. Students enrolled in MFA are compared to applicants who just-missed-the cut (JMC)—those individuals who, of the more than one thousand applicants to MFA, made it to the final selection stage (around fifty applicants) but were not admitted to the school. On average, we show at baseline those in the JMC group had identical educational capabilities (based on the MFA entrance exam) as those admitted to MFA. This quasi-experimental research design helps us better identify the impact of MFA and its curriculum, while accounting for the underlying cognitive capabilities and personality traits that lead young people to apply for such a program. As an additional step, we also recruited students from one of the most prestigious private schools in Monrovia to act as a second comparison group. As this school is very well-resourced with a strong academic curriculum, in comparing MFA to it helps to better identify the added-value of integrating sport into the educational experience.

All students from the three groups—MFA, JMC group and the private school group (PSG)—were invited, with the consent of their parents or guardians, to a football festival in central Monrovia in late June 2018. During the festival, students played football and other games and were evaluated on a range of cognitive and non-cognitive assessments, including: a standardized academic exam based on Liberia’s national educational curriculum and tests for resiliency, self-efficacy, attitudes on gender equality and nationalist pride and social inclusion values. Students also took a computer-based Stroop Test that measures cognitive flexibility and selective attention.

We find MFA students significantly outperformed their peers in the JMC by more than 20% on the standardized academic exam. This result is highly robust—and substantively striking, given that the students had virtually identical educational levels at the application stage (one to two years before). This points to the direct effects of MFA’s program, including the potential value-added of an integrated school-sport experience. We also find, consistent with its goals, MFA is inculcating its students with positive social values, nationalist pride and gender equality norms. On an index measuring Liberia nationalist pride and social inclusion values and another index on positive views of gender equality, MFA students outperformed the JMC group by 13%

and 20%, respectively. MFA students did marginally better than their peers in JMC on resiliency; no real difference was observed on self-efficacy.

The educational attainment of MFA students is also quite striking when compared to the group from the prestigious private school. On all educational measures, MFA students outperformed those in the PSG, though the effect sizes are not statistically significant. However, on the non-cognitive tests—especially on resiliency, self-efficacy and gender equality—MFA students scored significantly higher than their PSG peers. The strong differences on resiliency and self-efficacy observed when comparing MFA students to the PSG, but not to the just-missed-the-cut group, suggests these effects may partially be a function of MFA’s rigorous selection process. This efficacious recruitment of resilient and confident young leaders, combined with a program and curriculum that is causing significant improvements in educational attainment, normative change on gender equality, inclusive social ties, and Liberian pride and affinity, suggests not three years after its opening MFA represents, in many ways, an exemplary sport-for-development program. It may be one of the few in its class that is thriving in managing the “double burden” of providing a successful athletics program and a high-quality and well-rounded education.

The rest of the report is as follows. First, we describe the crisis of education that plagues many low-income countries, especially Liberia. We then describe the promise and challenges of sport-for-development programming in helping to address this educational crisis. The section ends introducing the Monrovia Football Academy. Next, we provide more information about MFA’s recruitment process and how we leverage that to design a quasi-experimental impact evaluation. The various assessments developed for the impact evaluation are also discussed in detail. The final part describes the results of the impact evaluation, first comparing MFA students to the JMC group and then to the PSG.

## THE EDUCATION CRISIS AND SPORT FOR DEVELOPMENT

Many low-income countries face a crisis of education—in which young people are failing to acquire the critical cognitive and non-cognitive skills needed to fuel their countries' long-run development. Nowhere is this more the case than in Liberia. In 2013, all 25,000 applicants to the country's flagship institution of higher-education, University of Liberia, failed the entrance exam. The following year, its educational crisis was compounded by the Ebola epidemic that forced most schools in the country to close for six to eight months.

In the face of deep and severe challenges to improving a country's human capital, innovative but sustainable approaches are needed. One pedagogical tool that has received growing attention in education circles and among international organizations, including the United Nations,<sup>1</sup> is *sport for development*—in which physical exercise, sports training and competition complement or even become integrated into school curriculums with the aim of strengthening students' self-efficacy, discipline, pro-social skills, leadership potential, and, ultimately, their education and learning.

