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Mentoring, competencies, and adjustment in adolescents: American part-time employment and European apprenticeships

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Based on the conceptual argument that the European apprenticeship might explain cross-national variability in adolescent adjustment, the current investigation tested the relationships between mentoring experiences, namely joint activities with mentors as well as perceived mentoring behaviors by unrelated adults in the work setting, and measures of both psychosocial competencies (job skills, self esteem, and well-being) and measures of adjustment (alcohol use, drug use, and deviance). Data were collected from n = 2735 Swiss apprentices and n = 368 U.S. part-time employees who attended high school. Findings provide evidence that perceived mentoring behaviors by unrelated adults in the work setting in both developmental contexts were associated with both psychosocial competencies and adjustment indicators. Contrary to the idea that the European apprenticeship may provide a unique "protective" developmental experience for youth in comparison with U.S. adolescents who work part-time, adolescents in both contexts benefited equally from good mentoring experiences.

Keywords: adolescents/youth; cross-cultural/cross-national; developmental context; job skills; mentors; Swiss/Switzerland; USA

Adult mentoring of youth in the workplace is an important predictor of a variety of psychosocial competencies in American youth (DuBois, Holloway, Valentine, & Cooper, 2002), including social (e.g., ethical behaviors), technical (e.g., job skills), and personal ones (e.g., self-esteem; Hamilton & Hamilton, 2004). Though these hypothesized relationships may also be developmentally salient for adolescents universally, no scholarship has directly compared mentoring effects across different developmental contexts – in part related to the assumption that substantial differences exist in educational and occupational structures, and thus, in adolescent experiences. It remains unclear whether U.S. youth experience "positive" mentoring effects as part-time employees while attending high school, certainly in comparison to youth who enjoy a structured apprenticeship. Seminal work by Steinberg and colleagues (Steinberg, Fegley, & Dornbusch, 1993) provides evidence that part-time employment results in elevated rates of problem behaviors due to increased contact with deviant peers and decreased levels of parental supervision. Subsequent empirical work has also provided some evidence that part-time employees were less committed to school and generally lower achievers prior to commencing a part-time job (Steinberg & Avenevoli, 1998). Other studies conducted in the USA also provide evidence that youth may benefit from high-quality jobs if they include mentoring experiences (Staff, Mortimer, & Uggen, 2004), though few studies have been conducted in this area, especially in the USA.

The European apprenticeship

The training and educational experiences of many European youth differ from those of most American youth in two important respects. First, few European adolescents hold down part-time jobs while attending secondary schools, and secondly, many adolescents in central European countries, such as Austria, Germany or Switzerland, complete apprenticeships (Heinz, Kelle, Witzel, & Zinn, 1998). Apprenticeships are formalized training and educational experiences that include on-the-job learning as well as specialized classroom instruction (Hamilton, 1987; Heinz, 1999; Silverberg, Vazsonyi, Schlegel, & Schmidt, 1998). Over two thirds of Swiss youth, for example, complete formalized apprenticeships that last either 3 or 4 years. As part of the educational process, apprentices work 3 or 4 days a week on the job in their selected trade and 1 or 2 days in school.

Common developmental features shared by U.S. part-time employees and European apprentices include job-specific training as well as mentoring by adults. Both face similar developmental challenges as a result of working, namely extended work hours, commuting to and from work, increased contact with same-age peers, and lower participation in community organizations. Though this contributes to segregation of youth from parents and families, it also brings them into closer contact with unrelated adults in the work place – an experience that may instill skills, ideals, and values necessary for successful employment, but also psychosocial competencies (Darling, 2005; Darling, Hamilton, & Shaver, 2003;

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Hamilton & Darling, 1989; Hamilton & Hamilton, 1999). The current study tested whether joint activities with a mentor and perceived mentoring behaviors by unrelated adults were associated with both psychosocial competencies (job skills, self esteem, well-being) and indicators of adjustment (alcohol use, drug use, and deviance) in Swiss apprentices and U.S. part-time employees. The study also addressed whether different educational structures and experiences in these two distinct developmental contexts moderated how mentoring behaviors were important for adjustment indicators.

What is mentoring?

Although a select number of investigations have examined part-time employment effects among U.S. youth as a unique mentoring context, other scholarship has focused on the broader conceptualization of mentoring by unrelated adults and its effect in preventing problem behaviors among youth (Darling, 2005; Darling et al., 2003; DuBois & Holloway, 2002). The latter studies provide evidence that formal mentoring programs can successfully reduce adolescent problem behaviors such as delinquency, but also promote positive ones, such as self-esteem (DuBois & Holloway, 2002). It remains unknown *how* mentoring impacts positive or negative adjustment, and whether developmental contexts moderate such effects. Darling (2005) recently called for scholarship that seeks to understand what mentors do to increase positive development in youth. She also emphasized the necessity of considering contextual effects, such as the workplace.

Previous conceptualizations of mentoring in the workplace have been defined as joint activities, where adolescents work on tasks supervised by competent adults who provide feedback and reinforcement (Hamilton & Hamilton, 2004). Although most U.S. adolescents work part-time during high school (75–90%; Hansen & Jarvis, 2000), great variability exists in the quality of these experiences (Staff et al., 2004). In fact, depending on the type of work that they perform, it is unlikely that all part-time working youth experience a high degree of mentoring. Mortimer and colleagues documented how youth benefit from high-quality jobs that include a high degree of mentoring and how this was associated with positive reinforcements for academic excellence (Staff et al., 2004). Therefore, part-time employment among U.S. adolescents may be beneficial if youth experience a high degree of mentoring or joint activities with adults; however, jobs missing these important features would appear to have little or no impact on work-related performance, skill development, or psychosocial competencies.

