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Can school structures improve teacher-student relationships? The relationship between advisory programs, personalization and students' academic achievement

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Abstract: This study focused on the relationships between student-perceived levels of personalization, students' opinions about advisory period, and academic outcomes. Surveys were administered to 10,044 students over three consecutive years at 14 redesigned small schools and survey responses were linked to students' weighted single-year grade point averages and English Language Arts standardized test scores. Results of a series of multi-level models indicated that more positive perceptions of personalization were predictive of better academic outcomes. Student perceptions of the advisory period were related to academic achievement as well, but in the opposite direction: more positive feelings about advisory period were associated with worse academic outcomes. These results are consistent with qualitative work suggesting that higher levels of personalization are associated with higher levels of academic achievement, improved school culture, and more student engagement. However, these results also suggest that the relationships among advisory period, personalization and academic outcomes are not as straightforward as was previously thought.

Keywords*:* personalization; advisory; academic achievement; school structures

¿Pueden las estructuras escolares mejorar las relaciones entre estudiantes y docentes? La relación entre los programas de asesoramiento, personalización y el logro académico de los estudiantes

Resumen: Este estudio se centró en las relaciones entre las percepciones de estudiantes sobre niveles de personalización, sus opiniones sobre los periodos de asesoramiento, y los resultados académicos. Durante tres años consecutivos se administraron 10.044 encuestas a estudiantes en 14 escuelas pequeñas y re-estructuradas. Las respuestas fueron vinculadas a los promedios generales de las notas de los estudiantes ponderadas durante un solo año y a los resultados de las pruebas normalizadas en Artes del Lenguaje Inglés. Los resultados de una serie de modelos de niveles múltiples indicaron que las percepciones más positivas sobre la personalización pronosticaron mejores resultados académicos. Las percepciones de los estudiantes sobre el período de asesoramiento también fueron relacionados con el logro académico, pero en dirección opuesta: sentimientos positivos acerca de los períodos de asesoramiento se asociaron con peores resultados académicos. Estos resultados son consistentes con un trabajo cualitativo que sugiere que niveles más altos de personalización son asociados con niveles más altos de logros académicos, mejorías en la cultura escolar y más compromiso de los estudiantes. Sin embargo, estos resultados también sugieren que las relaciones entre períodos de asesoramiento, personalización y resultados académicos no son tan sencillas como se había pensado anteriormente.

Palabras claves: personalización; asesoramiento; rendimiento académico; estructuras escolares.

¿Podem as estruturas escolares melhorar as relações entre alunos e professores? A relação entre os períodos de orientação, atenção individualizada e o desempenho acadêmico dos estudantes

Resumo: Este estudo focalizou as relações entre as percepções dos alunos sobre os níveis de atenção individualizada e suas opiniões sobre os períodos de orientação, com resultados acadêmicos. Por três anos consecutivos foram administrados 10.044 questionários a alunos em 14 pequenas escolas que passaram for reformas. As respostas foram relacionadas com as médias globais das notas dos alunos durante um único ano ponderado e os resultados de testes padronizados na disciplina Língua Inglesa. Os resultados de uma série de modelos multi-nível indicaram que as percepções mais positivas sobre a atenção individualizada prognosticaram melhores resultados acadêmicos. As percepções dos alunos sobre o período de orientação também foram relacionadas com os resultados acadêmicos, mas na direção oposta: sentimentos positivos sobre os períodos de orientação foram associados com piores resultados acadêmicos. Estes resultados coincidem com um trabalho qualitativo que sugere que níveis mais elevados de atenção individualizada estão associados com níveis mais elevados de rendimento acadêmico, melhorias na cultura escolar e mais engajamento dos alunos. No entanto, esses resultados também sugerem que as relações entre períodos de orientação, atenção individualizada e os resultados acadêmicos não são tão simples quanto se pensava anteriormente.

Palavras-chave: atenção individualizada; orientação; desempenho acadêmico; estruturas escolares.

Introduction

One of the most important efforts on the part of school reformers over the past two decades has been the effort to make secondary schools "places of human scale" (Sizer, 1984). These efforts stem in part from the belief that the contexts in which students learn are critical factors in motivating and educating students (Steinberg & Allen, 2002). Contextual factors that have captured educators and policymakers' attention recently include reducing the size of schools and classrooms

and facets of classroom instruction to increase engagement and the rigor of pedagogy and curricula. But significant efforts have also been made to "personalize" schools by improving the relationships and overall feelings of connectedness among students, teachers, and the curriculum at hand (Klem & Connell, 2004; Steinberg & Allen, 2002).

In this paper, we present findings from a three-year study of students' perceptions of personalization and, specifically, advisory as a reform strategy and its relationship to students' academic progress at 14 recently converted small high schools in a large, urban school district in California. This study examined the degree to which students' sense of personalization (connections to the school and to adults at the school) interacted with students' academic achievement, as measured by standardized test scores and weighted grade-point averages (WGPAs). In particular, we examined the relationship between students' perceptions of formal structures to enhance personalization, exemplified by the advisory period, and students' academic achievement.

