

Strengthening 4-H by Analyzing Enrollment Data

Abstract

The study reported here used data from the ACCESS 4-H Enrollment System to gain insight into strengthening New York State's 4-H programming. Member enrollment lists from 2009 to 2012 were analyzed using Microsoft Excel to determine trends and dropout rates. The descriptive data indicate declining 4-H enrollment in recent years and peak enrollment at grade 5. New members are more likely to drop out than members who have been involved for more than a year. New members who are high school students drop out at the highest rate. Returning members who are high school students drop out at the lowest rate.

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Introduction

Participating in out-of-school time (OST) activities promotes youth development (Theokas, Lerner, Phelps, & Lerner, 2006). Casey, Ripke, and Huston (2004) reported that youth who participate in high-quality OST programs,

Are likely to receive personal attention from caring adults, explore new interests, receive academic support, develop a sense of belonging to a group, develop new friendships with their peers, take on challenging leadership roles, and build a sense of self-esteem independent of their academic talent" (cited in Lauver, Little, & Weiss, 2004, p. 1).

Because these benefits accrue only to youth who participate, building and sustaining participation is an important aim for all youth organizations (Anderson-Butcher, 2005, p.6). Mead, Rodriguez, Hirschl, and Goggin (1999, Table 18, p.40) found youth who remained in 4-H for 1 year or more when compared to those who participated less than 1 year showed higher levels of leadership, conflict resolution, communication, self-confidence, ability to make healthy choices, knowledge of nutrition and food safety, and record keeping. Simpkins Chaput, Little, and Weiss (2004) found that

attendance and retention of participants in OST programs are positively related to several favorable outcomes.

Research on retention in youth organizations has revealed that youth with certain characteristics are more likely to drop out than others and that organizations with certain features have higher drop out rates than other organizations. More is known about the characteristics of youth who drop out than the features of youth organizations, which is unfortunate because only the latter can be altered as a means of improving retention.

Age is the factor most commonly associated with dropping out of youth organizations. Defore, Fuhrman, Peake, and Duncan (2011) reported a national trend of declining middle school student enrollment in 4-H. Time commitment conflicts along with an image of the 4-H program as boring and childish contribute to dropout among middle school students (see also Cole & Waters, 2001; Homan, Dick, & Hedrick, 2007a, b). Harder, A. Lamm, D. Lamm, Rose, and Rask (2005) found 4-H membership to be "a highly fluctuating, variable body, with youth coming and going at all ages" (p. 1); membership increases steadily through age 11 and declines just as steadily from age 12 through age 18.

New members are most likely to drop out. Reviewing 10 years of enrollment data in Kansas 4-H, Astroth (1985) found that new members were enrolled at a satisfactory rate but that 40-50% of new members left after 1 year and another 20% after a second year. Hartley (1983) found a 45% dropout rate following year one among West Virginia 4-H members.

Organizational features are also implicated in participant retention. Parental involvement has been linked to continued participation in several studies (Defore et al., 2011; Gill, Ewing, & Bruce, 2010; Hamilton & Kenny, 1988). Bartoszuk and Randall (2011) found that girls had more satisfying 4-H experiences than boys and that clubs had greater difficulty retaining boys. Cano and Bankston (1992) explored factors affecting the participation of ethnic minority youth in Ohio 4-H programs and found barriers such as lack of minority adult role models, ineffective advertising, and lack of parent involvement impeded the proportionate representation of ethnic minority youth in Ohio 4-H Youth Development Programs even though those who did participate reported many positive experiences.

Study Purpose

To provide the greatest level of support that can be offered to youth in our communities, we need to investigate what happens within our 4-H Youth Development programs for those youth who choose to participate. For this purpose we analyzed youth enrollment data in New York State, looking for trends but also suggestions for action steps to improve retention. The following questions guided our analysis.

- What changes can be observed in youth enrollment from year one to year two?
- Does retention differ for girls and boys?
- Do enrollment and retention vary by youth's race or ethnicity?

How does enrollment compare among elementary, middle school, and high school participants?

Our data are from New York State, but previous research in other states suggests that the findings will apply elsewhere. Moreover, the methods we employ can be adopted in any state or county both to assess what is happening now and to set a baseline for assessing the impact of changes introduced to try to increase enrollment and retention.