European apprenticeships versus part-time work

Similar to U.S. youth, the majority of Swiss adolescents also "work," as over two thirds (70%) complete a formalized apprenticeship based on recent estimates for 2004 (Swiss Federal Statistics Office, 2005). It is important to note that recent trends in Europe include providing more youth with a college preparatory secondary education, similar to the U.S. educational structure. Hamilton and Hamilton (1999) have posited that unrelated adults in central European apprenticeships are vital to adolescents' development, both socially and professionally. They also posited that these adults provide the skills, ideals, and values necessary for the development of both a professional and personal identity, but also of other psychosocial competencies through processes of joint activities (Hamilton & Darling, 1989). Thus, much like their U.S. peers, Swiss youth stand to benefit from high-quality mentoring experiences as part of their apprenticeships, a process that also supports an apparently universal developmental task to individuate from parents and to develop a sense of autonomy (Darling, 2005; Darling et al., 2003; Hamilton & Hamilton, 2004).

Hamilton and colleagues (Hamilton, 1987; Hamilton & Darling, 1989; Hamilton & Hamilton, 2004; Hamilton & Lempert, 1996) and others (Darling, 2005; Darling et al., 2003; Dubois & Holloway, 2002) have proposed that high-quality joint activities impact social (honesty, integrity, and ethical behavior), technical (job skills), and personal (self-esteem) competencies in youth. Hamilton (1990) also suggested that the German apprenticeship model "does a better job of representing to non-college youth the rewards of school achievement and responsible behaviour . . ." (p. 122). This suggests two things, namely that the central European apprenticeship model affects psychosocial competencies in non-college youth and that due to differences across developmental contexts and cultures in educational structures, non-college youth may be differentially guided, perhaps less effectively so. Despite the functional equivalence of the two systems, one potential conclusion is that context-specific mentoring effects may exist for apprentices in Europe, and by implication, few such "positive" effects exist for many U.S. part-time employees. The alternative hypothesis is that because workplace training and mentoring relationships with unrelated adults have similar effects across contexts, few differences can be expected in how perceived mentoring behaviors are associated with psychosocial competencies or with adjustment indicators. Because this important question has never been tested, certainly not across different contexts or cultures, it is largely an empirical one informed by conceptual arguments, one that has important implications for scholarship on mentoring of youth in the workplace by unrelated adults.

Mentoring and psychosocial competencies

A number of studies have tested the impact of part-time employment on adjustment measures in U.S. youth (Greenberger & Steinberg, 1986; Paternoster, Bushway, Brame, & Apel, 2003; Ploeger, 1997; Steinberg et al., 1993; Wright, Cullen, & Williams, 1997; for similar evidence in Finnish youth, see Kouvonen & Kivivuori, 2001). Findings have provided mixed evidence on the effects of part-time employment; however, this body of literature does suggest that part-time employment appears to be both directly and indirectly related to problem behaviors and delinquency.

Recent work has also attempted to further address some of these findings by examining the quality of actual job experiences (Staff et al., 2004; Staff & Uggen, 2003). Part-time employment may be a positive experience to the extent that jobs reinforce school values and expose adolescents to positive role models. Perceived quality of the work experience might simply be related to increased opportunities for joint activities for youth. Thus, youth in high-quality jobs characterized by good mentoring are less likely to engage in delinquent behavior because they adopt conventional values from their mentors. In addition, studies have also established positive mentoring–positive adjustment links; some work has provided evidence that mentoring decreases poor adjustment in youth by

increasing positive adjustment, such as self-esteem (DuBois, Neville, Parra, & Pugh-Lilly, 2002; see also Hamilton & Hamilton, 2004). In conclusion, the empirical evidence implicates mentoring in both positive (e.g., higher self-esteem, overall well-being, greater employment skills) and negative (e.g., alcohol use, drug use, delinquency) adjustment measures.

Study hypotheses

Based both on conceptual work and the empirical evidence reviewed, the following hypotheses were tested in the current investigation.

1. High-quality mentoring (i.e. higher levels of modeling/joint activities with the mentor, adopting the values of the mentor, and high levels of support and supervision by the mentor) will be positively associated with employment skills, self-esteem, well-being, and negatively associated with alcohol use, drug use, and delinquency.
2. Negative mentoring (high levels of dejection and disengagement by the mentor) will be negatively associated with employment skills, self-esteem, well-being, and positively associated with alcohol use, drug use, and delinquency.
3. Being in a Swiss apprenticeship versus a U.S. part-time employment experience will condition developmental processes, namely the patterns of associations between mentoring constructs and both psychosocial competencies as well as adjustment indicators, in that mentoring efforts and experiences will have larger effects in apprentices as compared to part-time employees.

Method

Procedures

Data for this study were collected as part of the International Study of Adolescent Development (ISAD), a multinational, multisite ongoing investigation consisting of youth in different countries (Vazsonyi, Hibbert, & Snider, 2003). A standard data collection protocol was followed in both study locations. It was approved by a university IRB and consisted of a self-report data collection instrument which included instructions on how to complete the survey, a description of the ISAD project, and assurances of anonymity. The questionnaires were administered in classrooms by project staff or teachers who had received extensive verbal and written instructions. This was done to maintain a standardized protocol across all study locations. Students had 1–2 hours to complete the survey. Much attention was given to the development of the survey instrument, particularly by developing new or employing existing behavioral measures that could be used cross-culturally without losing nuances or changing meanings. The survey was translated from English into German and back-translated by bilingual translators. Surveys were examined by additional bilingual translators, and when translation was difficult or ambiguous, consensus was used to produce the final translation.