As sport-for-development euphoria builds, however, there is growing recognition that, like all development interventions, designing and implementing effective sport programming that brings about social change is extremely challenging. Merely layering sports and physical activities on to schooling or other educational activities tends to be insufficient.<sup>2</sup> The most efficacious programs are those that manage the “*double burden*” of offering “successful athletic activities as well operat[ing] sophisticated, self-conscious development programming.”<sup>3</sup> What is critical for social change, then, is the “nature, quality, and salience of the...educational experience within the sporting experience”<sup>4</sup> and, just as importantly, the sporting experience within the educational experience.

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<sup>1</sup> In 2013, the United Nations General Assembly proclaimed 6 April as the International Day of Sport for Development and Peace. Two years later, in its agenda for the 2030 Sustainable Development goals the UN General Assembly emphasized the role that sport plays as an “enabler of sustainable development...[and contributor] to the empowerment of women and of young people, individuals and communities as well as to health, education and social inclusion objectives.” UN General Assembly, “Transforming Our World: The 2030 Agenda for Sustainable Development,” 21 October 2015, A/RES/70/1. Available at: <http://www.refworld.org/docid/57b6e3e44.html>.

<sup>2</sup> Coalter, Fred. "The Politics of Sport-For-Development: Limited Focus Programmes and Broad Gauge Problems?" *International Review for the Sociology of Sport* 45, no. 3 (2010): 295-314.

<sup>3</sup> Emphasis added. Hartmann, Douglas, and Christina Kwauk. "Sport and Development: An Overview, Critique, and Reconstruction." *Journal of Sport and Social Issues* 35, no. 3 (2011): 284-305.

<sup>4</sup> Ibid.

In the Liberia context, one initiative that has embraced this “double burden” and sought to meld education and sport in an integrated and reinforcing way is the Monrovia Football Academy (MFA). Founded in 2015 by a Liberian former professional footballer, Sekou Dgeorges Manubah, and an American social entrepreneur, William Smith, MFA takes seriously the importance of combining a high-quality education with professional football training. The third component of its curriculum is leadership and life skills, which aims to instill in students self-confidence, empathy, grit, and inclusive social values (such as positive views on gender equality). Moreover, MFA purposefully recruits a diverse student body to increase students’ exposure and interactions with others from different gender and cultural backgrounds.

In contrast to other sports academies that privilege professional sports development above all else, and see and design themselves as a feeder system for external clubs, MFA’s objectives are more squarely developmental and Liberia focused—“to transform the lives of Liberia’s most talented boys and girls and give them the skills they need to become leaders in Liberian society.”<sup>5</sup>

Here we assess the progress MFA is making to realize this objective, focusing on its impact on students’ cognitive development (as measured in a standardized educational exam), self-efficacy, resiliency, gender attitudes, and pro-Liberian social identification. In the next section, we describe the design of the impact evaluation before turning to an analysis of the results.

## IMPACT EVALUATION DESIGN

### *Leveraging the MFA Selection Process to Construct a Quasi-Experimental Research Design*

The challenge of evaluating school impact is determining the effect of the school experience versus other factors that may lead students to enroll in a given school (such as, socio-economic status, family support, neighborhood of residence, cultural background, cognitive capabilities, or athleticism). This selection problem may lead to biased results as any higher or lower levels of educational attainment observed among

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<sup>5</sup> William H. Smith and Musa P. Sheriff, “Academy View: When Football Meets Education – An Academic Revolution in Liberia,” *Goal.com*, 6/1/17. Available at <https://www.goal.com/en-gh/news/using-sport-for-social-change-introducing-monrovia-football/r6n3zw9iag1y1ounib761eqqd>

students in one school versus the other may not be a function of the effects of the school or its curriculum but tracks with these underlying factors.

The nice thing about evaluating MFA is its application process enables us to largely overcome this problem and set up a quasi-experimental research design to more robustly identify the impact the sport’s academy has on their student’s cognitive and non-cognitive development. To understand the research design, it is important to understand MFA’s recruitment process (see Figure 1).

