**The Adolescent-Parent Career Congruence Scale:
Development and Initial Validation**

Authors : Dian R. Sawitri, Peter A. Creed, and Melanie J. Zimmer-Gembeck

Affiliation: School of Applied Psychology and Griffith Health Institute,
Griffith University, Australia

<u>Contacts:</u>	Dian R. Sawitri	(dian.r.sawitri@gmail.com)
	Peter A. Creed	(p.creed@griffith.edu.au)
	Melanie Zimmer-Gembeck	(m.zimmer-gembeck@griffith.edu.au)

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Abstract

Although there is a growing interest in the discrepancy between parents and their adolescent children in relation to career expectations, there is no existing, psychometrically sound scale that directly measures adolescent-parent career congruence or incongruence. This study reports the development and initial validation of the Adolescent-Parent Career Congruence Scale. Phase 1 utilised a review of literature, focus groups, and expert feedback to formulate 20 items. In Phase 2, with a sample of 550 students, item and exploratory factor analyses were employed to reduce the number of items to 12, which represented two reliable subscales. In Phase 3, with a second sample of 512 students, confirmatory factor analyses were conducted to test the initial structure. In Phase 4, the construct validity was examined by correlating the total and subscale scores with measures of parental support, living-up-to parental expectations, and life satisfaction. The implications for use in research and practice are discussed.

Keywords: adolescent-parent career congruence, scale development, high school students, parents, career development

Families, especially parents, have a strong effect on the career development of their adolescent children (Whiston & Keller, 2004). One aspect of this influence is captured by measuring whether parents and adolescents agree about the adolescents' career goals and aspirations. Such agreement is not always easy to achieve because it relies on parents and adolescents knowing each other's preferences and communicating them. Agreement should be a correlate of positive career development, as research has shown that when there is agreement between parental and adolescent goals and aspirations, career development for adolescents is more positive (Otto, 2000), and when there are career-direction differences between parents and adolescents, adolescent career development is hampered (Leung, Hou, Gati, & Li, 2011). Although this research is promising, it has been limited because there is no existing, psychometrically sound scale that directly measures parent-adolescent career congruence or incongruence. One existing scale assesses adolescents' capacity to meet parental expectations (Wang & Heppner, 2002), and other scales incorporate aspects of career congruence, such as including dissonance as a barrier to career decision-making (Gati, Krausz, & Osipow, 1996), including capacity to deal with external influence as an efficacious action (Fouad, Smith, & Enochs, 1997), and including congruence as a desirable outcome (McWhirter & Metheny, 2009). The present study reports on the development and initial validation of a new scale that can assess adolescent-parent career congruence.

The Role of Parents in Career Development

Previous researchers have demonstrated the important role of parents in adolescents' career development (Keller & Whiston, 2008). First, parents influence the development of their adolescent children's values, interests, and skills, and have a vital role in the development and maintenance of motivation and effort towards career goals (Duffy & Dik, 2009). For example, Ashby and Schoon (2010) found that parental background and parental educational aspirations were important influences that shaped adolescent career aspirations

and educational performance. Second, parents make a significant contribution to adolescents' career preparation (Perry, Liu, & Pabian, 2009). Previous studies have shown how child-oriented parenting affects career exploration (Mortimer, Zimmer-Gembeck, Holmes, & Shanahan, 2002; Noack, Kracke, Gniewosz, & Dietrich, 2010) and the career decision-making process (Constantine, Wallace, & Kindaichi, 2005). Finally, parents are crucial to helping adolescents establish career goals and aspirations, and central to providing input on how these career goals might be met (Tynkkynen, Nurmi, & Salmela-Aro, 2010). For example, Restubog, Florentino, and Garcia (2010) found that parental support was important in influencing academic persistence, and Young et al. (2001) demonstrated that parent-adolescent communication facilitated career goal-setting and the development of strategies to realise these aspirations.

Parents engage intentionally in various actions to facilitate their children's career development (Young & Friesen, 1992), and have goals themselves about the values they would like their children to develop and the types of lives they would like their children to live (Dix & Branca, 2003). At the same time, adolescents themselves view their parents as dominant references, and hold perceptions of how parents should contribute to their vocational development (Phillips, Christopher-Sisk, & Gravino, 2001). Otto (2000) reported that adolescents perceived their parents as partners in the career development process, and the ones they were most likely to interact with concerning their career issues. Specifically, adolescents consider that their parents should be involved when they make career decisions (Phillips et al., 2001), and when they formulate education and occupational goals (Tynkkynen et al., 2010).