Relationships: A focus on "personalization"

A key component of improving schooling environments has been improving personalization, that is, tightening connections between students and their learning environments (e.g. teachers, other adults, student peers, curriculum, overall school culture). Personalization matters because young people who are engaged emotionally, cognitively and behaviorally in their education are less likely to show signs of alienation and more likely to be connected to school (Fredricks, Blumenfield, & Paris, 2004; Hallinan, 2008). Students who feel connected to their school are more likely to exhibit healthy lifestyle behaviors (McNeely & Falci, 2004; McNeely, Nonnemaker & Blum, 2002). Increased school connectedness is also related to educational motivation, classroom engagement and better attendance; all of which are linked to higher academic achievement (Blum & Libbey, 2004; Blum, McNeely, & Rinehart, 2002).

The importance of personalization in today's educational reform landscape is underscored by the time and money focused on reducing school and class size. These efforts have been supported by research that has shown increased academic achievement of students, particularly low-income and minority students, when student-to-teacher ratios and school populations are reduced (Lee, Bryk & Smith, 1993a; 1993b; Lee & Smith, 1993, 1995, 1996, 1997; Lee, Smith & Croninger, 1997; Mosteller, 1995; Mosteller, Sachs & Light, 1996).

In particular, the idea behind smaller schools has been that small schools can produce what Bryk and Driscoll (1988) call a more "communal school organization" and that small school can become "tighter-knit," providing higher levels of social support to students. More positive, personalized school cultures result in more caring relationships among teachers and students and results in fewer students "getting lost." As schools shrink in size, teachers are presumed better able to discuss students' progress and to compare information. Advisories, adult-student mentoring programs, and enhanced adult-led extra curricular programs are a few ways small and large schools try to enhance adult-student relationships.

Because of the evidence supporting the benefits of reducing the scale of schools and classrooms, the Bill and Melinda Gates and Carnegie Foundations have invested hundreds of millions of dollars to assist large urban school districts in reducing the size of their comprehensive high schools. Some critics contend, however, that when the cost of these conversions is calculated on a "per graduate" as opposed to a "per student" basis, some evidence exists that the resulting conversions are more costly than comprehensive high schools (Stiefel, Berne, Iatarola & Fruchter, 2000).

The importance of personalization

There is growing evidence that indicates greater personalization -- improved, trusting relationships particularly among teachers and students -- are able to raise students' expectations for

themselves and teachers' expectations for students. But we are still unsure how increasing personalization helps raise academic achievement on various measures (e.g. state examinations, weighted grade-point averages, on-track for college entrance).

This paper investigates the extent to which student perceptions of personalization and advisory are related to students' academic achievement. In the sections that follow, we provide a brief history of the small high school conversions in one large urban school district in California where the research was conducted, as well as a breakdown of methods used, results, and a discussion of the implications of this and future work.

A Brief History of Small High Schools in Avalon Unified School District

Avalon (a pseudonym) is one of the largest districts in California with over 221 schools. Although struggling with declining enrollment, like most California districts, it serves over 130,000 K-12 students. More than half are eligible for free and reduced lunch (56.9%). Nearly 40,000 students (29.5% of students) in Avalon are designated English Learners and together speak 64 different languages, although the predominant language is Spanish. The district is heavily Latino (44.4%) with white students (25.3%) making up the second largest group, and Asian-Pacific Islanders (17%) and African American students (13.5%) constituting the remainder.

With over 29 high schools in its domain, Avalon Unified has struggled over the decades to ensure that all the students it enrolls have adequate access to a personalized and rigorous education. Because large comprehensive high schools tend to be impersonal, Avalon high schools have also been easy places for students to remain anonymous and "get by." High schools in Avalon have failed to produce graduates with technical skills and knowledge transferable to the post-secondary world. About 40% of Avalon's graduating seniors meet minimum entrance requirements for the University of California and California State University systems, and of Avalon graduates enrolled in these institutions, 50% required remedial work in English and/or mathematics.

In 2004, Avalon set out to renew three of its poorest performing comprehensive high schools. A key facet of the district's high school reform strategy to go from "large to small" was to make its schools more personal and challenging for students. Administrators and teacher leaders believed more personalized learning environments could increase students' willingness to engage in challenging coursework and, thereby, increase their capacity to learn complex material. Each of the three comprehensive high schools had previously served about 2,000 students; the 14 new small high schools served approximately 400 students each, although class sizes were not significantly reduced. The new small schools were autonomous small schools occupying the same physical space as the previous comprehensive high schools. The idea was that the smaller and hopefully tighter-knit teaching faculty at each school would come to know well the 400 students they served. In preparation for the changes, the district administration published this definition of personalization within their high school reform efforts: "Personalization involves the development of a school climate and organization that produces strong, personal support for each student and a feeling on the part of the student that the adults in the schools believe that the student can and will succeed." (Avalon Unified, public communication on website, March 12, 2002).