Participants

The study samples included n = 2735 Swiss apprentices (about 70% male, mean age M = 18.26, SD = 1.73) from a medium-sized city in eastern (German-speaking) Switzerland and n = 877 American adolescents attending a high school in a medium-sized city in the southeastern USA. Single-school convenience samples were selected based on proximity or on existing relationships with school officials. The high school had a total student population of n = 1134; 77% of the students completed the survey. Because the primary goal of this study was to examine the impact of mentoring on adolescent developmental outcomes among adolescents who were employed part-time, a decision was made to only include those adolescents from the U.S. sample who indicated that they had worked in their current job or in a previous part-time job more than 2–3 months. This decision was made to limit the sample to youth who experienced part-time work in a "meaningful" manner, one that lasted a few months during which time they could experience and be affected by a mentor (additional measurement information related to part-time employment experiences available from the first author). Therefore, the final sample included n = 368 adolescents – 33% of the student population (n = 1134), 42% of the total sample (n = 877), and 97% of youth who reported some part-time work (n = 380; 49.6% male, mean age M = 16.6, SD = 1.14).

Demographics and control variables

Age. Age was assessed by asking the participants to indicate the month and year in which they were born.

Sex. Sex was assessed by asking the participants *What is your sex?* Participants were given the following response options: 1 = *male*, 2 = *female*.

Family structure. Family structure was assessed by asking the participants a single question about the number of parental figures that were currently living in their homes. The responses were then recoded as into a dichotomous variable, namely 1 = *traditional, two-biological* parent families, and 2 = *non-traditional* families (for all other structures, including single parent, step parent, cohabitating partner, etc.). Table 1 also includes frequencies of this variable by country. A chi-square test of family structure by context indicated a significant difference between Swiss and U.S. adolescents (χ^2 = 51.92, p < .001), where a higher percentage of Swiss youth reported living in a traditional, two-biological parent family (see Table 1).

Family income. Family income was assessed by asking the participants a single question about how much money their family made each year. Participants rated this item on a five-point scale which included the following response options (CHF = Swiss Franc): 1 = *CHF 30k or less ($20k or less)*, 2 = *CHF 30–60k ($20–35k)*, 3 = *CHF 60–90k ($35–60k)*, 4 = *CHF 90–120k ($60–100k)*, and 5 = *CHF 120k or more ($100k or more)*. Table 1 presents frequencies of this variable by country. A chi-square test of family income indicated that a greater percentage of U.S. adolescents reported incomes in the top two categories than their Swiss counterparts (χ^2 = 89.84, p < .001; see Table 1). This finding is entirely consistent with the well-documented stratified Swiss social structure, where apprentices were likely children of apprentices and thus from lower socioeconomic strata (Buchmann & Charles, 1993).

In an effort to remove potential confounds from analyses, two additional variables known to covary with mentoring variables (Zimmerman, Bingenheimer, & Behrendt, 2006) were

Table 1
Frequencies of family structure and family income by country

	Switzerland N = *2,735*	*USA* N = *368*	χ^2
Family structure			51.92***
Biological parents	80.4	66.1	
Biological mother only	7.1	13.9	
Biological father only	1.5	2.3	
Biological mother and stepfather	3.1	9.3	
Biological father and stepmother	.8	2.4	
Biological parent and significant other	2.2	1.4	
Other	4.9	4.5	
Family income			89.84***
CHF 30K or less ($20K or less)	6.0	7.7	
CHF 30K to 60K ($20K to $35K)	28.7	12.2	
CHF 60K to 90K ($35K to $60K)	36.9	29.1	
CHF 90K to 120K ($60K to $100K)	18.2	32.2	
CHF 120K or more ($100K or more)	10.1	18.8	

***$p < .001$.

assessed and included as controls in subsequent regression analyses, namely a measure of maternal closeness and a measure of academic achievement.

Maternal closeness. Maternal closeness was assessed using the 6-item maternal closeness subscale of the Adolescent Family Process Measure (AFP; Vazsonyi et al., 2003). For example, "My mother often asks about what I am doing in school" and "My mother gives me the right amount of affection." Response choices were: 1 = *strongly disagree*, 2 = *disagree*, 3 = *neither disagree nor agree*, 4 = *agree*, and 5 = *strongly agree*. Reliability coefficients indicated adequate internal consistency: $\alpha = .75$ (Swiss) and $\alpha = .84$ (U.S.) for the subscale.

Academic achievement. A single item was used to assess academic achievement or school grades in both samples. The item asked students to indicate the grades that they usually receive in school. Response choices were (Swiss options in parentheses): 1 = *mostly As (6) and lower*, 2 = *As and Bs (6s and 5s)*, 3 = *mostly Bs (5s)*, 4 = *mostly Bs and Cs (5s and 4s)*, 5 = *mostly Cs (4s)*, 6 = *mostly Cs and Ds (4s and 3s)*, and 7 = *mostly Ds (3s) and lower*. For analyses, responses were recoded, so that a higher value indicated higher grades.

Mentoring variables

Mentoring questions were introduced by the following statement: "Please think about the adult supervisors from your job(s) and rate them on the following items according to this scale." It is important to acknowledge that this introduction assumed that students would think of their "Lehrmeister" (apprentiship supervisor or mentor) for Swiss youth or their current or most important supervisor for American youth.