While parents are influential in adolescent career development, and adolescents welcome parental input, the general developmental literature also supports the view that parents and adolescents often differ on expectations and the beliefs they hold about one

another. For example, parents and adolescents differ on the amount of influence they believe that parents should have in making important decisions (Daddis & Smetana, 2005; Zimmer-Gembeck, Ducat, & Collins, 2011), and differ on when parental influences should reduce and adolescent autonomy should increase (Feldman & Wood, 1994); both of which reflect general ways by which adolescents and parents find themselves “not on the same page” (Butner et al., 2009, p. 836). Consistent with this, recent research has shown that, while parental support may facilitate greater career decision-making self-efficacy, the benefit of the support is contingent on the adolescents construing what the parents are doing as support (Garcia, Restubog, Toledano, Tolentino, & Rafferti, 2012). While specific parental guidance could be interpreted as pressure by some adolescents, the absence of parental pressure might be identified as a lack of support by others (Altman, 1997). Given that any environmental variable, such as support, barriers, and resources, might be subject to interpretation by the individual as enhancing or constricting agency in their career development (Lent, Brown, & Hackett, 2000), the intended effect of parental behaviours will be achieved only if the supportive behaviours are perceived in the same way by the adolescent and the parent.

Consistent with Bronfenbrenner’s (1996) ecological systems theory, individuals will be better adjusted and more satisfied in environments that match their attitudes, values, goals, and experiences; that is, they will be more satisfied when there is a fit between themselves and their environment (Swanson & Fouad, 1999). Being congruent with one’s parents on career matters reflects a fit between adolescents and their family environment in this domain. Such a fit is likely to facilitate and foster career development (Duffy & Dik, 2009; Phillips et al., 2001). Incongruity, or lack of fit, on the other hand, which has been identified as a potential external barrier when choosing a career (Gati et al., 1996; Schultheiss, Kress, Manzi, & Glasscock, 2001), has the potential to disrupt career development and contribute to poorer adjustment and well-being in the adolescent (Wang & Heppner, 2002).

Thus, research on the correspondence between the resources provided by parents and the needs of adolescent, or vice versa, and possession of matching characteristics, whether it be conceptualised as adolescent-parent congruence/incongruence, or adolescent/family environmental fit, is an important area. However, there is currently no scale to assess this correspondence. For this area of research to progress, a scale to measure adolescent-parent career congruence is required. The current study was designed to develop an instrument that measures adolescent-parent career congruence, and to test initial validity evidence in relation to other constructs.

Previous Measures of Adolescent-Parent Congruence/Discrepancy

Compatibility between parent and adolescent values, aspirations, and goals has been assessed by previous researchers by asking participants to indicate how closely their ideas agree or disagree with their parents' ideas about the kind of occupation they should enter, how they should prepare for a career, and how they should value education (Otto, 2000). However, no specific instrument has been developed.

Several researchers have included adolescent-parent career disparity items in career indecision measures. These items reflect disapproval by others, and refer primarily to concern over conflicts with significant others regarding a career choice (e.g., Career Decision Scale; Osipow, Carney, & Barak, 1976), a gap between one's career preferences and the preferences voiced by significant others (e.g., Career Decision-Making Difficulties Questionnaire; Gati, et al., 1996), and disagreement with significant others concerning one's career direction (e.g., Korean Career Indecision Inventory; Tak & Lee, 2003). Other researchers have operationalised adolescent-parent career discrepancies as barriers that block preferred career choices (e.g., My Vocational Situation; Holland, Gottfredson, & Power, 1980; and the Career Barriers Inventory; Swanson & Tokar, 1991). Still others have operationalised adolescent-parent incongruity as adolescents' capacity to resist attempts by significant others

to force them into a career that is perceived as unsuitable (e.g., Middle School Career-Decision Making Self-Efficacy Scale; Fouad et al., 1997), or to seek family confirmation of choices being made (e.g., Vocational Outcome Expectations Scale - Revised; McWhirter & Metheny, 2009).