Methods

The ACCESS 4-H Enrollment System, first used by all New York counties (including New York City) in 2009, provides the most comprehensive data for the purpose of answering these questions. Member spreadsheets were generated using the ACCESS Person Report feature. Data came from 2009-2012 and included Date of Birth, ID, First Name, Last Name, Steward, Ethnicity, Race, Gender, Program Year, and Grade Level. The information was transferred to Microsoft Excel and then summarized in tables, bar graphs, line charts, and scatter plots to reveal trends. The results constitute the descriptive part of the study.

In addition to the basic demographic information provided by ACCESS, two more columns were added to the spreadsheet: "New or Returning for the Current Year" and "Dropped or Re-enrolled the Following Year." Numerical values entered in each column (0 or 1) allowed for simple calculation of dropout rates. For the study reported here, a new member was defined as one who was not enrolled the previous year. Using 2009 as a base year, "New or Returning for Current Year" could only be determined for 2010, 2011, and 2012. "Dropped or Re-enrolled the Following Year" could only be determined for 2009, 2010, and 2011 because 2013 administrative data were not available. Therefore, the dropout rates referenced throughout the study are based upon the members during 2010 and 2011. Dropout Rates were calculated by the following formula:

$$\text{Dropout Rate} = \frac{\text{\# of members in category who did not reenroll the following year}}{\text{total \# of members in category}}$$

Results

Results are presented in relation to the demographics of 4-H members, enrollment trends, and differences in dropout rates. Unless reported by year, enrollment is averaged over the 4-year period, 2009-2012.

Demographics of NYS 4-H Members

Figure 1 illustrates that boys are a distinct minority in New York State 4-H. Elementary school children make up nearly half of all members, with the remaining half divided almost equally between middle school and high school students (Figure 2). 4-H membership is overwhelmingly white (Figure 3).

Figure 1.

NYS 4-H – Average Member Enrollment by Gender

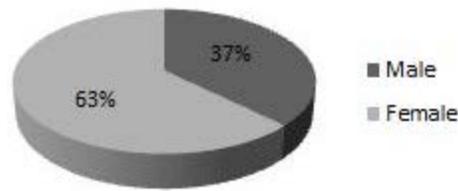


Figure 2.

NYS 4-H: Average Member Enrollment by School Level

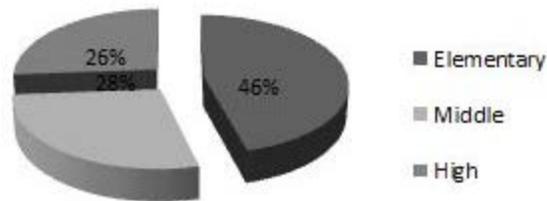
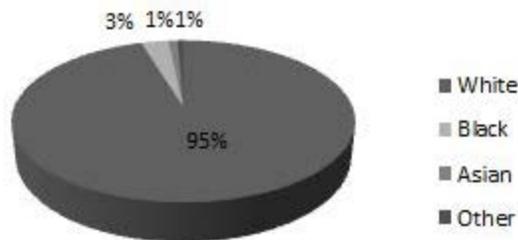


Figure 3.

NYS 4-H: Average Member Enrollment by Race



Enrollment Trends

Enrollment trends by grade (Figure 4) show a peak at grade 5 followed by a steady decline to grade 12. Portrayed by school level (Figure 5), enrollment trends are quite similar for the three school levels. The pronounced drop in enrollment between 2009 and 2010 occurred across all school levels. This drop appears to have resulted from changes in reporting procedures associated with the introduction of ACCESS rather than from real participation decline. In addition, the asterisk associated with "Total" contains members not included in a school level (most commonly Post-High School), which explains why the total drop in reported enrollment is larger than the combined drop for the three smaller school levels.

Figure 4.