R*esearch on the Effectiveness of Advisory Programs*

Advisory programs began in the mid-1980s when they emerged as a part of the early middle school reform movement (Alexander & Williams, 1965) which attempted to re-make junior high schools into a more successful transitional educational experience for students. Established in part from research showing that early adolescents in particular face unusual social and emotional stresses and would benefit from closer child-adult relationships,

advisory programs, for the past two decades, have ranged from being seen as essential to being viewed as a waste of time and resources.

The structures of advisory are well known; the concept and practice of gathering students and an educator together for brief, regular periods in a non-content specific setting to deal with cognitive and affective educational topics. It has long been known under a variety of titles: homeroom, home base, teacher-counselor programs, mentoring, and teacher-based guidance (Epstein & MacIver, 1990). The primary goal of advisory programs is usually to create tighter relationships between adults and students to foster a more supportive school climate overall.

While the various structures and intent of the advisory period is well known, little research exists supporting the social-emotional and cognitive benefits of advisory programs. The most comprehensive research review, now more than a decade old, was conducted by Galassi, Gulledge and Cox (1997) who examined the state of research on advisory and found few studies methodologically sound enough to evaluate advisory effectiveness. They found that the primary problems were 1) outcome measures often consisted of value impressions data; 2) few studies included pre-tests or control groups; and 3) meta-level variables of school climate and/or standardized academic outcomes measures were rarely used. Since 1997, there have been no additional comprehensive and rigorous studies conducted on advisory programs' effectiveness (Makkonen, 2004). Most of the published work has focused instead on how to implement advisory programs, train staff, and provide appropriate administrative support (Gewertz, 2007). Yet, despite the lack of research on advisory effects, widespread implementation of advisory programs continues.

Within the small school reforms in Avalon Unified, advisory was seen as a key component of the move to greater personalization. Each of the 14 small schools had a formal advisory program, which operated similar to an additional period several times a week, wherein a core group of students met regularly with their advisor. Although the programs varied somewhat in the amount of time they devoted to advisory per week or the way teachers were assigned to students, all 14 schools began their advisory in 2005, all maintained them through 2009, and all used a combination of structured and unstructured activities/time in their advisory programming.

Method

Participants

In the spring of 2005, 2006, and 2007, students attending 14 small schools in Avalon Unified completed a survey about their academic experiences and perceptions of adult support in the newly formed small schools. The survey item construction was based on the literature relating to small school conversions (School Redesign Network, 2000). Students at all grade levels (with the exception of 12th graders in 2005) completed the annual spring survey during a two-week administration window. Responses were scored using Teleform® software and matched to district-provided academic and demographic databases using student-provided identification numbers on the survey cover sheet.

Overall survey response rates for 2005, 2006 and 2007 were 66.9%, 62.3%, and 80.0% and match rates to the academic files were 95.1%, 94.4% and 88.9%, respectively. Table 1 provides demographic information for the respondents. There were similar numbers of males and females and the proportion of students responding at each grade level was roughly equivalent across the three survey years. In addition, the Race/Ethnicity of respondents was diverse and reflected the composition of the schools: 18% African American, 55% Hispanic, 12% White and the remaining

15% divided among members of other Racial/Ethnic categories for each of the three years (+/- 1%). More than half of the students at these schools were eligible for free or reduced price lunch (FRPL) although we are unsure if the respondents reflected the populations' income levels as we were not privy to student level FRPL datasets due to district policy and federal privacy regulations.

Table 1
Demographics of Survey Respondents

	Survey Year		
	2005	2006	2007
Total Surveys	2819	3645	4117
Sex			
Male	1388 (49.24%)	1802 (49.44%)	2027 (49.23%)
Female	1431 (50.76%)	1843 (50.56%)	2090 (50.77%)
Grade Level			
09	1036 (36.75%)	1216 (33.36%)	1358 (32.99%)
10	1043 (37.00%)	1057 (29.00%)	1162 (28.22%)
11	740 (26.25%)	841 (23.07%)	941 (22.86%)
12	N/A	531 (14.57%)	656 (15.93%)
Race/Ethnicity			
African American	516 (18.30%)	672 (18.44%)	760 (18.46%)
Latino	1531 (54.31%)	1986 (54.49%)	2282 (55.43%)
White	353 (12.52%)	450 (12.35%)	486 (11.80%)
All Others	419 (14.86%)	537 (14.73%)	589 (14.31%)

Student attitude measures

Students' attitudes about the level of personalization felt at school and the utility of their advisory periods were assessed as part of a larger survey on school attitudes. Survey responses were constructed so that higher ratings of personalization indicated stronger feelings of connection with adults at their schools and an increasing sense that they were known and supported as individuals. Similarly, higher ratings on the advisory questions indicated increasing agreement that students found the advisory period valuable and believed that it was a useful adjunct to assist with current coursework and to help them navigate both academic and personal issues. Students responded to each survey item using a 6-point Likert scale; a response of "1" represented strong disagreement and "6" strong agreement to a statement. Because there were six response choices, the middle responses of "3" or "4" forced students to express either mild agreement or disagreement to each item.

