RMLE Online
Research in Middle Level Education

Micki M. Caskey, Ph.D., Editor
Portland State University
Portland, Oregon

2011 • Volume 34 • Number 5 ISSN 1940-4476

Teacher Perspectives on Career-Relevant Curriculum in Middle School

Patrick Akos
Pajarita Charles
Dennis Orthner
Valerie Cooley

University of North Carolina at Chapel Hill

Abstract

Relevant, challenging, integrative, and exploratory all describe the curriculum desirable in middle school (National Middle School Association, 2010). Career-relevant curriculum is one prominent strategy used since the 1970s to achieve these goals. Systematic, integrated, and contemporary efforts at career education often engage core teachers who plan and deliver the curriculum. For this study, a measure was created to assess teacher perspectives of career education efforts in middle school. A two-factor structure (career integration and future orientation) was demonstrated in exploratory and confirmatory factor analysis of the survey. Results from 291 middle school teachers reveal the potential of career education infusion into the core curriculum, with nominal but statistically significant differences in gender, subject matter, and socioeconomic status of the school. Implications for middle school educators are provided.

Introduction

Nearly three decades ago, middle school pioneers stressed the importance of "learning experiences … focused directly on problems of significance to students" (Lounsbury & Vars, 1978, p. 56). One of the core tenets of *This We Believe*, the contemporary philosophy endorsed by the National Middle School Association (NMSA), is a "curriculum that is relevant, challenging, integrative, and exploratory" (Erb, 2001, p. 63). The integration of relevant experiences into the standard content has been prominent today even within the culture of accountability (Caskey, 2006).

Relevance must take into account the developmental needs of young adolescents among other factors. Career education, a trend that emerged in secondary schools in the 1970s, is a strategy toward relevant and integrative curriculum that is also responsive to the developmental needs of young adolescents. "Not only is learning more relevant when it is connected to the real world, but young

learners also begin to understand and appreciate their families' roles…" (Gallivan, 2003, p. 16).

Theoretically, students explore fantasy and tentative choices (Ginzberg, 1952), identify with workers and develop habits of industry (Havighurst, 1964), and continue to restrict career paths based on sex roles, social values (Gottfredson, 1981), and cultural schema (Cook et al., 1996) that have strong influences on later education and career decisions (Fouad & Smith, 1996) during the early adolescent years. They also make important career identity decisions (Akos, Konold, & Niles, 2004) and are in the process of exploration and crystallization of career directions (Super, 1990). In fact, Osborn and Reardon (2006) indicated there is increasing pressure on middle grades students to make preliminary career decisions (e.g., educational tracks for high school).

The purpose of this study was to design and evaluate the psychometric properties of the CareerStart Teacher Perspectives Survey (CTPS), an instrument used to measure teacher perspectives of career education in middle schools. Teachers' attitudes are important to the success of school-based interventions because teachers play an integral role in implementing classroom strategies to meet curriculum standards (Ableser, 2003). The CTPS can be beneficial to researchers and educators involved with career development strategies in middle schools, because it provides a mechanism to assess teachers' attitudes about their interest and belief in such efforts.

Career Education in Middle School

School-based efforts to prepare students for career-related developmental tasks, including career choices, have been prominently termed *career education* since the 1970s. Hoyt (2005) extensively detailed these broad governmental and state-led efforts of career education over the last three decades in his book, *Career Education: History and Future*. Policy efforts (e.g., School to Work Opportunities Act of 1994) have enabled schools to reestablish career development efforts. For example, the state of Florida has recently required all high school students to declare a major, parallel to the practice in colleges and universities, and part of the legislation includes mandatory career development efforts in middle school. South Carolina has implemented a similar middle school effort. While these reforms have not enjoyed universal support, career integration is a pervasive strategy in many educational intervention approaches. For example, career education has been a consistent feature of academic enrichment programs (e.g., Gaining Early Awareness and Readiness for Undergraduate Program [GEAR UP]) for low-income or at-risk middle school students to help them relate academics to possible career choices (Usinger, 2005). While these programmatic efforts are useful, they do not always equally serve all students and do not always activate the potential influence of core classroom teachers.