MFA casts a wide net when recruiting students. Via word of mouth, radio, megaphone, and relationships with community leaders, it disseminates information about how young people between ages 8 and 14 can apply. In 2016 and 2017, the years from which students in this study applied to MFA, students were recruited primarily from Montserrado County.<sup>6</sup> In 2017 the recruitment process elicited more than 1,000 applicants.<sup>7</sup> As MFA explains on its website, these applicants are evaluated in equal parts on their academic proficiency and football potential.

The first step in the application process is for applicants to attend either an open application day or a targeted recruitment session. During open application days, applicants are assessed by MFA staff on their football skills<sup>8</sup> and their academic ability via an entrance exam to evaluate their baseline level of academic proficiency. At targeted recruitment sessions, those who show football potential or are identified by community leaders as academically gifted are also given the entrance exam. Applicants are expected to score upwards of

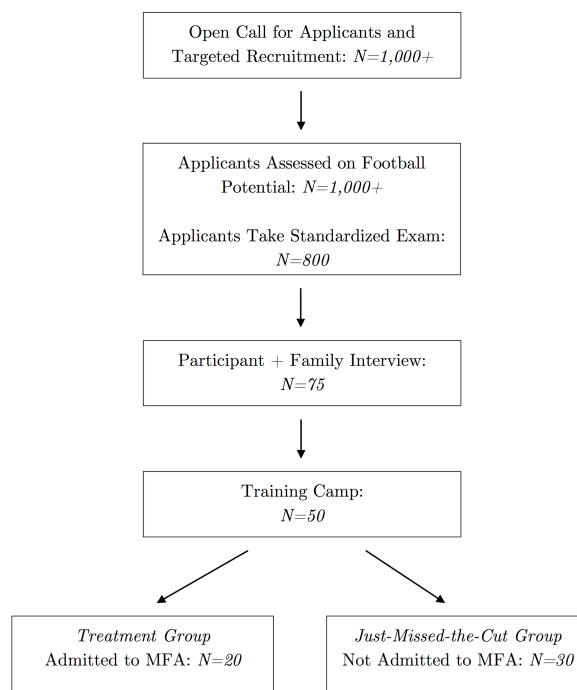


Figure 1. MFA Selection Process

<sup>6</sup> In 2017 students were also recruited from Margibi and Grand Bassa Counties as well.

<sup>7</sup> In 2018 recruitment was carried out in 7 of 15 counties, drawing more than 2,500 applicants.

<sup>8</sup> As MFA notes, “Applicants are not required to be polished footballers. In fact, they might not have played football before. What we are searching for is children with potential and the determination, enthusiasm, and grit required to succeed as a footballer.” Monrovia Football Academy, “Admissions.” Available at <http://www.monroviafa.com/academy#admissions>

50% or higher on the exam (a high bar given the aforementioned educational challenges in Liberia).

Then based on the football and educational assessments, 75 applicants are selected for interviews (with the applicant and his or her parents/guardians) to learn more about the applicant and their home environment. From these 75, around 50 to 55 are invited for a final one-week training camp that includes classes, football training, and life skills exercises to give MFA staff a chance to assess them as student-athletes at Monrovia Football Academy. Among these 55 final applicants, roughly 20 are admitted to MFA.

Overall, we expect the final applicants (those invited to training camp) to be systematically different from the larger pool of applicants, but quite similar to each other in terms of football potential, academic proficiency, aptitude and character. All should be just as likely to succeed at MFA. Among this final group, MFA staff have to make some very tough calls about who to admit and who to cut. In fact, if MFA had a larger school, most of these applicants would probably be admitted but, alas, size and resource constraints make this not possible. We leverage the arbitrariness of the cutoff between those who are ultimately admitted (*the treatment group*) and those not selected—the just-missed-the-cut (JMC) group, (or *control group*)—to test the impact of MFA’s programming to the counterfactual of an alternative Liberian educational experience if they had never been admitted to MFA. As all of these students should be just as likely to succeed, we can better isolate the impact their schooling has on their cognitive and non-cognitive development.