One scale, the Living-up to Parental Expectation Inventory (Wang & Heppner, 2002), was devised to measure how well adolescents were living-up-to their parents' expectations in three domains: personal maturity, academic achievement, and career and personal relationships. The scale generates a living-up-to parental expectation score by subtracting perceived parental expectations from the corresponding perceived adolescent performance rating. The scale was specifically developed for use with Chinese adolescents to assess the unequal roles of adolescents and parents in that culture. However, previous research has shown that children from different cultural heritages are faced with different kinds of parental expectations in adolescence and adulthood, and that living-up-to parental expectations has implications regardless of cultural differences (Oishi & Sullivan, 2005). Finally, a recent study by Hou and Leung (2011) examined discrepancies between the expectations of parents and the aspirations of children according to occupational field, prestige, and gender-type of occupations. Rather than use a scale to measure adolescent-parent discrepancies, the researchers had parents and high school students rate the desirability of 126 occupations, which were evenly spread over the six Holland interest types, and calculated discrepancy scores from these two ratings.

Adolescent-Parent Career Congruence

The fit between an individual and the environment reflects an interactionist perspective (Bronfenbrenner, 1996), which stresses that behaviour is the result of a reciprocal relationship between the individual and the environment. Traditionally, two subdomains have been considered as important components of fit (Kristof, 1996). The first of these is

supplementary fit, which occurs when individuals have characteristics similar to or match those of others in their environment; that is, when individuals perceive themselves to be like others around them, regarding their values, goals, personality, and attitude. The second subdomain is *complementary fit*, which occurs when the individual's characteristics "make whole" the environment, or contribute to what is missing; that is, when individuals provide what the other needs or wants (Cable & Edwards, 2004; Muchinsky & Monahan, 1987; Sekiguchi, 2004). Conceptualising person-environment fit by integrating the complementary and supplementary aspects was used by Kristof (1996) when defining fit in the organisational domain: fit is "the compatibility between people and organisations that occurs when: (a) at least one entity provides what the other needs [complementary fit], or (b) they share similar fundamental characteristics [supplementary fit], or (c) both" (pp. 4–5). We drew on this model when developing the adolescent-parent career congruence scale.

Kristof (1996) conceptualised complementary fit as needs-supplies and demands-abilities fit. First, needs-supplies fit refers to the situation that occurs when the needs of the individual (i.e., in our case, the adolescent) is met by the support from others (i.e., the parents) in the environment. Previous studies have shown that some kinds of parental support are more appropriate than other kinds in enhancing adolescent career development (e.g., Keller & Whiston, 2008); however, how well the support provided by parents fits the needs of the adolescent has not been captured in a scale. Second, demands-abilities fit refers to the state that is achieved when the individual (i.e., again, the adolescent) has the ability to meet the demands of the environment (i.e., meet parent expectations). Many researchers have shown that parental expectations influence the career decisions of adolescents (e.g., Fouad et al., 2008). However, whether the expectations of parents correspond with the adolescents' capacity and attempts to meet them has not been integrated into a scale.

From Kristof's (1996) perspective, supplementary fit refers to the similarity and match of adolescent and parents regarding career interests, plans, goals, and values. Researchers have identified that parents are a major source of knowledge and beliefs about occupations (Bryant, Zvonkovic, & Reynolds, 2006), and young people often report similar ideas to their parents about the preparation needed for occupations, career decision making, and the value of education (Otto, 2000). Discussion between parents and their children potentially enables them to construct a shared perspective about the adolescents' career plans and goals, which can affect the process of choosing a career and deciding on particular pathways (Li & Kerpelman, 2007; Young et al., 2006). However, no existing measure captures the idea of character similarity and correspondence between adolescents and their parents.

The development and initial validation of the adolescent-parent career congruence measure followed a standard pattern for psychometric instruments. A literature review was conducted and focus group discussions were held with high school students. These processes helped ensure that the career congruence issues incorporated in the scale were specific to the experience of the population to be assessed. Feedback on the items was sought from experts to assess their content validity. An item analysis and exploratory factor analysis on one half of our data reduced the number of items from 20 to 12. Confirmatory factor analyses on the second half of our data confirmed the factor structure. The reliability and initial validity of the final measure were then assessed.