Career education has evolved into many different forms (e.g., School to Work Act), but the integration of career content in core classes continues to be the most prominent strategy recommended by career education leaders such as Hoyt (2005). "Making the curriculum challenging and relevant is one of the strongest ways that middle school teachers and principals can encourage students to prepare for and to identify benefits of different occupations" (Smith, 2000, p. 628). However, while core subject teachers are expected to play a significant role in this emerging career education strategy, little research has explored middle school teacher perspectives or attitudes toward career development.

This lack of research is the result, at least partially, of a lack of empirically validated instruments that could be used to measure such attitudes. Without these tools, it is difficult to measure the existing capacity of middle schools and their teachers in preparing their students for the career paths and associated high school course choices that they will have to make as they transition to ninth grade. These tools are also needed to assess the progress teachers are making in becoming more effective allies in the career education process.

Only a single research study from Israel was found that directly assessed teacher perspectives on career education (Oppenheimer & Flum, 1986). In this study, Oppenheimer and Flum suggested that the study of teacher attitudes can provide valuable information for researchers who are seeking to obtain ways to maximize teacher involvement and cooperation in career education efforts. Their assessment attempted to capture (a) attitudes about the importance, interest, and reservations related to career education; (b) behaviors around career integration; and (c) other related factors and concepts (e.g., grade and subject taught, who should teach career education). While these data provide insight, additional data are needed from schools and teachers in settings where career development strategies are now being implemented in the United States to better inform current and future career integration efforts. Further, because no psychometric information was reported, it is difficult to assess the effectiveness of this instrument in measuring teachers' attitudes.

This study was designed to create and use a new instrument to assess core teacher perspectives on career education in middle school. The psychometric

properties (e.g., factor structure, reliabilities) of the CareerStart Teacher Perspectives Survey were tested and reported. These data were then used to explore core teacher feelings about career education and factors that may influence or relate to the perceptions. The research questions included:

- What are core teacher perspectives of career education in middle school?
- What are the psychometric properties (e.g., factor structure, reliabilities) of the CareerStart Teacher Perspectives Survey (CTPS)?
- Are there demographic or school factors that influence perspectives of the teachers' role in career development of middle school students?

Methodology

Sample

The sample included 291 middle school teachers from 14 schools in one Southeastern school district. A total of 356 teachers were invited to participate in the study, with 324 completing the CTPS (179 sixth grade teachers and 145 seventh grade teachers). Response rates were high with 87% and 96% of teachers completing the surveys at their respective grade levels. Due to missing data, the analytic data set was reduced to $n = 291$ (169 sixth grade teachers and 122 seventh grade teachers) using listwise deletion. Using Little's Missing Completely At Random (MCAR) Test (Little, 1988), it was determined that the data were MCAR for Time 1, Time 2, and the combined Time 1-Time 2 sample. The chi-square statistic was nonsignificant for the analytic sample at Time 1 χ^2 (50, $N = 179$) = 37.77, $p = .90$, at Time 2 χ^2 (18, $N = 145$) = 13.84, $p = .74$, and for Time 1-Time 2 combined χ^2 (58, $N = 324$) = 45.96, $p = .87$. When data are MCAR, the use of listwise deletion is an acceptable strategy for handling missing data because no bias will be introduced into the parameter estimates or the standard errors (Allison, 2003).

We collected data from 218 women (75%) and 73 men (25%), a gender distribution reflective of the district and of the profession (i.e., 75% of U.S. elementary and secondary teaching staff in 2003–2004 consisted of women; Planty et al., 2008). Their teaching experience varied from less than 1 year to 37 years ($M = 13.5$, $SD = 9.8$), with 89 teachers (31%) coming from Title 1 schools (schools with 50% or more free and reduced-price lunch students). Although teachers varied in terms of teaching one or more subject areas, 91 teachers (31%) taught language arts, 78 (27%) taught math, 75 (26%) taught social studies, and 61 (21%) taught science.