One way to check whether in fact the treatment group (those admitted to MFA) and control group (those who JMC) are indeed similar in terms of aptitude and academic proficiency is to compare their scores on the MFA entrance exam. Figure 2 shows the average scores between the two groups are nearly identical. This gives us greater confidence that any post-treatment differences we observe can be attributed to the impact of the educational experience rather than an artifact of underlying variation in cognitive capabilities.

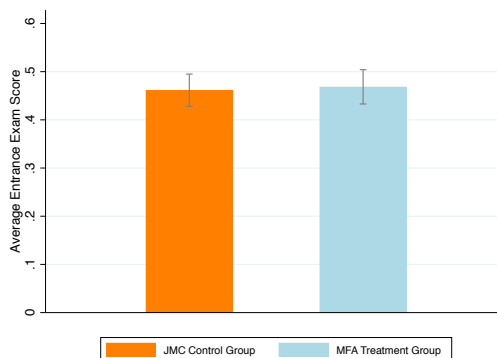


Figure 2. Average Entrance Exam Scores between MFA and JMC

In addition to comparing the MFA treatment group to JMC, we also added a third comparison group—we randomly recruited students from one of the most prestigious private schools in Monrovia, which we refer to as the private school group (PSG). As students from the PSG did not take the MFA entrance exam, we can't say how they compare academically at baseline, but it is fair to say that on average students from that school have much higher socio-economic levels than MFA students. Tuition at the comparison private school is four or five times that at MFA. Moreover, at MFA approximately 70% of students live below Liberia's \$2 a day poverty line and a significant portion of MFA students attend the school for free; students are never cut because their family cannot pay the school fees.

### *The Evaluation: Football Festival and Assessment Instruments*

To assess the cognitive and non-cognitive development of the students in these three study groups—admitted students to the Monrovia Football Academy (MFA), just-missed-the-cut applicants to MFA (JMC) and students selected at random from one of the most prestigious private schools in Liberia (PSG)—a football festival was held over two days in June 2018 in which all students from these groups were invited to attend for one day.<sup>9</sup> This included 45 young people from MFA (28 boys and 17 girls); 61 from JMC (50 boys and 11 girls); and 34 from PSG (22 boys and 12 girls).<sup>10</sup> MFA and PSG students were recruited via their respective schools. JMC kids, who were primarily scattered throughout greater Montserrado, were recruited via phone and in-person by our evaluation team (the authors of this report) and research assistants from the NGO, SMART Liberia.<sup>11</sup> Following our institutional review board protocol, parental consent was obtained to permit their child to attend the festival and for our evaluation team to administer non-intrusive cognitive and non-cognitive assessments with him or her during the festival. Almost unanimously students were very excited about the prospects of attending the festival as beyond the assessments it included playing football and other games on one of Monrovia's only AstroTurf football pitches. Lunch and drinks were also provided as well as a participant t-shirt. Students were reimbursed at a fixed rate (based on distance) for their travel costs to attend the festival.

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<sup>9</sup> All students were randomly assigned to one of the two football festival days in order to have an even distribution of students from each group on either day.

<sup>10</sup> Note about attrition

<sup>11</sup> Contact information for the JMC kids was obtained by MFA during the original recruitment process. For many, contact numbers were no longer valid and community visits were required to track down control group participants.



During the festival days, we employed trained enumerators from the Center for Action Research & Training (CART), a research institute based in Monrovia, to administer the assessments, which included:

- *Standardized academic exams*: Two standardized academic exams were written by the researchers: a mid-level test for 3<sup>rd</sup> and 4<sup>th</sup> graders and an upper-level test for 5<sup>th</sup> through 9<sup>th</sup> graders. The standardized exams were based on Liberia's current educational curriculum and cross-referenced with previous national exams (the Liberia Primary School Certificate Examination (LPSCE)). The exams had three parts, covering language arts, science and math. Before administering the exam, the Assistant Minister of Basic & Secondary Education at Liberia's Ministry of Education reviewed and approved the educational instrument. Researchers from CART also vetted the exam.
- *Resiliency*: To test for resiliency, we developed a nine-question module based off the Child and Youth Resilience Measure (CYRM) questionnaire that has been used around the world to study obstacles youth confront and how they navigate them.<sup>12</sup> Among other questions, the module asked about demonstrating independence, keeping a cool temper when things don't go someone's way, finishing activities, completing homework, and having role models.
- *Self-efficacy*: Self-efficacy and leadership was measured following Murris (2001),<sup>13</sup> who conceives of three dimensions of youth self-efficacy: social, academic, and self-regulatory. We had questions from each of these dimensions.
- *Gender equality*: To measure views on gender equality, we developed a questionnaire based on Zalk and Katz (1978).<sup>14</sup> We constructed a 7-question module that asked respondents about their attitudes on gender equality and discrimination against women. Among other questions, the module asked about whether they felt women should work outside the house, views on whether girls could be as smart and athletic as boys, and the importance of government representation of both men and women.
- *Nationalist Pride and Social Inclusion*: The last survey module aimed to measure students' nationalist affinity and pride as well as their social inclusion values, namely based on their social network and ties. The module was comprised of 9 questions, including, among others: pride in Liberia; confidence that Liberians