Phase 1 - Item Development

The aim of this phase was to generate sufficient items to form the basis for the new scale. The target was to develop approximately twice as many items as might appear in the final scale (Hinkin, 1998; Kline, 2000). Items were generated following a review of the literature (e.g., Kristof, 1996; Leung et al., 2011) and after a series of four focus groups. The

first author, an Indonesian national, conducted the focus groups (two mixed-gender groups, one group of girls only, one of boys only) with 29 Year 10 students (11 boys and 18 girls, aged 15-16 years) from a state high school in Central Java, Indonesia. The aims of the focus groups were to engage with the target participants to enhance the content validity of the scale items and to help validate the key dimensions of the construct (Vogt, King, & King, 2004). The students were asked to discuss their own career aspirations, their parents' aspirations for them, the ways in which their aspirations were consistent with, or different from, their parents' aspirations and expectations, and how these consistencies or differences might affect their career development. The focus groups were audio-taped for later reference.

Following the literature review and focus groups, we generated 30 items, which were written in English, and included both positively and negatively worded items to minimize monotony and response set bias (Schriesheim & Hill, 1981). All items were then shown to four independent reviewers, who had expertise in career development and test development. The independent reviewers were asked to rate the suitability of each item to tap a particular domain of the construct and to comment generally on the items as to their phrasing and readability. Subsequent to this, we removed 10 items that were considered redundant, overlapping, or irrelevant, leaving a final list of 20 items consisting of 15 positively worded items and five negatively worded items.

We used the parallel, back-translation procedure (Brislin, 1986) to convert these 20 items into the Indonesian language. First, the scale was translated into Bahasa by two native Indonesian speakers, who also spoke English. Second, two monolingual Indonesian speakers checked the readability of the translated version of the scale. Third, the scale was back-translated into English by two native Indonesian speakers who also spoke English and who had not read the measures previously. Fourth, the two back-translated versions were compared with the original English version for accuracy of meaning, and inaccurately

translated items were revised. Finally, three Indonesian high school students tested the readability of the final Indonesian language scale.

Phase 2 - Item Analysis and Exploratory Factor Analysis

The aim of this phase was to identify items to be retained in the scale using item analysis and exploratory factor analysis.

Method

Participants. We obtained data from 1062 Year 10 students who were recruited from three middle socio-economic status state high schools in Semarang, Central Java, Indonesia. To avoid sample-specific results from our factor analyses that could potentially affect reliability and validity, and to allow for a cross-validation of results, we followed the recommendations of Byrne (2010), and divided this large sample into two subsamples using a random split procedure. Sample A ($N = 550$) was used for the Phase 2 item analysis and exploratory factor analysis, and Sample B ($N = 512$) was used for the confirmatory factor analyses in Phase 3. Using a cross-validation sample assesses how well the original model can be generalised. If a model can be generalised, then the same set of questions should be capable of assessing the same constructs in other samples (van Prooijen & van der Kloot, 2001). Sample A consisted of 292 girls (53.1%) and 258 boys (46.9%), whose mean age was 15.94 years ($SD = .52$). A large majority (452; 82.2%) reported that they planned to choose the Natural Sciences major in Year 11, 94 (17.1%) planned to choose Social Sciences, and 4 students (0.7%) intended to enrol in the Languages stream. It is usual for most students to select the Natural Sciences as an option for Year 11, as this pathway keeps almost all further education options. Only a small proportion (11.8%) had part-time jobs while at school, which is typical for Indonesian students at high school. Sample B consisted of 286 girls (55.9%) and 226 boys (44.1%), whose mean age was 15.92 years ($SD = .49$). Four hundred and twenty students (82%) reported that they intended to choose the Natural Sciences major in Year 11,

87 (17%) planned to choose Social Sciences, and five students (1%) wanted to choose the Languages stream. A small proportion (10.9%) reported part-time jobs while at school.

We tested to confirm that there were no differences between Sample A and Sample B on any of the demographic variables as a result of the random split. We found no difference on any of the variables, of age, $t(1060) = .46, p = .65$, gender, $\chi^2(1) = .82, p = .37$, school, $\chi^2(2) = 6.93, p = .06$, work experience, $\chi^2(1) = .20, p = .65$, socio-economic status, $\chi^2(4) = 1.71, p = .79$, school achievement, $t(1060) = -.52, p = .60$, and major that would be chosen $\chi^2(2) = .20, p = .65$, indicating no bias in the two samples based on these variables resulting from the random split.