Mentoring quality. The mentoring quality measure included nine items which assessed the general quality of the mentoring experience by adolescents. Eight items were based on previous work by Hamilton and Darling (1996), while an additional item was added for this study. Although Hamilton and Darling (1996) identified one factor in their analyses, exploratory factor analyses in this investigation provided evidence of two separate mentoring quality constructs (i.e. the two components had eigenvalues > 1.0) that were modestly correlated ($r = .59$ for the Swiss sample and $r = .66$ for the U.S. sample), and thus provided sufficient rationale to compute two separate scale scores to assess mentoring quality. The first construct (five items; see Appendix) was labeled *modeling/joint activities* and assessed the extent to which adolescents learned skills from their mentor (e.g., I learned how to do things by watching this person do them). Scale scores were computed by averaging the items. Reliability coefficients for this subscale were $\alpha = .75$ and $\alpha = .81$ for Swiss and U.S. adolescents, respectively. The second construct was labeled *values* (four items; see Appendix) and described the extent to which adolescents adopted the values of their mentor (e.g., I got a lot of my values from this person). Participants rated each item on a 4-point scale: 1 = *strongly disagree*, 2 = *disagree*, 3 = *agree*, and 4 = *strongly disagree*. Again, scale scores were computed by simply averaging the items. Reliability coefficients for this subscale were $\alpha = .78$ and $\alpha = .84$, for Swiss and U.S. adolescents respectively. Table 2 provides the means, standard deviations, and reliabilities for all study constructs as well as tests of mean level differences across the two developmental contexts.

Mentoring behavior. The mentoring behavior scale included 13 items. It was newly developed for this project by the first author based on previous conceptual work by Hamilton and Lempert (1996); the items operationalized specific mentoring behaviors discussed by the authors. An inspection of item face validity provided some evidence of multiple dimensions of mentoring; thus, exploratory factor analyses were conducted. Two constructs were identified; similar to mentoring quality, the two constructs were only weakly associated, and thus provided sufficient rationale to compute separate scales ($r = .12$ for the Swiss sample and $r = .21$ for the U.S. sample) of mentoring behavior. The constructs included an eight-item measure (*Mentor Support and Supervision*; see Appendix), which assessed perceived adult supervision (e.g., Welcomes my active participation in a decision making process), and a five-item measure which assessed the extent to which participants felt alienated from or rejected by their mentors (*Mentor Dejection and Disengagement*; e.g., Questions things I do and decisions I make; see Appendix). Participants rated each item on a 4-point scale: 1 = *strongly disagree*, 2 = *disagree*, 3 = *agree*, and 4 = *strongly agree*. Scale scores were computed by averaging each set of items. Reliability coefficients indicated adequate internal consistency: $\alpha = .86$ (Swiss) and $\alpha = .91$ (U.S.) on the support and supervision scale, and $\alpha = .59$ (Swiss) and $\alpha = .72$ (U.S.) on the dejection and disengagement scale.

Psychosocial competencies

Job skills. Job skill acquisition was measured by a newly developed 11-item scale for the current project by the first author based on previous work by Mortimer and Shanahan

Table 2
Means, standard deviations, and reliabilities by country

	Switzerland N = *2,735*			*USA* N = *368*			
	M	SD	α	*M*	SD	α	t
Age	18.26	1.73		16.6	1.14		17.93***
Joint activities	3.10	.61	.75	2.90	.64	.81	5.96***
Values	2.58	.72	.78	2.60	.75	.84	.02
Mentor support and supervision	3.26	.80	.86	3.34	.90	.91	–1.81
Mentor dejection/disengagement	2.74	.69	.59	2.86	.80	.72	–2.85**
Job skills	3.04	.64	.89	3.12	.66	.95	–2.17*
Self-esteem	3.57	.64	.65	3.82	.82	.80	–6.74***
Well-being	4.03	.65	.79	4.01	.74	.83	.73
Alcohol use	2.25	.95	.81	2.31	1.21	.90	–1.05
Drug use	2.22	1.14	.90	1.83	1.12	.93	6.02***
Deviance	2.0	.72	.96	1.83	.80	.97	3.78***

*$p < .05$; **$p < .01$; ***$p < .001$.

(1994; five items) and by Loughead, Liu, and Middleton (1995; six items). The scale included 11 items (see Appendix) that measured skill acquisition in a work environment and specific types of skills. Sample items included: While working, I learned to . . . (a) respect authority, (b) talk out my problems, (c) be a leader, or (d) listen to instructions. Participants rated each item on a 4-point scale: 1 = *strongly disagree*, 2 = *disagree*, 3 = *agree*, and 4 = *strongly agree*; scale scores were computed by averaging the 11 items. Reliability coefficients were α = .89 for Swiss adolescents and α = .95 for U.S. adolescents.

Self-esteem and well-being. Self-esteem and well-being were assessed using an abbreviated 62-item form of the Weinberger Adjustment Inventory (WAI; Weinberger, 1998; Weinberger & Schwartz, 1990). The WAI has four separate subscales that measure four internalizing behaviors, part of the distress dimension. For this study, only the self-esteem (seven items; e.g., I usually feel that I'm the kind of person I want to be.) and well-being (seven items; e.g., I enjoy most of the things I do during the week) subscales were used. Each item was rated by participants on a 5-point scale: 1 = *false*, 2 = *somewhat false*, 3 = *not sure*, 4 = *somewhat true*, and 5 = *true*. Scale scores were computed by averaging the items part of each subscale. Reliability coefficients indicated that each subscale was internally consistent in both samples: self-esteem α = .65 (Swiss) and α = .80 (U.S.); well-being α = .79 (Swiss) and α = .83 (U.S.).