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<sup>12</sup> For more information, see <http://cyrm.resilienceresearch.org/>

<sup>13</sup> Muris, Peter. "A Brief Questionnaire for Measuring Self-Efficacy in Youths." *Journal of Psychopathology and Behavioral Assessment* 23, no. 3 (2001): 145-149.

<sup>14</sup> Zalk, Sue Rosenberg, and Phyllis A. Katz. "Gender Attitudes in Children." *Sex Roles* 4, no. 3 (1978): 349-357.

can overcome cultural differences to build a better country; whether most of friends come from one's ethnic group; and how difficult it is to make friends with people from different ethnic groups.

- *Stroop Test*: The Stroop Test draws from Stroop's (1935) classic study<sup>15</sup> on cognitive processing and selective attention—i.e., the ability to respond to a certain environmental stimulus (such as color) while ignoring other stimuli (print). We administered the test on computers using the PsyToolkit web interface.<sup>16</sup>

Prior to testing, all of these assessments were piloted by our research team and CART enumerators with students from a fourth school not involved in the actual evaluation.<sup>17</sup>

## IMPACT EVALUATION RESULTS

### *MFA vs JMC Results*

Here we report the results of the assessments. We begin by comparing the MFA students to the JMC group, since, as explained above, we can draw the clearest inferences on the impact of MFA's curriculum and schooling experience from this comparison.

Figure 3 reports the results of the standardized exams. The results are expressed as a percentage of correct answers the student had on the exam, controlling for gender, grade-level (which highly correlates with age), number they left blank (to account for test-taking acumen), and the results on the MFA entrance exam (to ensure it is not only most successful students, or best test-takers who may be increasing their learning).<sup>18</sup> The error bars represent the 95% confidence intervals.

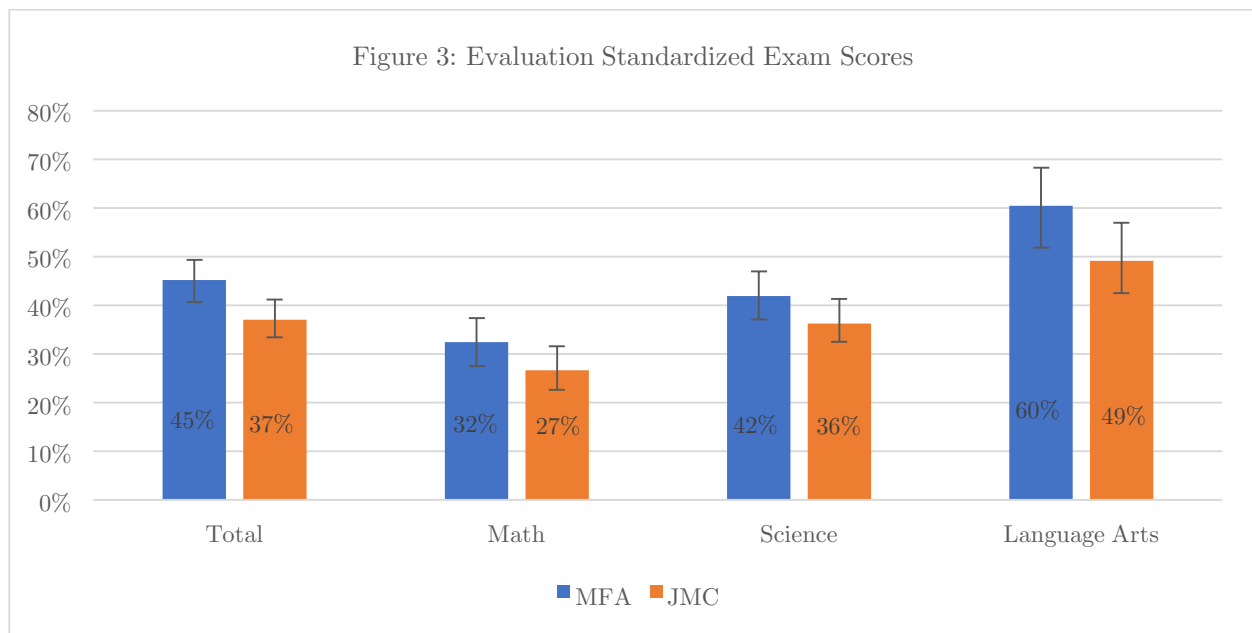
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<sup>15</sup> Stroop, J. Ridley. "Studies of Interference in Serial Verbal Reactions." *Journal of Experimental Psychology* 18, no. 6 (1935): 643.