Instrument

The specific items of the CTPS were developed by the research team to reflect general career orientation concepts that would apply to teachers in core middle school subjects. The foundation for these items came from the U.S. Office of Education report (Hoyt, 1975), in which a theory of educator change and career development was proposed. Hoyt observed that career education capacity would be enhanced, and student career exploration would expand if teachers at all grade levels (a) helped students understand career implications of the subject matter being taught, (b) used career materials to motivate students, (c) valued the career interests of their students, and (d) integrated assumptions of career education into their instructional activities. Following this model, a 10-item instrument was developed to assess teacher perspectives on these dimensions. Items include questions that ask about the teachers' own assessment of their orientation toward career education (e.g., "Middle school is an appropriate time to introduce career content in classrooms" and "I encourage students to think about future job possibilities") and the expectations they have for their students' career orientation (e.g., "Middle school students think school is useful for getting a job" and "Students are more engaged in school when career content is included in classroom instruction"). Participants were asked to respond to items using a 5-point Likert scale, with answers ranging from 0 = strongly disagree to 4 = strongly agree. In addition to the items reflecting career orientation of teachers, the instrument included basic demographic information on their race, gender, grade level(s) taught, subjects taught, and years of experience at the school and in the profession.

The psychometric properties of the CTPS were investigated in the sample of sixth and seventh grade teachers using exploratory and confirmatory factor analysis (CFA). An exploratory factor analysis (EFA) was conducted for the sixth grade teacher sample to ascertain if the instrument had an underlying factor structure and to determine its reliability. Principal axis factoring with promax rotation of factor loadings was conducted using Mplus 4.0. Sixth grade teachers ($n = 169$) who provided complete data on the CTPS at Time 1 comprised the analysis sample.

The factor structure derived in the EFA was then fit to the Time 2 data obtained from the seventh grade teachers ($n = 122$) to verify the generalizability of the factor structure found at Time 1. Weighted least-squares with mean and variance adjustment were used because of the categorical nature of the data (Muthén, du Toit, &

Spisc, 1997). The internal consistency of the factors was determined using Cronbach's alpha score. Multiple-fit indices included the chi-square (c), root mean square error of approximation (RMSEA) developed by Steigler (1990), the comparative fit index (CFI; Bentler, 1990) and the standardized root mean square residual (SRMR). A nonsignificant chi-square and an RMSEA and SRMR < .05 indicate acceptable model fit (Schumacker & Lomax, 2004). The CFI ranges from 0 to 1, with values exceeding .90 indicating a good fit to the data. Four indicators for curriculum application to future careers (future factor) and five indicators for integration of career curriculum (integration factor) were specified in the model. The two factors were allowed to correlate.

Data Collection and Analysis

Sixth grade teachers were administered the CTPS in August at the start of the academic year (Time 1). The same procedure was followed one year later for seventh grade teachers (Time 2). An assistant principal or curriculum coordinator for the school distributed the survey at a faculty meeting and explained the purpose and the voluntary nature of participation. Because 14 schools participated in the research, slight but nonsignificant variations in the procedure (e.g., the type of meeting, location of where they returned surveys) occurred.

Once the factor analyses were completed and a two-factor structure was identified in the EFA and CFA, we pooled the sample of sixth and seventh grade data ($n = 291$) and calculated descriptives, correlations, and reliabilities. Then, based on the demographic and participant data available, an OLS regression was conducted to explore the significance of factors that may be associated with teacher perceptions about career education in core classes. We used the two dependent variables obtained from the factor analyses: curriculum application to future careers and integration of career curriculum. Several independent variables were included in the analysis. Gender was specified as (1 = male, 0 = female), and grade level was entered as (1 = seventh grade, 0 = sixth grade). Subject area taught was coded as a series of dummy variables: (1 = math, 0 = no math), (1 = language arts, 0 = no language arts), and so on for social studies and science. Experience as a teacher was measured in years of teaching and was entered into the model as a continuous variable. Lastly, the level of socioeconomic status of the participating schools was specified using equity plus criteria where 1 = equity plus school, 0 = traditional school. Finally, an item-level analysis was conducted to explore the means of the factor scales on the significant variables from the regression analysis. While the EFA and CFA were both conducted in Mplus 4.0, all other analyses used SPSS 15.0.