Adjustment measures

Alcohol use. Alcohol use was assessed by seven items part of the Normative Deviance Scale, a 55-item measure of deviance (Vazsonyi, Pickering, Junger, & Hessing, 2001). The scale was developed to capture adolescent deviance in a manner that was not culture-bound or specific, and thus also independent of cultural or legal definitions of crime and deviance. Thus, the focus was on items which assessed norm-violations in both developmental contexts. The current study focused on two subscales of the Normative Deviance Scale (NDS), namely alcohol (e.g., Have you ever gotten drunk just to fit in and be part of the crowd?) and drug use (e.g., Have you ever used "hard" drugs such as crack, cocaine, or heroin?), as well as a the total complement of items that tapped vandalism, alcohol use, drug use, school misconduct, general deviance, theft, and assault. Responses for all items were given on a 5-point Likert-type scale which assessed lifetime frequency of behaviors (1 = *never*, 2 = *one time*, 3 = *two-to-three times*, 4 = *four-to-six times*, and 5 = *more than six times*), and scale scores were computed by averaging each item set. The alcohol use subscale was internally consistent in both samples (α = .81 and.90 for Swiss and U.S. samples, respectively).

Drug use. Drug use was measured using the nine-item drug use subscale of the NDS. Again, the scale was internally consistent in both samples (α = .90 and .93 for Swiss and U.S. samples, respectively).

Deviance. Total deviance was assessed by all 55 items part of the NDS. Reliability coefficients were excellent for this measure (α = .96 and .97 for Swiss and U.S. samples, respectively).

Results

In an initial step, associations among demographic variables and the main study constructs were examined in both the Swiss and U.S. samples (Table 3). Age, sex, family structure, and family income were associated with outcome variables (i.e., job skills, self-esteem, well-being, alcohol use, drug use, deviance) in both samples, and thus a decision was made to compute a 4 (Age, Sex, Family Structure, Family Income) × 6 (Job Skills, Self-esteem, Well-being, Alcohol Use, Drug Use, Deviance) multivariate analysis of variance (MANOVA) to test for effects by demographic variables on adjustment measures. Significant multivariate effects were found for Sex (Wilk's Λ = .85, $F(6,218) = 6.21$, $p < .001$) in the U.S. sample, and for Age (Wilk's Λ = .05, $F(5106,8211) = 1.07$, $p < .01$), Sex (Wilk's Λ = .87, $F(6,1367) = 34.18$, $p < .001$), Family Structure (Wilk's Λ = .96, $F(6,1367) = 9.48$, $p < .001$), and Family Income (Wilk's Λ = .95, $F(24,4770) = 3.02$, $p < .001$) in the Swiss sample. Thus, a decision was made to enter these variables as controls in subsequent analyses.

Table 3
Correlations between main study constructs by country

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age	—	.00	.16***	.04*	–.06**	–.10***	–.09***	–.01	–.10***	.03	–.08***	–.02	.12***	.04
2. Sex	–.09	—	–.00	–.10***	.09***	.01	.11***	–.04	.07***	–.17***	.02	–.21***	–.18***	–.26***
3. Family structure	.03	.07	—	–.09***	–.03	–.02	–.05*	.03	–.04*	–.02	–.06**	.11***	.18***	.16***
4. Family income	–.05	–.07	–.39***	—	.05*	.01	.04	–.01	–.00	.12***	.08***	.15***	.13***	.14***
5. Modeling	.02	–.05	–.05	.05	—	.47***	.39***	.18***	.39***	.07***	.16***	–.03	–.06**	–.05**
6. Values	–.04	–.18*	–.06	.11*	.65***	—	.42***	.11***	.46***	.04*	.15***	–.02	–.04*	–.05**
7. Support/supervision	–.10	–.01	.01	.08	.52***	.59***	—	.15***	.48***	.09***	.19***	–.08***	–.09***	–.12***
8. Dejection/disengagement	.03	–.08	.06	–.03	.15**	.13*	–.35***	—	.21***	–.03	–.02	.10***	.06**	.10***
9. Job skills	–.01	.11*	–.07	.08	.40***	.41***	.54***	.09	—	.04	.18***	–.05**	–.08***	–.11***
10. Self-esteem	.06	–.08	–.05	.11*	.22***	.15**	.24***	.00	.21***	—	.48***	.04*	.04*√	.03
11. Well-being	.01	.07	–.05	.11*	.15**	.08	.21***	.00	.33***	.65***	—	–.05**	–.09***	–.12***
12. Alcohol use	.09	–.11*	.13*	.00	–.10*	–.08	–.03	.18***	–.16**	–.13**	–.01	—	.80***	.81***
13. Drug use	.08	–.17**	.17**	–.16**	–.06	–.14**	–.04	–.11*	.14*	–.27***	–.21***	.73***	—	.86***
14. Deviance	.07	–.25***	.13*	–.08	–.15**	–.08	–.13**	.16**	–.36***	–.28***	–.18***	.81***	.89***	—

*p < .05; **p < .01; ***p < .001. Swiss data are above the diagonal, while U.S. data are below.