<sup>16</sup> See <https://www.psychtoolkit.org/>

<sup>17</sup> In addition to these assessments, participants at the football festival also did an art project with the aim of providing the students with another fun activity, while using their drawings to learn more about their views on gender equality and nationalist pride. Proctors provided sheets of paper and crayons to participants and asked that they draw four individuals in various occupations: a soccer player, teacher, politician, and successful business person. Then the students were asked about the gender and nationality of the players. Not all students conceived of their figures as having a gender or nationality, which is interesting, but makes it difficult to score. We are considering different ways to address this issue. This instrument might require further refinement before being employed for analysis.

<sup>18</sup> We had to exclude three exams because the students received the wrong test. We also dropped one exam because a student left 43 out of the 45 questions blank. For students taking the mid-level test, we



The results suggest that MFA’s schooling and curriculum is having a robust effect on student cognitive development, even controlling for baseline levels of ability. Overall MFA students perform 8 percentage points higher on an independently-administered standardized exam than their peers in the JMC. This result is highly significant ( $p < 0.05$ ) and represents a more than 20% improvement over the control group. As Figure 3 illustrates, the higher overall result is a function of MFA students outperforming JMC in all three subject areas.

MFA’s impact is also strongly seen on student’s non-cognitive development as well. Again MFA’s mission is to not only provide students with a high-quality education but also to break down gender barriers and prepare students to lead positive change in Liberia. As illustrated in Figures 4-7, MFA’s students compared to the JMC demonstrate significantly more positive scores<sup>19</sup> on the gender equality index and Liberia nationalist pride and social inclusion; resilience just misses statistical significance; there is no significant difference observed on self-efficacy. Similar to the standardized exam

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threw out five questions on the language arts section because the questions were mislabeled and may have caused confusion, affecting performance. The total exam score was calculated by averaging the math, science, and language arts sections, thus giving equal weight to each section.

<sup>19</sup> For each of these modules—resiliency; self-efficacy; gender equality; nationalist pride and social inclusion—they are additive indexes, in which the individual questions are scored in the same direction to indicate an answer expresses more resiliency or most positive views on gender equality and then they are summed together.

regressions, this analysis controls for gender, grade and entrance exam score (to again ensure it is not just the brightest students who are learning positive social values). The effects on gender equality and Liberia nationalist pride and social inclusion—two of MFA’s main non-cognitive instructional themes—are especially strong: a 20% increase over the JMC on the gender quality index and a 13% increase over the JMC on the Liberia nationalist pride and social inclusion index. These sizable effects affirm the potential importance of bringing people from different backgrounds together to play sports.