Materials. The 20 items generated in Phase 1 were used in this phase. These 20 items were expected to reflect two domains of congruence, namely complementary congruence (reflecting needs-supplies and demands-abilities congruence) and supplementary congruence (reflecting similarity and match of adolescent and parents). Example items were, “My parents encourage me to explore career areas I am interested in” (needs-supplies congruence), “My parents expect me to pursue a career that is too difficult for me to get into” (demands-abilities congruence), “The career plans I have for myself are similar to the plans that my parents have for me” (supplementary congruence). The adolescents were asked to respond to each item using a Likert-type format, with options that ranged from 1 (*strongly disagree*) to 6 (*strongly agree*).

Procedure. The 20 items were administered in a survey along with scales tapping parental support, living-up-to parental expectations, and life satisfaction, which were used to test for construct validity and are reported in Phase 3. We also collected demographic data on age, gender, socio-economic status, work experience, school achievement, and anticipated study major. The survey was administered by teachers and the first author in class time at school. This study was conducted with approval from the authors’ university ethics

committee. Both parents and students gave their permission for the students to participate. Prior to the data collection, a parent or guardian signed a consent form agreeing to their child's participation in the study, and the child signed his/her own consent form. Children who did not take part in the study were set another activity by the class teacher.

Results

Item analysis. Four indices were used to identify possible items for deletion during item analysis. First, we assessed item skew, to identify any item whose distribution demonstrated floor or ceiling effects. Second, we examined the inter-item correlations to identify any pairs of items that were too highly correlated ($r \geq .80$), which might indicate redundancy. Third, we examined the corrected item-total correlations to identify any items with a weak or negative correlation ($r < .30$) with the total scale, which might indicate items that were not tapping the construct of career congruence. Finally, we compared boys and girls on each item to identify items that might be responded to differently depending on gender (Kline, 2000). In this process, no items were identified as problematic; thus, no items were removed as a result of the item-analysis.

Exploratory factor analysis. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (.91) and statistically significant Bartlett's test of sphericity ($p < .001$) indicated that the 20 items were suitable for factor analysis. As the common variance is of interest in determining the underlying factor structure, we used common factor analysis; that is, principal-axis factor analysis (Hair, Black, Babin, & Anderson, 2010). As the two anticipated factors were expected to be correlated domains of an overall congruence measure, we utilised a direct oblimin rotation (Hair et al., 2010; Reise, Waller, & Comrey, 2000). As recommended by Hayton, Allen, and Scarpello (2004), Kahn (2006), and Patil, Singh, Mishra, and Donovan (2008), we considered a combination of decision rules to determine the number of factors to be retained, including the scree plot, Velicer's minimum average partial

test, parallel analysis (O'Connor, 2000), a minimum of three items loading on a factor (Costello & Osborne, 2005), and the interpretability of the factors (Hinkin, 1998).

In the first exploratory factor analysis, we found that the five negatively worded items, which contained items from both the complementary and supplementary domains, loaded onto a single factor. As this result was likely to reflect a context-dependent item set for the negatively worded items (i.e., the items covary because of an underlying contextual influence, that of negative wording), and not reflect a genuine independent factor (Haladyna, 1992; Higgins, Zumbo, & Hay, 1999), the five items were deleted from the analysis.

In the second exploratory factor analysis with the remaining 15 positively worded items, the scree plot indicated two factors with eigenvalues > 1.0 . Velicer's minimum average partial test and the parallel analysis also suggested a two-factor solution, and, as these two item groupings were interpretable theoretically, two factors were accepted. Subsequent to these analyses, three items were removed from the solution as the factor loadings were $< .4$ and/or less than twice as strong on the appropriate factor as on the other factor (Hinkin, 1998). The remaining 12 items accounted for 57.60% of the variance: Factor 1 = 44.30% and Factor 2 = 13.30%. See Table 1 for factor loadings and eigenvalues.