The final data sets were subjected to a factor analysis to test whether or not the expected interrelationships existed between survey items -- to provide empirical support for our theoretic constructs. Although we had strong *a priori* ideas about the constructs we wanted to measure, and the questions that would allow us to address them, we wanted to make sure that the data supported these constructs. As such, we conducted a factor analysis to determine which questions "clumped together" best. We then used these results to identify the best combination of survey items for data reduction. Results of these analyses verified that the questions relating to personalization and the advisory period did indeed measure separate constructs that were internally cohesive. Table 2 contains the questions used to construct the scales and Table 3 provides information on the factor loading of each survey item. Survey items contained in the two factors did not cross-load; loading

was consistent across administration years, and all items loaded "highly" or "moderately" into their respective scales (Hair, Anderson, Tatham & Black, 1998; Raubenheimer, 2004). Composite survey variables were then created for each student by averaging a student's responses to the items contributing to each construct. Missing data for even one of the survey questions contributing to a factor/construct resulted in a missing value for that construct; an interpolation to adjust for missing data was not performed.

Table 2
Survey Items Loading into Personalization and Advisory Scales

Scale	*Survey Item*	*Survey Question*
Personalization	10	There is at least one adult at my Small School whom I feel I can trust?
	12	When I have a problem with school or a personal problem, there is at least one adult at my Small School with whom I can talk to about by problem?
	13	The teachers at my Small School know my strengths and weaknesses as a student?
	15	There is at least one adult at my Small School who says positive and encouraging things to me **frequently?***
Advisory	23	The advisory class at my Small School has made it easier to keep up in my classes?
	24	My advisory teacher is someone I could go to for help?
	25	The advisory class at my Small School teaches me important lessons that I could use later in life?
	26	I have learned a lot about myself and other students through my Small School's advisory class?

***The word 'frequently' was bolded in the survey administered to students to emphasize that occasional comments by adults were not the object of the question.

Table 3
Factor Loading by Survey Item and Year

Construct	*Survey Item*	*Administration Year*		
		2005	2006	2007
Personalization	10	.66	.70	.71
	12	.67	.55	.65
	13	.56	.68	.43
	15	.57	.54	.50
Advisory	23	.70	.72	.63
	24	.64	.68	.59
	25	.78	.81	.78
	26	.73	.70	.71

Academic outcomes

We were interested in the possibility that students' sense of personalization regarding their schools might predict their academic outcomes. We selected two outcomes, both for reasons of availability and consistency. Weighted grade point average (WGPA) was selected because it could be calculated for every student, because we believed it to be most directly influenced by student attitudes, and because it reflects students' understanding of course work taken. We were interested in the ways that students' perceptions of their schools related to their *current* academic achievement; therefore, we used only single-year WGPAs and not cumulative WGPAs in the analyses presented.

We also considered the possibility that students' perceptions of personalization might relate to their performance on standardized tests. In California, only the English Language Arts (ELA scaled scores) subtest of the California Standards Test (CST) is required of all students in grades 9-11. The ELA was selected for this reason; while other tests are administered, those tests are tied to the specific coursework attempted and, therefore, are not universally administered. For example, a 9th grade student in California, depending on the course taken, could be tested using one of 6 different mathematics tests; Algebra I, Algebra II and Geometry being the largest in terms of tests taken.

We did not want to make an assumption that the concept and execution of the advisory period was monolithic, so principals at the small schools were asked to complete a survey describing the specific aspects of advisory at their school. We collected information on duration, amount of structure, perceived importance and method of assignment. Across the schools, there were differences in time, structure and perceived importance. All students were assigned by grade level. We used this information as covariates in initial modeling to determine if, for example, advisory duration moderated the relationship between academic indicators and student perceptions of advisory. No statistically significant differences emerged with the addition of this information.

Results

For each grade in each survey year, relationships between student sex, personalization, advisory and measures of academic achievement were explored using hierarchical regression models (PROC Mixed in SAS) (Raudenbush & Bryk, 1986; Singer, 1998). The hierarchical aspect was necessary because students were nested within schools. In fact, in all models tested, students within the same school were more alike than were students across schools, indicating that a hierarchical approach was both necessary and appropriate. Tables 4 and 5 (see Annex I) list the variance estimates corresponding to the random effect of school as well as an estimate of the variability across students once we controlled for the effect of school.

A clear and consistent pattern emerged from the set of analyses. Overall, student attitudes about personalization and advisory were significantly related to academic outcomes; higher levels of perceived personalization corresponded to higher WGPAs and ELA scores, and the *reverse* emerged for student opinions about the advisory period. Counter to our original predictions, stronger positive feelings about the efficacy of the advisory period corresponded to *lower* WGPAs and ELA scores.