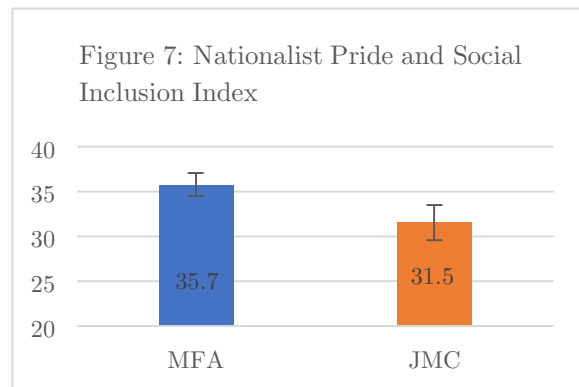
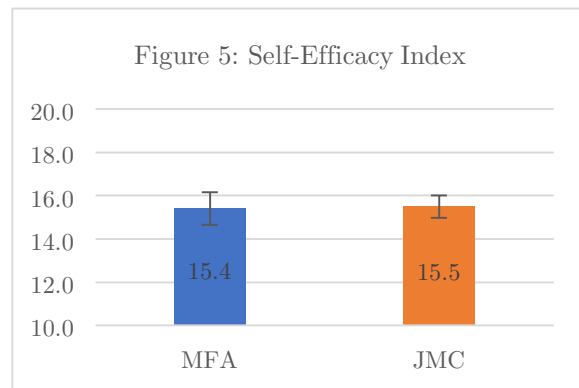
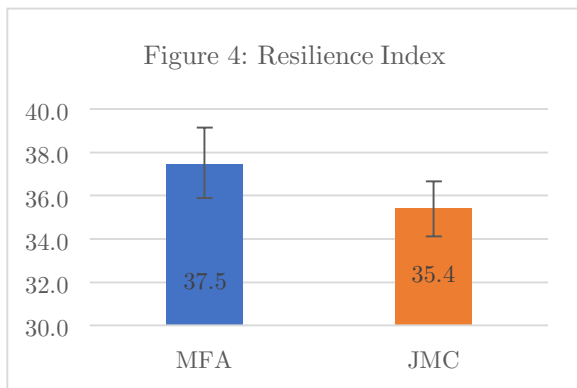
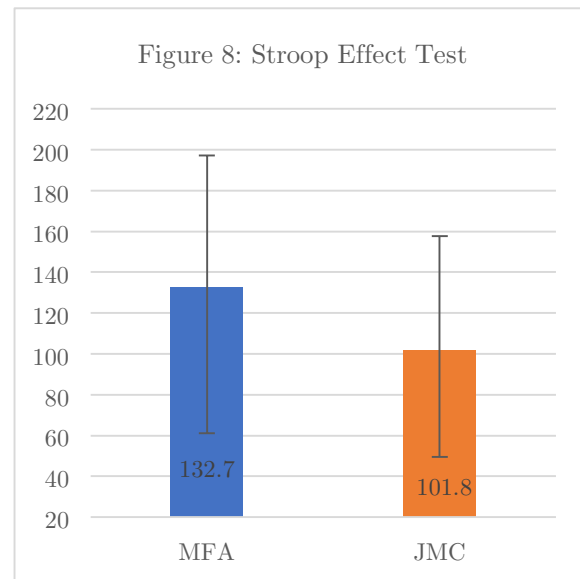


Figure 8 reports on the results of the Stroop Effect Test. This test measures cognitive flexibility and selective attention. It includes standard covariates but also controls for experience with computer usage as the test was administered on a laptop and we wanted to be sure it merely did not pick up differences in computer literacy. There is no real difference between the two groups (as indicated by the wide and overlapping confidence intervals). Cognitive flexibility and selective attention (the ability to see the word ‘red’ printed in the color green and to say it is green) are cognitive processes that change more slowly and less dynamically compared to knowledge attainment and change in normative beliefs (such as about gender equality). Thus, in many ways this reinforces the point made before, drawing from the entrance exam, that cognitively the MFA and JMC students are quite similar. Differences that are observable can be attributed not to innate cognitive difference but learning and normative change from MFA’s schooling and curriculum. It will be interesting to track effects on cognitive flexibility and selective attention over the long run.