Results

Preliminary Analyses

We conducted analyses to ensure that the data from the two groups of teachers (sixth and seventh grade) were commensurate before moving on to the factor analyses and regressions. Grade was cross-tabulated with gender, and the resulting chi-square was nonsignificant, $\chi^2(1, N = 291) = .431$, $p = .512$. The results of the chi-square test for grade and type of school (equity plus or traditional) were also nonsignificant, $\chi^2(1, N = 291) = 1.236$, $p = .266$. We then carried out a one-way analysis of variance using grade as the grouping variable (sixth or seventh grade) and years teaching as the dependent variable. The one-way ANOVA revealed that there were no significant differences in teaching experience between the two groups of teachers, $F(1, 291) = 1.21$, $p = .273$.

Factor Analyses

An EFA was conducted using principal axis factoring with promax rotation. A two-factor solution was identified based on eigenvalues > 1 (Kaiser, 1958) and examination of a scree plot (Catell, 1966). In the first phase of analysis, one item was omitted because it did not load well (above .4) on either of the factors. The final two-factor solution was selected because it had simple structure (Pett, Lackey, & Sullivan, 2003). As presented in Table 1, each row in the matrix contains a near-zero loading, each item has a high loading on only one factor, each column of loadings has only a small number of items with non-zero loadings, and each factor has high loadings for only some of the items.

The first factor contained four items with high factor loadings ranging from .74 to .91. Together these items reflected perceptions about the utility of school and the core curriculum in preparing students for future work (Future). Similarly, items 6–10 also demonstrated high loadings (.63–.96) on the second factor (Integration), as each question focused on the value of illustrating work or careers in the core classroom content. Internal consistency estimates for the Future and Integration factors were $\alpha = .80$ and $\alpha = .88$, respectively. As Table 2 indicates, the CFA with data from the seventh grade teachers demonstrates the same strong factor structure with coefficients that range from .65–.95 on the Future factor and from .69–.92 on the Integration factor. Both the Future and Integration scales have good internal consistency with Cronbach alphas of .75 and .87, respectively. Findings from the EFA and CFA analyses suggest that a two-factor structure of the instrument is appropriate. Despite the consistent findings across the two factor analyses, it should be noted the CTPS

Table 1
EFA Structure and Item Statistics for Time 1 ($N = 169$)

	Factor Loadings			
	Factor 1 (Future)	**Factor 2 (Integration)**	***M***	***SD***
1. An important goal of school instruction is to prepare middle school students for future work.	**.75**	–.02	3.47	.75
2. I encourage students to think about future job possibilities.	**.91**	.03	3.46	.65
3. Students should be taught to apply the knowledge they gain in class to real-life situations.	**.74**	.05	3.75	.51
4. It is beneficial for students to see connections between classroom content and possible future careers.	**.82**	.08	3.63	.58
5. Students are more engaged in school when career content is included in classoom instruction.	.11	**.63**	2.64	.83
6. It is important for students to be exposed to a wide variety of jobs in the classroom.	.05	**.83**	3.22	.74
7. Middle school is an appropriate time to introduce career content into classrooms.	.05	**.87**	3.15	.87
8. Integration of career content into the sandard curriculum is a helpful way to encourage students to consider possible jobs.	–.06	**.96**	3.12	.78
9. It is important for students' future success to get a realistic preview of job possibilities.	.22	**.68**	3.25	.69

Note: EFA = exploratory factor analysis. Unique factor loadings > .40 are in bold. The first two eigenvalues were 5.63 and 1.24. Internal consistency estimates for Factor 1 (Future) and Factor 2 (Integration) are α = .80 and α = .88, respectively.