NYS 4-H: Average Member Enrollment by Grade

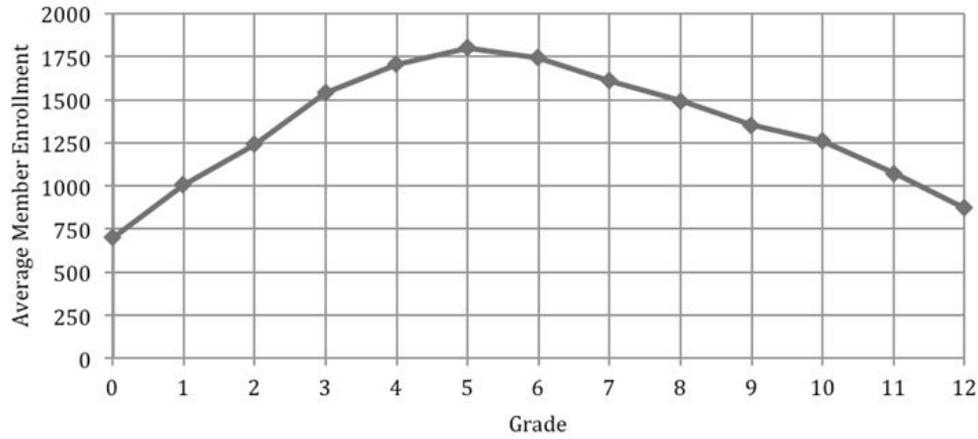
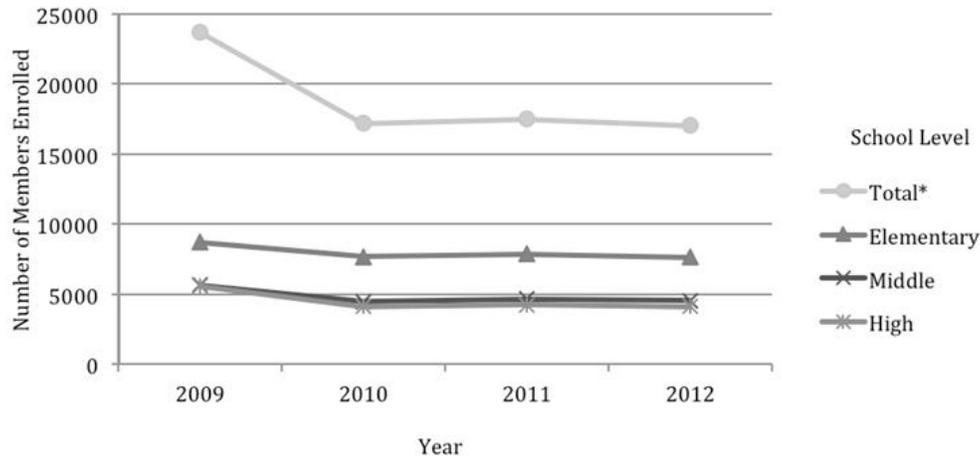


Figure 5.

NYS 4-H: Yearly Member Enrollment by School Level



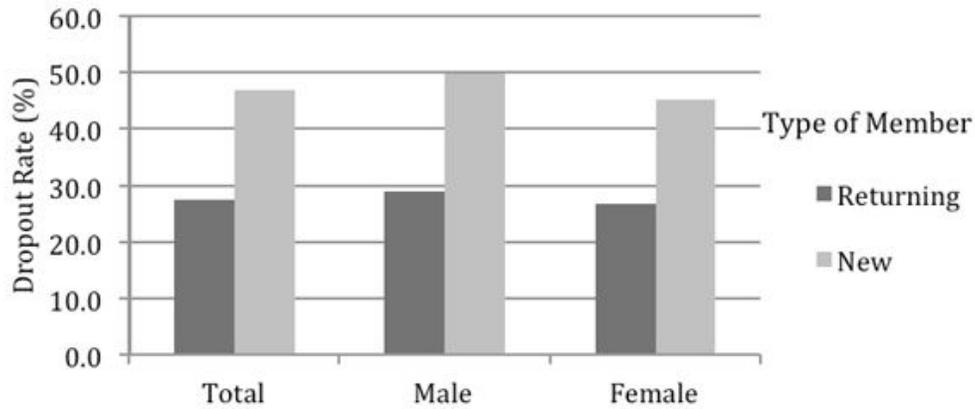
Dropout Rates

Dropping out is operationally defined as being enrolled in one year and not enrolled in the following year. This definition includes members who have aged out of 4-H, those who move away or whose clubs dissolve, as well as those who are dissatisfied with their 4-H experience and those who simply find other things to do. Despite the range of reasons for members being counted as dropouts, examining dropout rates is important because dropouts reduce participation unless offset by equal or greater numbers of new members and, as noted above, it means some young people who might benefit from membership fail to do so. It seems likely that fewer resources are needed to retain members than to recruit new ones, though that proposition remains to be tested empirically.

Just as Astroth (1985) reported in Kansas, the strongest predictor of dropping out is being a new member; i.e., having joined 4-H the previous year. The dropout rate for new members is 47% compared to 28% for members with more than a year of experience (Figure 6). Boys are slightly more likely to drop out (5%) in addition to being less likely to join 4-H at all.