Consistent with the definition of complementary fit as the compatibility between the individual and the environment, which happens when at least one entity offers what the other needs (Kristof, 1996), high scores on Factor 1 (7 items), named "complementary congruence", reflect the situation where adolescents perceive their needs in exploration, planning, and goal setting to be met by parents, and their perception that parents are satisfied with their progress ($\alpha = .85$, $M = 32.77$, $SD = 5.01$, range = 12-42). Relevant to the concept of supplementary fit as the situation when the individual and others share similar basic characteristics (Kristof), high scores on Factor 2 (5 items), named "supplementary congruence", capture the situation when adolescents believe that they possess similar or

matching perceptions as their parents regarding career interests, values, plans, and goals ($\alpha = .84$, $M = 20.89$, $SD = 4.41$, range = 5-30). The moderate correlation between the two factors ($r = .55$, $p < .01$) was consistent with the results from the exploratory factor analysis. The subscales were independent, although the correlation also showed that there was some overlap between them. The internal reliability coefficient for the full scale was .88.

Insert Table 1 about here

Phase 3 - Confirmatory Factor Analyses

The aim of this phase was to confirm the factor structure of the Adolescent-Parent Career Congruence Scale on Sample B. We tested the factor structure using confirmatory factor analysis, assessed whether the two factors loaded onto a second-order factor, and compared these models with a one factor model.

Method

Participants. We used the 512 students in Sample B in this Phase.

Materials. The 12-Item Adolescent-Parent Career Congruence Scale described in Phase 2 was used in these analyses. The internal reliability coefficient of the full scale with this sample was .87. The scale consists of the complementary congruence subscale ($\alpha = .83$, $M = 32.21$, $SD = 4.81$, range = 14-42) and the supplementary congruence subscale ($\alpha = .80$, $M = 21.24$, $SD = 4.18$, range = 8-30).

Results

We used confirmatory factor analysis (AMOS Version 4.0; Arbuckle & Wothke, 1995) to validate the factor structure of the 12-item Adolescent-Parent Career Congruence Scale identified in Phase 2. Confirmatory factor analysis examines how well the obtained data fit a proposed factor structure (van Prooijen, & van der Kloot, 2001).

Model fit was assessed using the χ^2 value and the associated degrees of freedom, Goodness of Fit (GFI), the Comparative Congruence Index (CFI), Tucker-Lewis Index (TLI),

and the Root Mean Square Error of Approximation (RMSEA), as recommended by Hair et al. (2010). With more than 250 participants and 12 observed variables, a significant χ^2 value is acceptable, with GFI values $> .90$, and CFI and TLI values $> .92$ indicating an acceptable fit to the data. The RMSEA takes into account the error of approximation, with values less than $.07$ indicative of a satisfactory fit. As the χ^2 value is sensitive to sample size, assessing χ^2 divided by the degrees of freedom is also recommended as a measure of model fit, with a ratio of 3:1 or less related to better-fitting models (Hair et al., 2010).

We tested three models (a) a 2-factor model representing the two factors identified in Phase 2, (b) a second-order model, in which a single, second-order latent variable represented the two factors, and (c) a single-factor model where all items were allowed to load onto a single latent variable. In the first model, we tested two factors, in which each cluster of seven and five items identified in Phase 2 was allowed to load freely on its respective latent factor, and the correlations among the two factors were freely estimated. The fit statistics for this model were, $\chi^2 = 108.37$, $df = 42$, $p < .001$, $\chi^2/df = 2.58$, GFI = .98, CFI = .99, TLI = .98, and RMSEA = .04, indicating a satisfactory fit for the data. All factor item loadings were statistically significant ($p < .001$) and ranged from .37 to .87 (complementary congruence), and .56 to .84 (supplementary congruence).

Second-order factors can be used to assess the relationships among factors at the preceding level (Hair et al., 2010), in this case, assessing whether the two latent variables of complementary congruence and supplementary congruence are related in such a way they can be represented by a single congruence construct. The fit statistics for this model were, $\chi^2 = 123.71$, $df = 45$, $p < .001$, $\chi^2/df = 2.75$, GFI = .81, CFI = .99, TLI = .98, and RMSEA = .04. The second-order factor loadings were .98 and .67 ($p < .001$), suggesting that the two congruence subdomains can be considered as factors of a broader congruence domain.

In the third model, we allowed all 12 items to load on a single latent variable to test the possibility of a unidimensional scale, rather than a 2-factor scale. The statistics for this model were, $\chi^2 = 425.57$, $df = 47$, $p < .001$, $\chi^2/df = 9.06$, GFI = .94, TLI = .90, CFI = .93, and RMSEA = .09, indicating a poorer fit. These results supported a 2-factor model over a 1-factor model.