Table 2
CFA Structure and Item Statistics for Time 2 ($N = 122$)

	Factor Loadings			
	Factor 1 (Future)	**Factor 2 (Integration)**	***M***	***SD***
1. An important goal of school instruction is to prepare middle school students for future work.	**.78**	—	3.52	.71
2. I encourage students to think about future job possibilities.	**.84**	—	3.48	.56
3. Students should be taught to apply the knowledge they gain in class to real-life situations.	**.65**	—	3.84	.37
4. It is beneficial for students to see connections between classroom content and possible future careers.	**.95**	—	3.68	.52
5. Students are more engaged in school when career content is included in classoom instruction.	—	**.69**	2.71	.74
6. It is important for students to be exposed to a wide variety of jobs in the classroom.	—	**.84**	3.16	.65
7. Middle school is an appropriate time to introduce career content into classrooms.	—	**.87**	3.07	.72
8. Integration of career content into the sandard curriculum is a helpful way to encourage students to consider possible jobs.	—	**.92**	3.11	.73
9. It is important for students' future success to get a realistic preview of job possibilities.	—	**.88**	3.30	.68

Note: CFA = confirmatory factor analysis. Entries are standardized coefficients from weighted least squares estimation. All regression weights were significant at $p < .001$. Internal consistency estimates for Factor 1 (Future) and Factor 2 (Integration) are α = .75 and α = .87, respectively.

measures relatively simple dimensions of teachers' views. The results might differ if the instrument probed more deeply, resulting in a different factor structure with more dimensions.

To evaluate model fit, we used several fit indices including the chi-square statistic, which measures the overall fit of the model, as well as several complementary indices including root mean square error of approximation (RMSEA), comparative fit index (CFI), and standardized root mean-square residual (SRMR). The fit indices for the CFA model were very good: $\chi^2(14, N = 122) = 7.45$, $p = 9159$, *RMSEA* = .000, *CFI* = 1.000, and *SRMR* = .037. The nonsignificant chi-square, the RMSEA and SRMR < .05, and CFI > .90 all suggest good model fit (Schumacker & Lomax, 2004).

Table 3 *Descriptives, Correlations, and Reliabilities of Teacher Perspective Factors* ($N = 291$)

Factor	*M*	*SD*	Future	Integration
Future	3.60	0.46	(.78)	
Integration	3.08	0.61	.46	(.87)

Note: Coefficient alphas are in parentheses.

Findings based on the factor structure established for the survey are found in Table 3. Teachers strongly agreed ($x = 3.60$) with the notion that middle school core content is important to prepare students for future jobs and careers. Further, they showed agreement ($x = 3.07$) that integrating information about work and careers into the core curriculum is both appropriate and important in middle school classes.

Regression Analysis and Item Level Analysis

The results of the OLS regression are presented in Table 4. They demonstrate that demographic and school factors influence teacher perspectives about career education in statistically significant, albeit nominal, mean differences on the two factors. Specifically, gender, teaching science, and the economic level of the school were found to be associated with teacher's perceptions on the Future and Integration factors when controlling for the other variables in the model. Whereas being male and teaching science contributed to less agreement on the Future and Integration factors, respectively; teaching in an equity plus school (lower income) contributed to a slight, but statistically significant increase on the Future factor. The means and standard deviations for each of the statistically significant findings in the regression are displayed in Table 5. No significant differences emerged for teaching experience. The item-level analysis reveals that the Future scores were significantly lower among men ($M = 3.48$, $SD = .46$) than among women ($M = 3.64$, $SD = .46$), $t(289) = 2.49$, $p = \leq .01$). There was also a significant difference found between teachers who taught science and those who taught math, language arts, and

Table 4 *OLS Regression of CareerStart Concepts* ($N = 291$)

	Curriculum Application to Future Careers		Integration of Career Curriculum	
	β	***SE***	***β***	***SE***
Sex				
Male	–0.17**	0.06	–0.14+	0.09
(Female)				
Grade Taught				
7th grade	0.08	0.06	0.021	0.07
(6th grade)				
Subject Taught*				
Math	–0.07	0.07	–0.04	0.09
Language Arts	–0.08	0.06	–0.05	0.09
Social Studies	–0.07	0.06	–0.13+	0.09
Science	–0.09	0.07	–0.24**	0.09
Years Teaching	0.00	0.00	0.00	0.00
Type of School				
Equity Plus	0.128*	0.06	0.10	0.08
(Traditional)				