Examining subgroups

To help understand why the overall findings played out as they did, we decided to examine if these findings held up within specific subgroups. Literature on personalization shows that many times youth perceive effective personalization as fair relationships with teachers and other school adults, varied instructional practices that address the range of ways students are engaged in classroom learning, a sense of belonging in the school, and a respectful and safe school climate, for example (Shultz & Cook-Sather, 2001; Wilson & Corbett, 2001; Yonezawa & Jones, 2007).
More importantly, this body of work tells us that youth across demographic subgroups often report similar versions of what successful personalization looks like in schools and classrooms (Wilson & Corbett, 2001). Young people across sex, secondary grade levels/age, race and class categories and in suburban and urban educational environments view effective personalization similarly. Yet, what differentiates youth across demographic variables is the relationship between personalization and academic outcomes, with less advantaged groups continuing to struggle despite their similar desire for more personalized relationships. We wanted to examine in the analysis that follows if particular subgroups' academic outcomes were related to their feelings about advisory and personalization.

Looking at WGPA *outcomes by subgroups: Grade level and sex*

Of the 11 groups (grade level by survey year) we analyzed, personalization was significantly related to WGPA in all but one. More specifically, higher personalization scores were predictive of higher WGPAs (and vice-versa) and an increase of one point on the 6-point scale was associated with WGPA increases ranging from 0.08 to 0.23 WGPA points (Table 4). The only group where this relationship was not observed was in the 9th graders from 2005, who were entering high school in the first year of small school operation.

There were some differences between boys and girls, as a statistically significant interaction between sex and personalization was observed for two of the 2007 subgroups; the 9th and 11th graders. For the 11th graders both girls and boys had a positive relationship between increased feelings of personalization and WGPAs, the difference being that the relationship was stronger for girls. For 9th grade students, only males had a positive relationship between personalization and WGPA; the relationship for females was not statistically significant.

Advisory was significantly related to WGPA for 6 of the 11 groups analyzed. In all of these analyses, the direction of the relationship the same; more positive feelings about the advisory period were associated with lower WGPAs, and an increase of one point on the 6-point advisory scale was associated with decreases ranging from 0.07 to 0.11 WGPA points. There was only one significant interaction between sex and advisory, the 11th graders in the 2005 survey administration. For females, higher ratings of advisory were associated with lower WGPAs (β= -0.13, $p < .001$), while for males the opposite was true and positive feelings about advisory were associated with higher WGPAs (β= 0.09, $p < .05$).

Looking at WGPA outcomes by race and ethnicity subgroups

We conducted separate analyses for the two largest non-white racial and ethnic groups: Latinos and African Americans. For Latinos, more positive feelings about personalization were related to higher WGPAs -- the same relationship found in the overall analyses. But for Latino students, increasingly favorable opinions about the advisory were not related to WGPA in a statistically significant manner (with the exception of 11th grade females in 2005). Knowing Latino students' views about advisory period was not predictive of how they were doing academically.

African American student opinions on the relationship between personalization and achievement were different from the overall analyses and findings. As African American students felt more positively about personalization their WGPAs increased significantly for only for the 11th graders in 2006. The remaining analyses were not statistically significant. A similar pattern of results emerged for advisory, only one group of African American students had a significant relationship between advisory and WGPA, and that relationship was both related to sex and directional. In 2005, 11th grade African American females' WGPAs decreased as their positive feelings about advisory increased (β= -0.29, $p < .01$), the reverse was true for males (β= 0.20, $p < .05$). What this tells us is that, overall, knowing how African American students felt about personalization and advisory did not inform us about their academic performance as measured by WGPA.

ELA score outcomes by sex

Table 5.0 shows the relationships between sex, personalization, advisory and ELA scores. Of the 9 analyses (grades 9, 10 & 11 for 3 survey years), personalization was significantly related to ELA scores in 7 of the 9, and the consistent finding was that increased feelings of personalization were associated with higher ELA scores. An increase of one point on the 6-point scale personalization scale was associated with ELA increases ranging from 4 to 8 points. In 8 of the 9 analyses, more positive feelings about the advisory period were associated with lower ELA scores and an increase of one point on the advisory scale was associated with decreases in ELA scores ranging from 4.8 to 7.9 points.

There were three significant interactions with sex. The first two were for students in grade 11 (2005) where there were statistically significant interactions for both personalization and advisory. Both males ($\beta = 6.27$, $p < .05$) and females ($\beta = 13.23$, $p < .001$) had positive relationships between personalization and ELA scores, and only females' had a significant relationship between advisory and ELA scores ($\beta = -7.66$, $p < .01$); that relationship was negative and consistent with the main findings. The third interaction was for males in the 2007 9th grade who had a positive relationship between personalization and ELA scores ($\beta = 7.90$, $p < .001$), while for girls there was no significant relationship.