Phase 4: Construct Validity

The aim of this phase was to evaluate the initial construct validity of the scale by correlating scores from the Adolescent-Parent Career Congruence Scale with scores from measures of parental support, living-up-to parental expectations on academic achievement, and life satisfaction. Parental support was expected to be positively associated with the adolescent-parent congruence construct, as parents typically strive to meet the needs of their children and share similar fundamental characteristics and values (Bryant et al., 2006; Whiston & Keller, 2004). Living-up-to parental expectations, which reflects the discrepancies between perceived parental expectations and actual self performance in academic and career domains (Wang & Heppner, 2002), was expected to be positively associated with perceptions of adolescent-parent career congruence as this appraisal is relevant to the congruence between adolescent and parent aspirations, needs, ability, and performance. Finally, we expected adolescent-parent career congruence to be positively associated with life satisfaction, as fitting in with parents should result in positive affect for the adolescents (Oishi & Sullivan, 2005).

Participants

The assessment of construct validity was conducted using the second sample of students, although three cases were deleted as these students did not complete all scales. This left 509 students in the sample for Phase 4.

Materials

Adolescent-parent career congruence. The 12-item Adolescent-Parent Career Congruence Scale was used to assess adolescent-parent career congruence. The internal reliability coefficients of the complementary congruence and supplementary congruence subscales and full scale with this sample were .83, .80, and .87, respectively.

Parental support. The 7-item Parental Influence Subscale from the Career Influence Inventory (Fisher & Stafford, 1999), which was designed for use with high school students, was used to measure parental support. A sample item was, “My parents make me feel that I can succeed in school”. The adolescents were asked to rate each statement on a 6-point Likert-type scale, which ranged from 1 (*strongly disagree*) to 6 (*strongly agree*). The internal reliability coefficient for the full scale has ranged from .87 to .89 (Fisher & Stafford, 1999; Rogers & Creed, 2011; Rogers, Creed, & Glendon, 2008). Fisher and Stafford (1999) reported an internal reliability coefficient of .91 for the Parental Influence Subscale. Associations between the full scale and self-efficacy, outcome expectations, goals, planning, and exploration supported concurrent validity (Rogers & Creed, 2011; Rogers et al., 2008). The internal reliability of the 7-item subscale with this sample was .85.

Living-up-to parental expectations. The Academic Achievement Subscale of the Living-up-to Parental Expectations Inventory (Wang & Heppner, 2002) was used to measure perceptions of whether adolescents thought they were living-up to parental expectations in the academic and career domains. This subscale contains two sets of 9 questions. Students respond to both sets of questions, which tap their perceived parents’ expectations, and their perceived performance in meeting these expectations. Individual discrepancy scores are calculated by subtracting the parent scores from self scores. These scores are then summed to provide a measure of living-up-to expectations, with higher scores indicating higher levels of congruence (Wang & Heppner, 2002). Students were asked (a) how strongly they currently perceived expectations from their parents, for items such as, “My parents expect me to study

hard to get a high-paying job in the future”, and asked (b) to what extent they meet these expectations. Responses to both sets of questions were indicated on a 6-point Likert-type scale that ranged from 1 (*not at all expected/not doing well*) to 6 (*very strongly expected/doing very well*). Wang and Heppner (2002) reported an internal reliability coefficient of .83 and .84 in two samples of Taiwanese undergraduate students. This subscale was negatively correlated with the State-Trait Anxiety Inventory – Chinese version and the Beck Depression Inventory – Chinese version (Wang & Heppner). Recent research reported a reliability coefficient of .83 for this subscale (S. A. Leung, personal communication, July 27, 2011). The internal reliability for the present sample was .84.

Life satisfaction. We used the 5-item Satisfaction with Life Scale (Diener, Emmons, Larson, & Griffin, 1985) to assess life satisfaction. Students responded to questions such as, “In most ways, my life is close to my ideal”, on a 6-point Likert-type scale, which ranged from 1 (*strongly agree*) to 6 (*strongly disagree*). This scale has been found to have excellent applicability to research with adolescents (e.g., Lent, Taveira, Sheu, & Singley, 2009; Lent et al., 2005). Cronbach’s alpha for the scale has ranged from .81 to .91 (Heller, Komar, & Lee, 2007; Lent et al., 2009). It has been shown to be conceptually related to constructs such as happiness, self-esteem, and optimism (e.g., Compton, Smith, Cornish, & Qualls, 1996), and has demonstrated positive correlations with goal progress (Oishi & Diener, 2001) and extraversion (Heller, Watson, & Ilies, 2006), and negative a correlation with neuroticism (Heller, Watson et al.). The internal reliability for the present sample was .73.