Note: Comparison group in parentheses.
$+ p \leq .10$, $* p \leq .05$, $** p \leq .01$, $*** p \leq .001$

Table 5 *Means of Factor Scales on Select Variables* ($N = 291$)

	Future		Integration	
	M	***SD***	***M***	***SD***
Gender				
Male ($N = 73$)	3.48[a]	0.46	2.97	0.66
Female ($N = 218$)	3.64	0.46	3.11	0.59
Subject				
Social Studies ($N = 75$)	3.57	0.54	3.00	0.65
Other Subjects ($N = 216$)	3.61	0.43	3.10	0.60
Science ($N = 61$)	3.55	0.42	2.91[b]	0.64
Other Subjects ($N = 230$)	3.61	0.47	3.12	0.59
Equity Plus				
Equity Plus School ($N = 89$)	3.69[c]	0.41	3.14	0.67
Traditional School ($N = 202$)	3.56	0.48	3.05	0.58

[a] Difference from female is significant ($p \leq .01$)

[b] Difference from teachers who teach other subjects is significant ($p \leq .05$)

[c] Difference from traditional schools (non-Equity Plus) is significant ($p \leq .05$)

social studies on the Integration factor $t(289) = 2.43$, $p = \leq .05$, with science teachers reporting lower scores. Finally, there was a significant effect for school type $t(289) = -2.2$, $p = \leq .05$, with equity plus schools reporting higher scores than traditional schools.

Discussion and Implications

Conclusions about representativeness of the data should be made with caution, as perspective data were from teachers in one Southeastern school district. Additionally, the partial demographic information available on the sample limited exploration of factors of potential influence (e.g., race/ethnicity). Even so, these data provide a novel, optimistic account of teacher perspectives of career education in middle school as well as a valuable tool for measuring, monitoring, and understanding teacher perspectives of career education.

For example, these data demonstrate high agreement on both the Future and Integration subscales for core teachers in middle school. During the No Child Left Behind era in particular, teachers face additional pressure to enhance test scores. Even in this context, core teachers still confirm the relevance of career education efforts. Perhaps this is related to previous research (Toepfer, 1994) that suggested teachers report increased motivation and interest in school work when students have career-related experiences. With career-integrated curriculum and teacher support, schools are not merely neutral in relation to career development. Teachers that embrace and are engaged in career education instead might be considered contextual affordances (Vondracek, Lerner, & Schulenberg, 1986). Teachers, in particular, are important, as Helwig (2004) demonstrated that teachers have the most impact on students' occupational interests (over parents or school, in general) by the time they reach high school.

"Middle schools present organizational and developmental opportunities that offer students time to explore various careers, professions, and job assignments" (Smith, 2000, p. 629). Smith suggested that middle school curriculum offers goals and objectives that "spawn opportunities for career exploration" (p. 629). While the implementation and fidelity of the middle school model was not assessed in this study, the middle school philosophy may influence these high teacher means. It may be that these middle schools are developmentally responsive for the career development needs of young adolescents. It is also important to note that career integration into the middle grades curriculum applies to all students as a universal intervention, not just those who struggle academically or those who are disengaged.

The statistically significant differences in teacher perspectives based on gender, science, and low socioeconomic school context are not conclusive but worthy of further exploration. One might speculate about women's reasons for going into teaching—being more amenable to change or being more hopeful; but the teacher education literature does not lend any clarity to why female teachers might see more need to connect curriculum to future work. In reference to the data concerning science, the artifact of lower scores for curriculum integration may be a result of local initiatives within the district. An initiative to reform the science education curriculum due to an NSF grant may have influenced teacher perspectives. This result is also difficult to decipher, as middle school teachers in the sample taught more than one subject. This overlap in teaching assignments makes it difficult to conclude how our findings of lower science scores relate to the influence of subject area on perceptions about career education. Although little previous research has examined career infusion by subject area, Johnson (2000) reported that students listed math, then science, language arts, and social studies, respectively, as courses that connected content to the world of work.