In an effort to test the hypotheses part of the investigation, a series of hierarchical regression models was tested by country, where mentoring constructs predicted each of the psychosocial competency and adjustment indicators; demographic variables were entered on an initial step as controls. In addition, both measures of maternal closeness and school grades were also included on the initial step as controls due to conceptual and empirical evidence on the importance of considering causally antecedent constructs (e.g., attachment, relationships) salient in the likelihood of mentoring success as well as mentoring effects on developmental outcomes (Zimmerman et al., 2006). Next, the four mentoring constructs (modeling/joint activities, values, mentor support and supervision, and mentor dejection/disengagement) were then entered. This was done as no reason existed for determining an a priori order of entry among the mentoring constructs. Table 4 presents the findings from the regression analyses completed separately by country that focused on psychosocial competencies, while Table 5 presents the findings from analyses on which focused on measures of adjustment. Mentoring constructs were important for each of the competencies in that they explained a significant amount of variance in most cases; though this amount was substantial for job skills, it was very modest, and at times not statistically significant, especially for U.S. youth, for the remaining measures. For job skills, mentoring constructs accounted for 29% of the total variance in Swiss youth and 25% in U.S. youth; for self-esteem, they explained 1% and 2% (non-significant), respectively; for well-being, they explained 2% and 1% (non-significant), respectively. Similar findings were made for measures of adjustment. Mentoring constructs explained 1% of the variance in alcohol use for Swiss youth and 3% for U.S. youth; for drug use, they explained 1% and 2% (non-significant), respectively; for total deviance,[1] they explained 1% and 2% (non-significant), respectively (see Table 5).

A closer inspection of mentoring constructs in the regression analyses indicated that they were generally in conceptually expected directions in both countries. It is important to point out that there were two significant mean-level differences in the mentoring constructs between the samples (Table 2). Swiss students reported significantly higher levels of joint activities/mentoring (d = .32), whereas U.S. adolescents reported greater dejection and disengagement by their mentors, though this latter difference was rather modest in magnitude (d = .16). Despite the mean-level differences, however, joint activities with the mentor, adopting the values of the mentor, as well as mentor support and supervision were positively associated with competencies and with indicators of poor adjustment in both samples. These findings were consistent with the study Hypotheses 1 and 2, though some inconsistencies were also found upon initial inspection. However, rather than focusing on individual regression coefficients and their level of significance in each analysis, a decision was made to focus on a more rigorous statistical test that would address whether the observed regression coefficients differed by developmental context (Hypothesis 3).

Thus, in a final analysis, developmental processes, namely the patterns of associations between mentoring constructs and measures of psychosocial competencies, were compared. For this purpose, a series of z-tests was conducted which compared regression coefficients in the two samples; non-standardized regression coefficients were used as suggested by Cohen and Cohen (1983), as they provide the most conservative test. Because of the large number of comparisons, and the associated risk of type I errors, we used a Bonferroni correction, where the alpha level was adjusted by the number of comparisons made on mentoring variables for each dependent variable, namely four (0.05/4 = 0.0125). Thus, a z score was statistically significant if it exceeded a critical value of z = 2.24. In general, despite some observed differences in magnitudes and

[1] Based on feedback in the review process about the potential confound of combining deviance items with alcohol and drug use questions, an alternative 39-item total deviance construct was developed which did not include alcohol or drug use items. Findings provided evidence that mentoring constructs had similar effects on this revised deviance construct. More specifically, the findings for the Swiss sample were: modeling b = .01, SE = .03, ns; value b = .00, SE = .02, ns; mentor support/supervision b = –.06, SE = .02, p < .01; mentor dejection/disengagement b = .10, SE = .02, p < .001. The effects on the new deviance construct were similar for the U.S. sample: modeling b = –.08, SE = .08, ns; value b = .03, SE = .07, ns; mentor support/supervision b = –.05, SE = .06, ns; mentor dejection/disengagement b = .11, SE = .05, p < .05. In addition, these effects remained invariant across the two developmental contexts (i.e., modeling z = –1.05, value z = .41, mentor support/supervision z = .16, and mentor dejection disengagement z = 0). Thus, results were not materially affected.

Table 4
Hierarchical regression analyses predicting psychosocial competencies by country

	Switzerland N = *2,735*				*USA* N = *368*				
	ΔR^2	*b*	*SE*	β	ΔR^2	*b*	*SE*	β	*z scores*
Job skills									
Control variables	.06***				.13***				
Mentoring variables	.29***				.25***				
Modeling		.15***	.02	.14***		.11	.07	.11	–0.63
Values		.22***	.02	.25***		.10	.06	.11	–2.00
Support/supervision		.22***	.02	.27***		.30***	.05	.40***	1.65
Dejection/disengagement		.11***	.02	.12***		–.06	.04	–.07	–3.83
Self-esteem									
Control variables	.08***				.23***				
Mentoring variables	.01***				.02				
Modeling		.06*	.03	.06*		.07	.09	.05	–0.68
Values		–.02	.02	–.02		–.04	.08	–.03	–0.22
Support/supervision		.04*	.02	.05*		.13*	.06	.14*	1.33
Dejection/disengagement		–.04*	.02	–.05*		–.05	.06	–.05	–0.07
Well-being									
Control variables	.16***				.20***				
Mentoring variables	.02***				.01				
Modeling		.07**	.03	.06**		.02	.08	.02	–0.53
Values		.04*	.02	.05*		–.05	.07	–.06	–1.25
Support/supervision		.06**	.02	.07**		.09	.06	.12	0.58
Dejection/disengagement		–.04*	.02	.05*		–.04	.05	–.04	0.13

*p < .05; **p < .01; ***p < .001. Control variables included age, sex, family structure, family income, maternal closeness, and academic achievement.