Looking at ELA score outcomes by race and ethnicity

The analyses for African American and Latino students were also performed with ELA scores as the outcome measure. For Latino students, there was a fairly consistent pattern (5 of 9 analyses) where the same overall negative relationship between advisory and ELA scores held true, but in only one analysis (9th grade, 2007) was the relationship between personalization and ELA scores statistically significant. For African American students 4 of 9 analyses showed a significant and negative relationship between advisory and ELA scores, with more positive feelings about advisory associated with lower ELA scores. While not as strong, this pattern mirrors that found in the overall analyses. However, for African American students, personalization and ELA scores did not have directionally consistent and/or statistically significant results and no trend emerged.

Discussion

Our study found that across grade levels and survey years an overall positive relationship exists between student perceptions of personalization and the two academic outcomes included in the analyses: WGPA and ELA scale scores. Simply stated, the more that students, felt personalization at their schools, the better students did academically. Moreover, we discovered an inverse relationship existed between students' perceptions of advisory programs and student academic outcomes. The more students, in general, reported satisfaction with advisory, the worse they performed academically.

Our findings lend some credibility to the purported academic effects of small schooling on students. We did not, for this report, examine the student survey self-report or academic data of student cohorts prior to entering the small schools in 2004 nor did we include a comparison group from traditional high schools. Nonetheless, our analyses do show a steady increase (in spring 2005, 2006, and 2007) in students' sense of personalization over time, for all subgroups, and a corresponding rise in academic achievement. In this way, we also contribute to a larger theoretical argument that modifying school structural arrangements may be helpful to reshaping cultural arrangements such as relationships within organizations.

But, most importantly, our results help educators, policy makers, and social scientists link personalization efforts at schools and academic achievement -- one not reliant on academic self-report data. In this way, they lend credible quantitative support for the ideas espoused by other researchers who have argued that social-emotional relationships between teachers and students matter, but who have not yet uncovered quantitative research evidence linking personalization to measures of academic outcomes (Klem & Connell, 2004; Hallinan, 2008).

For example, Wallach and her colleagues (2006) recently completed a study with student and teacher surveys and focus group, which examined personalization efforts in seven schools in Washington. The researchers found that students reported increased academic expectations of themselves and increased personal accountability between students and teachers as self-reported

levels of personalization increased (Wallach, et al., 2006). Our study helps bolster their findings by linking increases in personalization to increases in WGPA and standardized test scores.

The implications for our findings in an era of decreasing state funding and heightened academic press underscore the importance schools and educators must place on efforts to personalize education and the social-emotional and academic benefits they can reap by doing so. Creating caring schools with adults attentive to students' needs appears to have value when the pay out is academic success both in school (WGPA) and in standardized test measures (ELA).

Nonetheless, while the positive relationship between personalization and academic achievement appears clear from our study, the role of advisory programs specifically in supporting personalization remains murky. The advisory programs we studied did not enjoy the same clear-cut, positive relationship with student achievement as personalization efforts more generally did. This is mainly evidenced by the fact that, in our study, ELA scores and, to a lesser extent, WGPAs tended to decrease the more that students felt that the advisory period was a meaningful addition to the school curriculum.

We provide a tentative interpretation of students' positive perception of personalization and their negative relationship with advisory. The simplest explanation is that students who needed advisory most (i.e., had the lowest grades, etc.) were the ones who valued advisory most, and vice versa, and the worse they performed, the more they valued advisory. Meanwhile, students who felt good about their position in school and their relationships with teachers tended to perform better academically.

An alternative explanation might be that students are distinguishing between the lived experiences of personalization versus the more bureaucratic, instrumental quality of advisory programs. They may acknowledge the human dynamics of particular teacher-student encounters within the overall notion of personalization, while they reject the more static institutionalized form of advisory as just another course in their academic schedule. That is, these students might be reminding us of Noddings's (1992) insights: Caring matters, more so when it appears in informal, improvised and, therefore, more authentic, encounters between teachers and students than when it appears in the formal structures of a course designated for that purpose. It may be for this reason that we see positive relationships between academic outcomes and personalization and negative relationships for the advisory period. Our findings lend credibility to Galassi and his colleagues' (1997) findings that more natural alternatives to structurally and culturally cumbersome advisory programs might be more successful. As McLaughlin (1987) said: Policy implementation is driven significantly by the belief systems, skills, and motivations of policy implementers -- "you can't mandate what matters."

A third explanation is that the advisory programs we studied in Avalon were either poorly or unevenly implemented. Because we conducted a one-time retrospective principal survey about their advisory programs in 2007, we were unable to trace year-to-year programmatic changes with confidence. Moreover, we did not collect evidence through observation or teacher survey about the design and implementation of advisory programs as well as teacher training and teacher confidence regarding advisory. This is a shortcoming of our study and one that needs to be remedied in future work.