Figure 6.

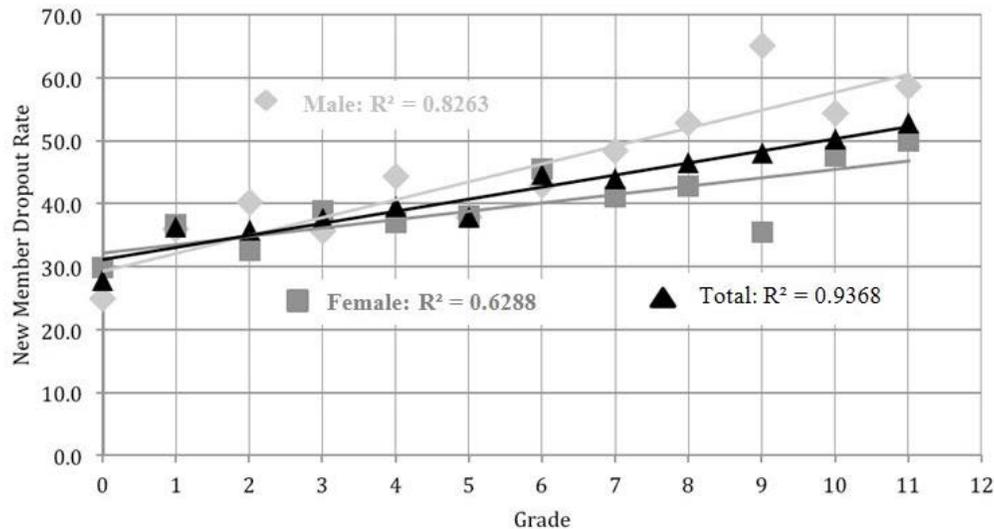
NYS 4-H: Total Dropout Rates for New and Returning Members



As indicated by Figure 7, both boys and girls who are new members are increasingly likely to drop out if they join 4-H at an older age. But the correlation of age with dropout is higher for boys, as shown by the greater slope of the regression line for boys. In kindergarten, both new male and new female member dropout rates are around 30%. By grade 12 the rate is more than double for boys; it reached 50% for girls. Figure 7 shows a sharp divergence between girls and boys at grade 9, when the girls' dropout rate declined to 35%, while the boys' increased to 65%.

Figure 7.

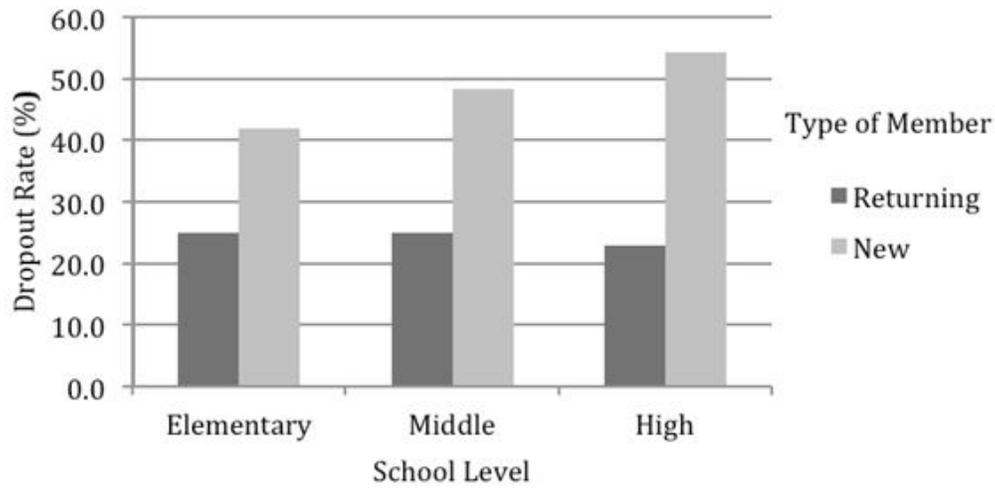
NYS 4-H: New Member Dropout by Grade Level and Gender



New members at all school levels were more likely to drop out than returning members. Figure 8 shows that the tendency for new members to drop out becomes more pronounced at each school level, while the dropout rates of experienced members remain stable. New high school members were 5% more likely to drop out the following year compared to new members at the middle school level and 10% more likely than those at the elementary school level. Note that the same trend does not hold for returning members, who on average had a 35% likelihood of dropping out at all school levels.

