

Changes in Majors of Incoming Students to the University of Kentucky from Appalachian Math Science Partnership Districts, 1999-2006

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The Appalachian Math Science Partnership (AMSP) began in October 2002, and offered its first programs for teachers during the summer of 2003. Therefore, students enrolled in high school during the 2003-04 school year were the first to benefit from AMSP programs. One of the goals of AMSP has been to increase the number of students pursuing a science, technology, engineering, or mathematics (STEM) major in college.

To see if any change has taken place in student STEM interest, we conducted a pilot study of students enrolling at the University of Kentucky (UK) between the fall 1997 and summer 2006 terms. (Summer 2006 was the most recent term for which data were available.) We further narrowed the sample to include only students graduating from Kentucky, Tennessee, and Virginia high schools. This was done because these are the states served by AMSP programs. Each student was then classified as graduating from an AMSP or non AMSP high school, and their first declared college major was classified as STEM or non STEM. The resulting dataset contained one record for each UK student from an AMSP state that enrolled at UK in the last nine years. Each record contained two dichotomous variables: AMSP/non AMSP and STEM/non STEM.

The initial major declared by enrolling students was examined to see if it differed for students from AMSP districts, compared to non AMSP districts in the same states. This analysis revealed that from 1997 to 2004 there was no significant difference in the percentage of students from AMSP and non AMSP schools declaring STEM majors when entering college at UK. But beginning in the 2005 academic year (two years after AMSP interventions started), students from AMSP high schools began declaring STEM majors at a rate significantly ($p < .01$) higher than their non AMSP counterparts (see Figure 1 and Table 1).

These data do not allow us to directly attribute the increases to AMSP programs, but they do indicate that something has resulted in increased STEM interest among students from AMSP districts during the period AMSP has been working with these schools. We propose to expand this pilot study in two ways:

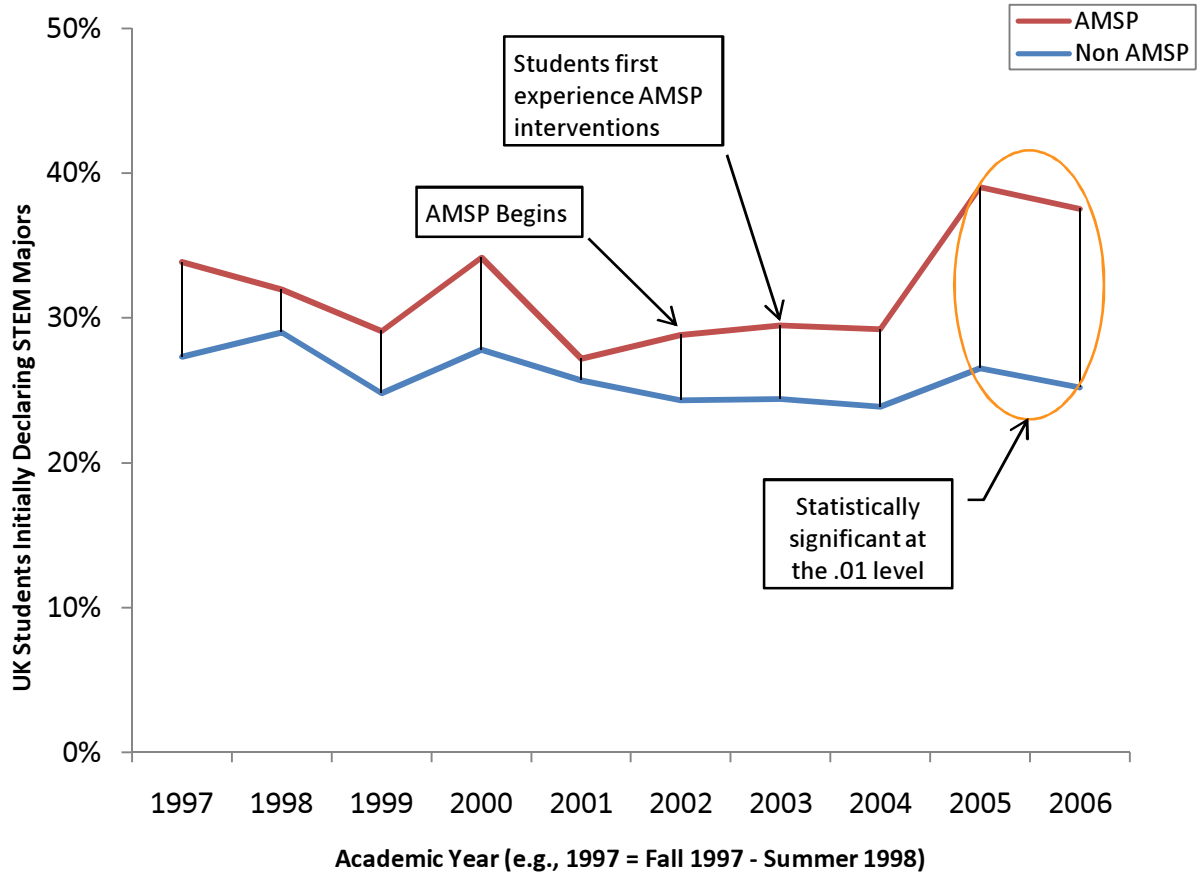
- 1) **Expand the number of colleges sampled to include the other AMSP colleges and universities in the region.** AMSP has partnered with nine institutions throughout its Appalachian service region. Some of these institutions serve a much higher percentage of college-bound students from AMSP schools than does the University of Kentucky (e.g., Eastern Kentucky University, Morehead State University, and the University of Virginia's College at Wise). Including data from

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these institutions would provide a much clearer picture of how STEM interest has changed in the region during the period of AMSP's involvement.

- 2) **Survey a randomly selected sample of these students to determine if AMSP programs influenced their interest in a STEM major/career.** Such a survey would allow us to attribute any changes observed to the work of the project. It would also give us an opportunity to see if these students' interest in STEM fields has persisted as they matriculate.

Figure 1: Percentage of UK Students from AMSP and Non-AMSP Districts Declaring STEM Majors



	<i>F</i>	<i>P-Value</i>	<i>Crit F</i>	<i>% Declaring a STEM Major</i>	
				<i>AMSP</i>	<i>Non AMSP</i>
1997	2.621292	0.1060472	3.859473	33.85%	27.31%
1998	0.559864	0.4546431	3.858866	31.97%	29.00%
1999	1.189587	0.2759239	3.859614	29.07%	24.81%
2000	2.670589	0.1027742	3.85794	34.15%	27.82%
2001	0.193662	0.6600302	3.855587	27.19%	25.68%
2002	1.958424	0.1620932	3.853821	28.84%	24.34%
2003	2.459921	0.1172098	3.853988	29.49%	24.40%
2004	2.602502	0.1071395	3.854589	29.21%	23.88%
2005	11.80422	0.0006284	3.855717	39.02%	26.52%
2006	13.67267	0.0002333	3.853723	37.53%	25.20%

Table 1: ANOVA results by year