Finally, although small in magnitude, findings for teacher perspectives in low-income schools resonate with previous research, and the nonsignificant findings for teacher experience provides optimism. Like GEAR UP, Upward Bound, and other educational and career interventions targeted for low-income and minority students (e.g., Howard & Solberg, 2006), boosting educational and career aspirations often takes into account empowerment, the ecology, and relevance of learning for the future. These data suggest that teachers in this sample of low-income schools (as compared to other schools in the sample) may too embrace the utility of connecting content to future career identities more fully. It may also be useful to note that teaching experience did not result in significant differences. While not intuitive, these data demonstrate that seasoned teachers are as amenable to the infusion of career illustrations into core content as new teachers. Although these factors are not conclusive in these data, investigating moderators in research or mechanisms that may impact the implementation of career educations by teachers is critical.

Conclusion

In his seminal review of career education, Hoyt (2005) noted that career infusion in core courses is important both philosophically (relationship between academics and work) and financially (no special teachers required). Although some schools offer career courses and various

vocational electives, these often only reach a portion of students. "This curriculum integration can help provide relevance for the students as to how what they are learning now can be related to what they may do in the future" (Arrington, 2000, p. 105).

Previous research (Oppenheimer & Flum, 1986) suggests that teachers may rate career education strongly, but these attitudes reveal more complexity, given the multiple definitions of career education and when considering factors such as grade level, school priorities, and overall perceptions about the role of teachers. These data from the CTPS demonstrate that core sixth grade teachers in this sample of middle schools already perceive the importance of career development and the utility of integration. Attending to and supporting the career development efforts of core academic teachers provides a universal influence for all students that has the potential to both promote career development and increase the engagement and relevance of school for students.

Future research needs to examine the usefulness of the CTPS in helping understand the role of teachers in promoting career education and career integration in their schools. This will be particularly helpful with interventions that target teachers' contributions to career development or career-related transitions into high school and beyond. If the components of teacher resistance to or teacher support for career education can be identified, then interventions that might encourage teacher or school-level career explorations and transitions are likely to be much more successful.

References

Ableser, J. (2003). Elementary teachers' attitudes, perceptions and practices towards the implementation of a violence-prevention curriculum: "Second Step." *Journal of School Violence, 2*(4), 81–100.

Akos, P., Konold, T., & Niles, S. (2004). A career readiness typology and typal membership in middle school. *The Career Development Quarterly, 53*(1), 53–66.

Allison, P. D. (2003). Missing data techniques for structural equation modeling. *Journal of Abnormal Psychology, 112*, 545–557.

American School Counselor Association. (2003). *The ASCA National Model: A framework for school counseling programs.* Alexandria, VA: Author.

Arrington, K. (2000). Middle grades career planning programs. *Journal of Career Development, 27*(2), 103–109.

Bentler, P. M. (1990). Comparative fit indices in structural models. *Psychological Bulletin, 107*, 238–246.

Caskey, M. M. (2006). What research says: The evidence for the core curriculum—past and present. *Middle School Journal, 37*(3), 48–54.

Catell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research, 1*, 245–276.

Cook, T. D., Church M. B., Ajanaku, S., Shadish, W. R., Kim, J. R., & Cohen, R. (1996). The development of occupational aspirations and expectations among inner-city boys. *Child Development, 67*, 3368–3385.

Erb, T. O. (Ed.). (2001). *This we believe—and now we must act.* Westerville, OH: National Middle School Association.

Fouad, N. A., & Smith, P. L. (1996). A test of social cognitive model for middle school students: Math and science. *Journal of Counseling Psychology, 43*, 338–346.

Gallivan, N. P. (2003). Decision making, self-efficacy, and the place of career education in elementary school social studies. *The Social Studies Journal, 94*(1), 15–19.

Ginzberg, E. (1952). Toward a theory of occupational choice. *Occupations, 30*, 491–494.

Gottfredson, L. S. (1981). Circumspection and compromise: A developmental theory of occupational aspirations. *Journal of Counseling Psychology, 28*, 545–580.

Havighurst, R. J. (1964). Youth in exploration and man emergent. In H. Horow (Ed.), *Man in a world of work* (pp. 215–236). Boston: Houghton Mifflin.