Figure 8.

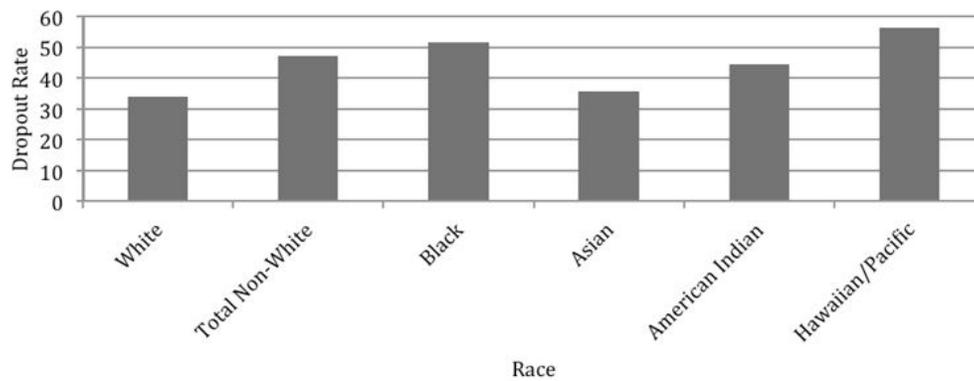
NYS 4-H: Dropout Rates in New and Returning Members by School Level



The White member dropout rate (34%) was lower than the non-White member dropout rate (47%) (Figure 9). White members are compared to members of all other races because non-White membership is small.

Figure 9.

NYS 4-H: Average Member Dropout Rate by Race



As a way of testing these findings and searching for differences among counties, the regression analysis reported in Figures 6-9 was repeated separately on five regional clusters, each with about 10 counties. No statistically significant differences ($\alpha = .05$) were found among the regions, suggesting that the observed phenomenon is common across the state.

Discussion

Our findings confirm those of Astroth (1985) in Kansas and Hartley (1983) in West Virginia that dropout rates are highest for first-year 4-H members. This phenomenon can be interpreted in at least two ways. One is that initial enrollment is an exploratory process and that nearly half of those who try it decide not to stay. Such "shopping" is, in part, simply a matter of young people trying to match their interests with opportunities. One can, however, accept this interpretation and still consider a different implication. If enrolling new members represents a significant investment of

resources, and we think it does, then that investment might yield higher returns if enhanced by a sharper focus on retaining members for a second year. Our data indicate that dropping out is lower in subsequent years, suggesting that higher retention in year two might lead to longer-term retention. Because dropout rates among returning members remain stable across grade levels, the returns on enhanced investment would likely be greater for younger first-year members.

In addition to new members, three other categories of members are revealed by this analysis as needing special attention: Black and Hispanic youth, boys, and older members. We consider them in order.

Race and Ethnicity

Ninety-five percent of 4-H members in New York State are White. In a state with a youth population (ages 5-17) that is 38% non-White or Hispanic (U.S. Census Bureau), this is clearly inadequate. Some aspects of 4-H are daunting to low-income families and, to the extent that race/ethnicity and income are correlated, could depress the enrollment and persistence of low-income youth of all races and ethnicities. Another influence is the historical mission of Extension to advance agriculture and rural communities, which in New York State have predominantly White populations. New York City, where 39% of the state's youth live, including 65% of Black youth and 65% of Hispanic youth, does not fund Extension. As a result, all 4-H and other Extension activities in New York City are supported either by Smith-Lever or grant and contract funds. The city's 4-H resources and program activities are not commensurate with its youth population.

Low participation in 4-H by non-White youth surely results in part from 99% of volunteer leaders being White.

Gender

National 4-H Enrollment Report (2011) indicates that males are in the minority, but only slightly (47.9%). Bartoszuk and Randall (2011) found that adolescent girls in the 4-H program had more satisfying 4-H experiences than boys, as did Homan, Dick, and Hedrick (2007b), who also found that parents and friends tended to encourage girls to be more active in 4-H than boys; and girls reported a higher likelihood that their friends would stay in 4-H. Bruce (1964) found that male teens dropped out of 4-H because of loss of interest in 4-H projects and activities, participation in non-4-H activities, interference of 4-H with school work, and teasing by non-4-H members.

The predominance of women as volunteer leaders may be a deterrent to boys' participation. Three-quarters of volunteer 4-H leaders in New York State are women.