### *MFA vs PSG Results*

In this final section we compare the effects of MFA students from the private school group. The private school has a long-established history in Liberia. It thus provides a nice comparison to see how MFA, at the end of its third year, stacks up to one of Liberia’s most well-resourced private schools. Students in the PSG were administered the same assessments as the MFA and JMC kids. Figure 9 reports the results of the standardized exams, controlling for gender, grade-level (which highly correlates with age), and number they left blank (to account for test-taking acumen). As we have no baseline entrance exam for PSG students, we cannot include this variable as a control.

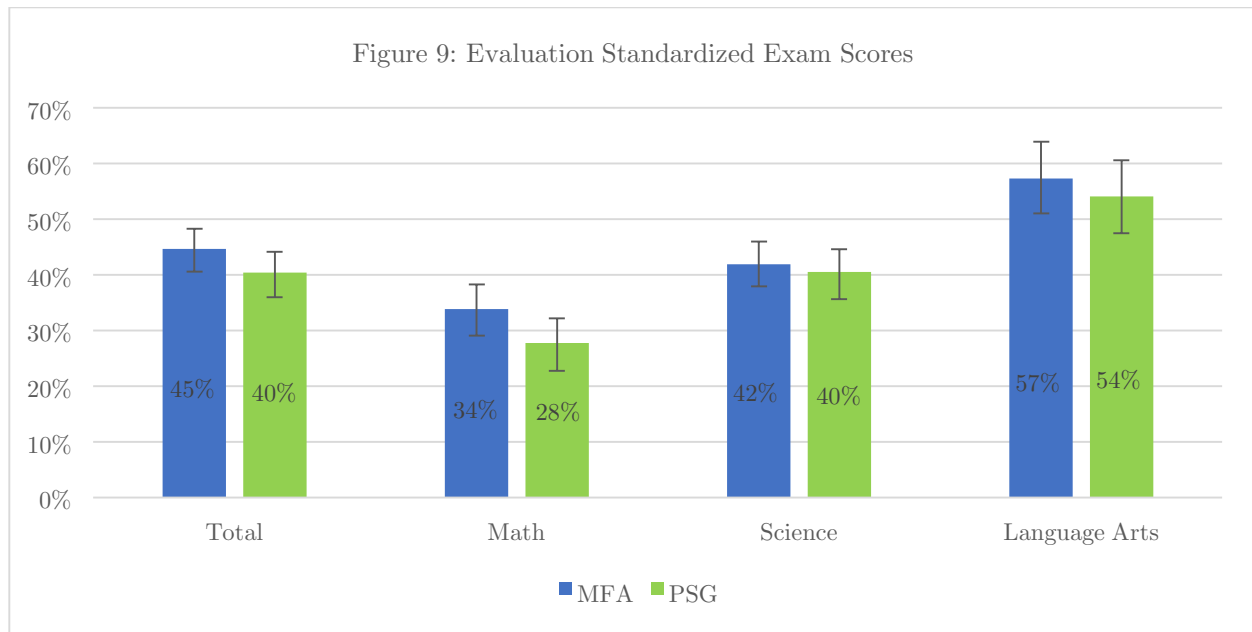


Figure 9 illustrates that MFA students more than hold their own against students from the elite PSG. Despite coming from different socio-economic backgrounds, MFA students perform as well, and marginally better than, the PSG students.

Figure 10 through 13 report the results on resilience; self-efficacy; gender equality and nationalist pride and social inclusion. The results on the Stroop Effect Test are virtually identical for the MFA and PSG and are not reported—again suggesting though MFA is pulling from lower socio-economic backgrounds, it is drawing talented young kids with high cognitive capacity.

The results of the non-cognitive assessments suggest that MFA students are outperforming their counterparts from PSG, especially on resiliency, self-efficacy and gender equality, which are all highly statistically significant. The effects on resilience and self-efficacy are even stronger between MFA and the PSG compared to MFA and the JMC group. This may be because the scholar-athletes MFA is recruiting are more resilient and possess greater leadership capabilities than students in the elite private school. The strong and significant results on gender equality point to the potential effects of MFA’s mixed-gender football training program. Male and female students at MFA play football together on a daily basis and this seems to be inducing a normative shift among students such that they are more likely to see boys and girls as equals—more than would occur if they merely attended a mixed-gender school as is the case for students in the PSG.