If, however, Avalon's advisory program was poorly implemented it would seem logical that the teachers and students' roles and relationship may not have been fundamentally altered to enough of a degree to create a positive effect in relationship to academic outcomes. But what might constitute, given our findings, a poorly constructed advisory program? Even if the advisory programs in Avalon did manage to craft significantly positive new teacher-student relationships, the often loose-coupling of advisory and core academic course relationships between teachers and students might be enough to weaken any academic impact. For example, even if advisory programs

altered students' relationships with teachers, these relationships may not translate into new classroom behaviors if students do not take core courses from their advisory teachers. Yet few advisory programs, not just those in the district we studied, are constructed to ensure overlap between students' advisory teachers and core academic teachers. This is partly because of resources and scheduling. There are often not enough teachers to run an advisory program unless elective and other school faculty and staff are advisors as well.

A final alternative explanation worth mentioning is that advisory may act largely on secondary student behaviors such as attendance or conduct rather than as a direct mediator of academic performance. If true, then the success of the advisory period would be to retain more students who both appreciate the advisory period and are likely to have poor academic records; the success of the advisory period would, in part, drive the observed inverse relationship.

Our efforts to understand the overall relationships between students' perceptions of personalization and advisory on the one hand and academic achievement on the other hand were complicated further by our subgroup analyses by race and sex. In our additional examination by race and sex we learned that students perceive efforts by adults to connect with them--whether through less structured personalization efforts or more structured advisory programs--in different ways across various sub groups. For example, with Latino students, personalization, but not advisory, seemed to have an important and positive relationship with academic achievement. For African American students, however, neither personalization nor advisory seemed to have a significant relationship with their academic performance. The results for sex were limited, with a few scattered instances where the relationship between personalization, advisory, and the academic outcomes were moderated by gender. While we cannot determine why this is the case within the confines of this paper, suffice it to say that race and sex matter in that they vary in complex ways and moderate the degree to which efforts by adults appear to be effective. They certainly warrant further study. Moreover, grade level of students also must be taken into account as the social-emotional and cognitive needs of students are shaped by their physical and mental development.

The subgroup analyses do, however, cause us to speculate about the importance of peer groups in examining personalization efforts in schools. Given students' tendencies to formalize peer groups within racial and sex boundaries (particularly at earlier grades), it seems important that future work in this area might attend to the impact these groups have on students within both formal personalization structures such as advisory and informal, extracurricular avenues to personalization. We were unable to study peer effects in this research project; however, we concede of the need to do so in the future.

What are the alternatives to structured efforts such as advisory to improve students' connections to schools and adults? Ultimately, personalization approaches must move efforts into the core of schooling. Students spend far more time with their academic teachers in core courses than with counselors, advisory teachers, and administrators. Schools able to integrate strategies of caring into their daily work and overall school climate, as opposed to annexing it within an advisory period, may be more successful.

Strategies for integrating personalization more completely into schools may require more creative approaches by policy makers and educators charged with supporting school personnel and student achievement. For example, policies that support the tenuous relationships teachers manage to build with students over time -- looping (retaining the same students with the same teacher over multiple years), retention incentives for teachers, particularly in low-income and high minority schools, multi-age grouping strategies, and team teaching arrangements may provide the link to personalization without isolating the effort in adjunct programs such as advisory. These and other more creative approaches could help create tighter-knit student-teacher relationships develop more naturally over time.

Policy Implications

While the data presented are relational and not causal, they suggest that policies are needed to encourage and strengthen personalization across schools without an over-reliance on advisory programs as the single means of achieving that goal. Such limited structural changes are likely to be insufficient to increase student learning, engagement and achievement. The cultural or social component of schooling must be explicitly addressed and woven throughout the school-community, rather than isolated within a single course or area of the school.

Formal and informal opportunities to strengthen adult-student relationships matter and policies aimed at creating positive environments or socio-cultural climates of caring and respect within a range of both formal and informal settings are needed. In other words, policies are needed that encourage adults to focus on the content and substance of their interactions with students. Structural creativity within schools is needed to allow for the evolution of new ways for teachers to authentically connect with students.

Toward this end, policies are needed which advocate that teachers work on personalization content in a professional learning community and, in particular, provide adults with on-going school site support for developing increasingly tighter-knit relationship with students. In such professional learning communities, teachers (and counselors) could gain exposure to and share ideas about curriculum, activities to use in formal opportunities (advisory, core classrooms) and about informal ways to build strong and positive relationships with students.

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Annex I

Table 4

Estimates of Fixed and Random Effects from a series of Mixed Models in which students' ratings of perceived personalization and the advisory period at their school predict weighted grade point average.