Age

Many youth-serving organizations serve more elementary-school-age children than older youth. Deschenes et al. (2010) indicate that OST participation diminishes with age. Lauver et al. (2004) found that middle and high school students had low attendance in many OST programs "due to busy schedules and family lives, claims of boredom, or the desire for freedom" (p.1). Age and gender

interact. Bouffard et al. (2006) found gender differences in extracurricular activity participation only surfaced in 10th Grade. Girls were found to participate in more school activities (except sports) but participated for fewer hours than boys.

Hamilton and Kenney (1988) found that teenage 4-H members were more likely than younger ones to be specialists, concentrating on one or a few projects rather than doing many different activities. They were also more likely to take leadership roles and to participate in county, state, and national activities. Members like these are very valuable to 4-H, helping to convey to the public what 4-H is about and strengthening the organization as leaders and as role models for younger members. In addition to contributing to their own development and increasing aggregate participation numbers, retaining more teenagers builds the 4-H program.

Older minority boys are clearly the most challenging group to retain. Interviews with program staff from 10 after-school programs in eight cities selected because of their success with this group indicated that older minority boys joined their programs because of specific program features: programs used peer networks to encourage enrollment, they were easily accessible and affordable, they directly met a financial need, and they offered topics and activities that were fun (Kauh, 2010). Program features seen as influential in retaining older minority males were relevance to their interests, cultural issues, and economic needs; flexibility in participation requirements; rewards for participants; youth empowerment; and nurturing environments.

Conclusion and Implications

Analyzing enrollment data identifies some challenges for 4-H in New York State, challenges that may be found in other states as well. It also provides some hints about how to meet those challenges. In addition to maintaining, and ideally increasing, enrollment, 4-H would be strengthened by retaining more older members and by increasing the gender, racial, and ethnic diversity of membership. The magnitude of this challenge is illustrated by the finding that the youth 4-H most needs to recruit are the hardest to retain: Black and Hispanic members, boys, and older members. Moreover, new members are also the most likely to drop out.

Retention of new members might be improved simply by paying more attention to them. Setting up a buddy system is one idea, matching a new member and the member's family with a longer-term member and family who can give information and support. Retaining older members requires adapting to their changing needs and interests. Assuring that older members have opportunities for leadership and for participation in countywide, state, and national events should help as well. A one-to-one conference at the end of the program year to discuss and plan for the next year's activities might facilitate this adaptation and stimulate the member's enthusiasm for re-enrolling. This could be especially helpful before transitions into middle school and high school when new opportunities arise that can compete with 4-H.

The recruitment and retention of Black and Hispanic youth and boys would surely be improved by recruiting more men and more Blacks and Hispanics and by making 4-H participation accessible and attractive to youth in urban locations. CYFAR (Children, Youth, and Families At Risk) has demonstrated success in recruiting adult volunteers and youth, including older youth, from underrepresented minority groups. According to the 2011 *National 4-H Enrollment Report*, 42% of

adult volunteers and 51% of youth volunteers were non-White. The lessons learned in CYFAR should be applied more widely. Emphasizing programs that appeal to boys (without excluding girls) could boost enrollment. Shooting sports and robotics are examples; they also attract male leaders.

In response to elevated dropout rates as youth grow older, Gwinnet County in Georgia aligned their 4-H program structure with area schools and athletic programs, improving the re-enrollment rate of fifth graders from 20 to 82% (Ziegler, 2005; cited in Newby & Sallee, 2011; see also Acosta & Holt, 1991). Such a re-alignment of the 4-H program is a promising approach to teen retention. The pre/post comparison also exemplifies a strong, evidence-based response to the challenge. Making changes to the program and tracking their impact is an excellent use of research to improve programs.

This, in fact, is one of the great promises of continually analyzing enrollment data. The same data that identify challenges can be used as a baseline against which responses to those challenges are tested, as in the Gwinnet County case. Data can also be compared across counties and states to aid the search for best practices.

We have learned, however, that relying on data collected for reporting purposes has limitations. As a result of unavoidable restrictions, inadequate resources, and inattention, some enrollment records are not accurate. We hope educators and advisory groups will come to see analysis of their own data as a method of improving their programs and practices, and will as a consequence commit to making the data more accurate. With this goal in view, the third author prepared a guide to analyzing ACCESS data as we have done here. It may be found at:

<http://nys4h.cce.cornell.edu/staff/program/Pages/Enrollment.aspx>.

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