Helwig, A. A. (2004). A ten-year longitudinal study of the career development of students: Summary findings. *Journal of Counseling and Development, 82*(1), 49–58.

Howard, K. A. S., & Solberg, V. S. H. (2006). School-based social justice: The Achieving Success Identity Pathways program. *Professional School Counseling, 9*(4), 278–287.

Hoyt, K. B. (1975). *An introduction to career education: A policy paper of the U.S. Office of Education.* Washington, DC: U.S. Office of Education.

Hoyt, K. B. (2005). *Career education: History and future.* Tulsa, OK: National Career Development Association.

Johnson, L. S. (2000). The relevance of school to career: A study in student awareness. *Journal of Career Development, 26*(4), 263–276.

Kaiser, H. F. (1958). The varimax criterion for analytic rotation in factor analysis. *Psychometrika, 23*, 187–200.

Kerka, S. (2000). *Middle school career education and development. Practice application brief.* No. 9. ERIC Clearinghouse on Adult, Career, and Vocational Education (ED442 992).

Lent, R. W., Brown, S. D., & Hackett, G. (2000). Contextual supports and barriers to career choice: A social cognitive analysis. *Journal of Counseling Psychology, 47*(1), 36–49.

Lounsbury, J. H., & Vars, G. F. (1978). *A curriculum for the middle school years.* New York: Macmillian.

Muthén, B., du Toit, S., & Spisc, D. (1997). Robust inference using weighted least squares and quadratic estimating equations in latent variable modeling with categorical and continuous outcomes. *Psychometricka, 75.*

National Middle School Association. (2010). *This we believe: Keys to educating young adolescents.* Westerville, OH: Author.

Oppenheimer, B. T., & Flum, H. (1986). Teachers' attitudes toward career education. *The Career Development Quarterly, 35*(1), 34–46.

Osborn, D. S., & Reardon, R. C. (2006). Using the self-directed search: Career explorer with high-risk middle school students. *The Career Development Quarterly, 54*(3), 269–273.

Pett, M. A., Lackey, N. R., & Sullivan, J. J. (2003). *Making sense of factor analysis: The use of factor analysis for instrument development in health care research.* Thousand Oaks, CA: Sage.

School to Work Opportunities Act of 1994, Pub L. No. 103–239, 108 Star. 568 (1994).

Schumacker, R. E., & Lomax, R. G. (2004). *A beginner's guide to structural equation modeling* (2nd ed.). Hillsdale, NJ: Erlbaum.

Smith, A. E. (2000). Middle school career exploration: The role of teachers and principals. *Education, 120*(4), 626–630.

Steigler, J. H. (1990). Structural model evaluation and modification: An interval estimation approach. *Multivariate Behavioral Research, 25*, 173–180.

Super, D. E. (1990). A life-span, life-space approach to career development. In D. Brown & L. Brooks (Eds.), *Career choice and development: Applying contemporary theories to practice* (2nd ed. pp. 197–261). San Francisco: Jossey-Bass.

Toepfer, C. F., Jr. (1994). Vocational/career/ occupational education at the middle level: What is appropriate for young adolescents? *Middle School Journal, 25*(3), 59–65.

Usinger, J. (2005). Parent/guardian visualization of career and academic future of seventh graders enrolled in low-achieving schools. *The Career Development Quarterly, 53*(3), 234–245.

Vondracek, F. W., Lerner, R. M., & Schulenberg, J. E. (1986). *Career development: A life-span developmental approach.* Hillsdale, NJ: Erlbaum.

Author's Note

Patrick Akos is an associate professor in the School of Education at the University of North Carolina at Chapel Hill. Dennis Orthner is a professor in the School of Social Work at the University of North Carolina at Chapel Hill. Pajarita Charles is a recent graduate of the doctoral program in the School of Social Work and Valerie Cooley is a recent graduate of the doctoral program in the School of Public Policy at the University of North Carolina at Chapel Hill.

Inquiries should be sent to Dr. Patrick Akos, Box #3500 – SOE, UNC-CH, Chapel Hill, NC 27599 (pta@unc.edu).