	2005[1]			2006				2007			
	Grade 9	Grade 10	Grade 11	Grade 9	Grade 10	Grade 11	Grade 12	Grade 9	Grade 10	Grade 11	Grade 12
N	1015	1031	724	1169	1015	814	513	1215	1084	858	606
Fixed Effects											
Sex	-0.138	0772**	0.455	0.141	0.271	0.045	0.007	0.621*	0.1722	-0.044	-0.281
	(0.292)	(0.268)	(0.294)	(0.298)	(0.297)	(0.307)	(0.309)	(0.295)	(0.303)	(0.314)	(0.291)
Personalization	0.083	0.196***	0.134**	0.151***	0.112**	0.136**	0.091*	0.225***	0.129**	0.081†	0.128**
	(0.046)	(0.042)	(0.046)	(0.041)	(0.043)	(0.044)	(0.047)	(0.041)	(0.041)	(0.046)	(0.047)
Advisory	-0.031	-0.094**	0.092*	-0.024	-0.070†	-0.039	-0.072*	-0.043	0.013	-0.105**	-0.095*
	(0.038)	(0.036)	(0.039)	(0.033)	(0.038)	(0.033)	(0.037)	(0.036)	(0.035)	(0.040)	(0.040)
Sex x Personalization	0.119	-0.10	0.119	-0.022	0.063	0.040	0.019	-0.188**	-0.070	0.134*	-0.048
	(0.064)	(0.060)	(0.069)	(0.060)	(0.061)	(0.064)	(0.064)	(0.060)	(0.060)	(0.066)	(0.066)
Sex x Advisory	-0.056	-0.011	0.228***	-0.018	-0.021	-0.049	0.058	-0.029	-0.035	-0.036	0.047
	(0.053)	(0.052)	(0.057)	(0.048)	(0.052)	(0.047)	(0.051)	(0.052)	(0.051)	(0.055)	(0.053)
Random Effects											
Level 1: Student	0.817***	0.854***	0.670***	0.848***	0.787***	0.627***	0.352***	0.879***	0.765***	0.671***	0.415***
	(0.036)	(0.038)	(0.036)	(0.035)	(0.035)	(0.032)	(0.022)	(0.036)	(0.033)	(0.033)	(0.024)
Level 2: School	0.060*	0.061*	0.026*	0.114**	0.071*	0.017†	0.055*	0.091*	0.086*	0.051*	0.033*
	(0.027)	(0.028)	(0.016)	(0.049)	(0.032)	(0.011)	(0.026)	(0.040)	(0.038)	(0.023)	(0.017)

$^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$, † $p < .10$

[1] The survey was not administered to 12th grade students in 2005.

Table 5

Estimates of Fixed and Random Effects from a series of Mixed Models in which students' ratings of perceived personalization and the advisory period at their school predict English Language Arts (ELA) Scale Scores.

	2005[2]			2006			2007		
	Grade 9	Grade 10	Grade 11	Grade 9	Grade 10	Grade 11	Grade 9	Grade 10	Grade 11
N	1000	1017	709	1149	1005	800	1185	1054	838
Fixed Effects									
Sex	4.20	21.77†	-11.58	36.40*	28.12†	-22.46	26.38†	26.23†	22.59
	(14.64)	(12.57)	(16.59)	(15.46)	(15.36)	(19.77)	(14.76)	(15.21)	(20.02)
Personalization	6.01**	6.32**	5.83*	4.00†	4.35*	3.91	8.62***	6.23**	4.52
	(2.30)	(1.98)	(2.58)	(2.10)	(2.21)	(2.81)	(2.06)	(2.02)	(2.90)
Advisory	-4.80*	-6.83***	-1.76	-7.82***	-7.45***	-5.91**	-6.20***	-7.28***	-7.89**
	(1.89)	(1.71)	(2.18)	(1.71)	(1.96)	(2.13)	(1.82)	(1.69)	(2.57)
Sex x Personalization	1.37	-1.91	8.03*	3.81	-3.18	6.75	-9.38**	0.48	5.79
	(3.18)	(2.82)	(3.83)	(3.07)	(3.17)	(4.08)	(3.03)	(2.91)	(4.19)
Sex x Advisory	-1.58	-2.14	-6.91*	-1.28	0.78	-4.82	-0.57	-2.15	-0.80
	(2.64)	(2.44)	(3.21)	(2.48)	(2.70)	(3.01)	(2.62)	(2.50)	(3.51)
Random Effects									
Level 1: Student	2012.64***	1851.12***	2049.35***	2206.11***	2083.32***	2500.60***	2150.49***	1767.03***	2678.58***
	(90.96)	(82.93)	(110.51)	(92.98)	(94.02)	(126.84)	(89.21)	(77.82)	(132.66)
Level 2: School	610.12**	381.75**	373.61*	576.97**	793.90**	451.36**	547.87**	544.96**	522.65**
	(248.97)	(158.17)	(165.40)	(237.82)	(323.85)	(192.85)	(224.37)	(223.89)	(221.68)

$^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$, † $p < .10$

[2] In California, students do not take standardized tests in their senior year.

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