Table 5
Hierarchical regression analyses predicting adjustment indicators by country

	Switzerland N = *2,735*				*USA* N = *368*				
	ΔR^2	*b*	*SE*	β	ΔR^2	*b*	*SE*	β	*z scores*
Alcohol use									
Control variables	.12***				.14***				
Mentoring variables	.01***				.03*				
Modeling		.01	.04	.00		–.11	.14	–.06	–0.84
Values		.03√√√	.03	.02		–.14	.12	–.09	–1.36
Support/supervision		–.06*√√	.03	–.05*		.07	.10	.05	1.21
Dejection/disengagement		.13***	.03	.09***		.21*	.09	.14*	0.92
Drug use									
Control variables	.13***				.19***				
Mentoring variables	.01**				.02				
Modeling		–.05	.04	–.03		–.21	.13	–.12	0.39
Values		.05	.04	.03		.14	.12	.09	–0.45
Support/supervision		–.06	.03	–.05		–.11	.09	–.08	0.66
Dejection/disengagement		.10**	.03	.06**		.19*	.08	.13*	–1.15
Deviance									
Control variables	.19***				.29***				
Mentoring variables	.01***				.02				
Modeling		.00	.03	.00		–.10	.08	–.08	–0.01
Values		.01	.02	.01		.02	.08	.02	–0.17
Support/supervision		–.06**	.02	–.06**		–.04	.06	–.05	0.90
Dejection/disengagement		.11***	.02	.10***		.14*	.05	.13*	0.54

*p < .05; **p < .01; ***p < .001. Control variables included age, sex, family structure, family income, maternal closeness, and academic achievement.

significance of individual regression coefficients by context, findings provided no evidence of differences in developmental processes in Swiss versus U.S. samples for self-esteem, well-being, alcohol use, drug use, and total deviance. However, a single mentoring construct differed significantly in magnitude in the prediction of job skills. The dejection/disengagement construct had a statistically significant and larger, though unexpectedly positive, association with job skills in Swiss youth and a non-significant negative one in U.S. youth.

Discussion

The purpose of this study was to test whether joint activities with mentors predicted job skills and additional psychosocial competencies as well as indicators of adjustment in Swiss apprentices and U.S. part-time employees based on two single-school convenience samples, and whether the observed associations between mentoring constructs and measures of adjustment differed by developmental context. Findings provide support for the first two hypotheses, namely that high-quality experiences with mentors were associated with adolescent psychosocial competencies and with measures of adjustment in Swiss apprentices and in part-time employees in the USA. There was also evidence of significant mean-level differences between the two samples for two mentoring constructs, namely joint activities with the mentor, and dejection/disengagement. This suggests that Swiss youth reported being more likely to receive high-quality mentoring experiences in the workplace than were their U.S. counterparts, something that is also not entirely surprising given the purpose and focus of an apprenticeship. Supporting this point, there was also some evidence in the data that U.S. youth reported more dejection/disengagement by adult mentors in comparison with Swiss youth. Based on these findings of mean level differences, some evidence is provided that the Swiss apprenticeship is more likely to provide "good mentoring," and therefore, this also calls for committing both additional efforts and resources to the mentoring process in the context of adolescent part-time employment in the USA.

This is consistent with previous work that has identified high-quality joint activities with mentors in the workplace as important in increasing job skills and psychosocial competencies in part-time workers (Darling, 2005; Hamilton & Hamilton, 2004; Staff et al., 2004). At the same time, and perhaps the most interesting finding of this investigation, and contrary to the third hypothesis based on theoretical predictions by Hamilton and Hamilton (2004) and others, experiences with unrelated adults and mentors seemed to be associated with competencies in a largely invariant manner across developmental contexts – with measures of job skills, with indicators of psychosocial competencies (self-esteem and self-worth) as well as adjustment indicators (alcohol use, drug use, and deviance). Thus, though the central European apprenticeship provides exceptional preparation for specific careers through highly specialized training, perhaps unmatched in terms of skill level (Heinz, 1999), it does not appear to provide a unique mentoring experience for youth in terms of development and psychosocial adjustment as well as job skills most generally construed.

It is important to note, however, that although mentoring constructs were associated in an invariant manner for five measures of positive and negative adjustment, one difference in the magnitude of associations was found in how a single mentoring construct predicted job skills. The effect by mentor dejection/disengagement was significantly larger in the Swiss sample than the U.S. sample. More specifically, the construct was positively associated with job skills and statistically significant in the Swiss sample, whereas it was negative and not significant for U.S. youth. Though apparently counterintuitive that mentor dejection/disengagement would be positively associated with what we termed job skills, it is important to more closely consider how job skills were measured. Being on time, listening to instructions, following directions, and respecting authority clearly tap into conformity to some extent, and thus, it appears to be no surprise that these job skills characteristics would positively covary with "enforces strict rules" or "questions things I do and decisions I make," indicators of the mentor dejection/disengagement construct. In conclusion, the single difference we did find does not appear to be substantial in the face of the overwhelming evidence of similarities. Despite these similarities, it is also worth noting that with the exception of job skills, mentoring constructs explained a very modest additional amount of variance in the remaining five measures of psychosocial competency. At the same time, these small amounts of variance explained were above and beyond demographic variables as well as measures of maternal closeness and school grades. That the 1–2% variance explained reached statistical significance in the Swiss sample, but not in some of the cases for the U.S. sample, may simply be an issue of substantial differences in statistical power. This interpretation is substantiated further by the findings from the follow-up z-tests, where essentially no differences were found across the two distinct developmental contexts.

These findings do not detract from the value of the apprenticeship system widely used in mostly German-speaking, central European countries, nor do they question the inherent systemic advantage apprentices enjoy in transitioning from adolescence to adulthood. Hamilton and Hamilton (1999) have provided a careful and comprehensive analysis of these advantages vis-à-vis how American youth transition from school to work. In addition, there is a great awareness in the USA that youth who do not complete high school or who do not go on to college to complete a degree ("the forgotten half") have little or no job-specific training, and thus skills, that would prepare them for a gainful career as adults. At the same time, it has also become clear that the Germanic apprenticeship system can not be simply imported into the USA and that this educational structure and system can not solve the problems associated with non-college bound youth. At the same time, a number of states (e.g., California, New York, or Pennsylvania) have implemented apprenticeship programs over the course of the past 10 years. For example, California's Division of Apprenticeship Standards (DAS) overseas apprenticeship programs statewide in over 200 professions and reports 1433 active programs which currently serve over 70,000 youth (2004 data), up about 15% over a 4-year period (DAS, 2006).

As the USA continues to lose millions of manufacturing jobs to other countries, where the same labor tasks can be accomplished for a fraction of the costs (and at the same or better quality) as in the USA, these problems of the forgotten half seem to be more relevant than ever as these very individuals and their families are the ones suffering the most from this modern-day transformation of U.S. society. The solution is not readily apparent, as currently, the entire European

continent is rapidly transforming its secondary and tertiary educational structures to mirror ones found in the USA based on the Bologna accord of 1999, while a number of states in the U.S. are rapidly expanding the development and implementation of apprenticeship programs. The changes related to the Bologna accord were initiated to promote in effect interchangeable educational experiences, ones that would facilitate employment of youth and young adults outside their country of origin, but also, ones that are recognized and evaluated similarly across countries. This profound change will also affect the centuries old tradition of apprenticeships in Austria, Germany, and Switzerland, which may be replaced by more generic and broad educational experiences that prepare youth for post-secondary education, and thus, for high-skill jobs in the 21st century. The jury is out, so to speak, and it will be fascinating to witness how these fundamental changes will affect adolescent development.

Limitations

A number of important limitations must be acknowledged. First, the data were based exclusively on adolescent self-reports, and thus, there exist the potential for inflated associations between main study constructs due to shared method variance. Second, the data were cross-sectional and therefore could not address issues of causality or directionality – whether mentoring influenced psychosocial competencies or vice versa, for instance. It is important for future studies to consider the effect of modeling and joint activities on adolescent competencies over time in a longitudinal framework. Third, both samples were convenience samples, and thus, findings cannot be broadly generalized. Fourth, it is important to emphasize that although many of the results of the regression analyses were statistically significant, the amount of variance explained in the outcomes was very small; in addition, perhaps related to sample size, some of the modest amounts of additional variance explained by mentoring constructs, were not statistically significant for the U.S. sample. Fifth, and related to both the timing of data collection in the school year as well as age differences in the educational structure in the two countries, the Swiss sample was about 18 months older than the U.S. sample. Although we used age as a control in analyses, this age difference may nevertheless impact some of the observed findings and their interpretation. At the same time, the difference can not be avoided entirely as Swiss apprentices are between the ages of 16 and 20, whereas U.S. high school students holding down part-time jobs are between the ages of 16 and 18. Sixth, the alpha for the dejection/disengagement scale was low for the Swiss sample which may have affected some of the analyses. Finally, though the study provides new insights about specific mentoring qualities and behaviors in two developmental contexts, more comprehensive conceptualizations of mentoring should be included in future studies.

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Appendix

Mentoring quality
(Hamilton & Darling, 1996)

Modeling/joint activities
Item 1 In most of my jobs, there was an adult who was responsible to directly supervise my work.
Item 2 I learned how to do things by watching this person do them.
Item 3 I acquired knowledge, information, or skills from this person.
Item 4 This person pushed me to do a good job.
Item 5 This person pushed me to do things on my own.

Values
Item 1 I got a lot of my values from this person.
Item 2 This person served as a role model of achievement for me.
Item 3 I admired this person's qualities as a human being.
Item 4 This person gave me constructive criticism.

Mentoring behavior
(new for current study)

Mentor support and supervision
Item 1 Encourages open communication between ourselves.
Item 2 Welcomes my active participation in a decision making process.
Item 3 Cares about my well-being in general.
Item 4 Teaches me to take responsibility for my actions and behaviors.
Item 5 Shows me how to actively resolve conflicts related to work.
Item 6 Points out the differences between individual needs and needs of society.
Item 7 Stresses the importance of sociocultural goals.
Item 8 Looks for harmony, peace, and quiet at work.

Mentor dejection/disengagement
Item 1 Enforces strict rules.
Item 2 Doesn't care much about what I do outside of work.
Item 3 Questions things I do and decisions I make.
Item 4 Makes me feel rejected at times.
Item 5 Manipulates me in what I have to do.

Job skills
(new for current study based on Loughead, Liu, & Middleton, 1995; Mortimer & Shanahan, 1994)

While working . . .
Item 1 I learned to follow directions.
Item 2 I learned to get along with people.
Item 3 I learned to be on time.
Item 4 I learned to be responsible.
Item 5 I learned to manage money.
Item 6 I learned to help others.
Item 7 I learned to be a hard worker.
Item 8 I learned to respect authority.
Item 9 I learned to talk out problems.
Item 10 I learned to be a leader.
Item 11 I learned to listen to instructions