Results

All correlations were statistically significant and in the expected directions, as reported in Table 2. The Adolescent-Parent Career Congruence Scale total score was moderately associated with parental support, living-up-to parental expectations, and life satisfaction (range = .24 to .58), and each subscale also showed moderate associations with the same

scales (range = .14 to .58). These associations support construct validity, with students who perceived higher congruence with their parents' values and goals also reporting more parental support, perceiving that they were consistent with what their parents were expecting of them, and being more satisfied with their life.

In a more detail, the moderate correlations between the adolescent-parent career congruence subscales and the parental support measure (complementary congruence = .58; supplementary congruence = .42) demonstrated that, while the adolescent-parent career congruence scales share common variance with parental support, the new scales reflect different constructs.

There was a weaker correlation between the Adolescent-Parent Career Congruence Scale and the Living-up-to-Parental Expectation Inventory ($r = .24, p < .01$), showing that those scales measure related but different types of congruence. The Living-up-to-Parental Expectation Inventory was created using Chinese adolescents and based on Chinese cultural values (Wang & Heppner, 2002), which are characterized by an unequal relationship between adolescents and parents and culturally-specific norms. The scale reflects the idea that adolescent would be optimally congruent with their parents when they live-up-to parental expectations; that is, perform at (norm-based) levels to meet their parents' (norm-based) expectations (e.g., "My parents expect me to perform better than others academically"; "My parents expect me to have excellent academic performance"; "My parents expect me to pursue their ideal careers").

By contrast, and although developed and tested in an interdependent cultural context (i.e., Indonesia), the Adolescent-Parent Career Congruence Scale items were derived from the concept of parents as partners or allies for the adolescents regarding their career development (cf. Otto, 2000). For example, complementary congruence items are based on mutual relationship and agreement between adolescents and parents (e.g., "My parents approve of

the plans I am making for my future career”; “The progress I have made towards my career goals makes my parents happy”), and the supplementary congruence items were based on the idea of similar or corresponding characteristics shared by adolescents and their parents (e.g., “My parents and I have the same way of defining career success”; “The career plans I have for myself are similar to the plans that my parents have for me”). Additionally, some of the items from the Living-up-to Parental Expectation Scale reflect a long-term orientation (e.g., “My parents expect me to share the financial burden of the family”), that might be too far in the future for high school students to contemplate.

The correlation between the Adolescent-Parent Career Congruence Scale and the life satisfaction measure ($r = .36, p < .01$) demonstrated that when participants had a higher level of career congruence with their parents, they were more likely to be satisfied with their lives, as expected.

Insert Table 2 about here

Discussion

This study was designed to devise a reliable and valid instrument to assess adolescent-parent congruence in the career domain. Congruence was defined as the perceived *compatibility* (adolescents perceive parents as meeting career exploration, planning, and goal setting needs, and perceive parents to be satisfied with their career progress), and *similarity* between adolescents and their parents (adolescent perceives that parents possess similar or matching beliefs regarding career interests, values, plans, and goals). The results of the study show that the newly developed 12-item Adolescent-Parent Career Congruence Scale can be used to assess two aspects of congruence, namely complementary congruence and supplementary congruence. Each subscale has sound internal consistency and promising initial validity. The Cronbach alpha coefficients for the subscales were .83 (complementary congruence) and .80 (supplementary congruence), indicating sound internal reliability for the

scale. The moderate inter-correlation between the subscales suggests that they are independent of one another; yet, have overlap in relation to perceived congruence. This overlap was supported by the testing of the factor structure and by the Cronbach alpha coefficient for all 12 items of .87.

Content validity was demonstrated via the item development procedures, use of focus groups, and the use of experts as reviewers to assess the content of the scale items. Construct validity was supported by demonstrating factorial independence, initially with an exploratory factor analysis using the first half of a random split of the full sample, and then with a confirmatory factor analysis and second-order factor analysis using the second half of the sample. Further evidence for construct validity was provided by the significant associations between the Adolescent-Parent Career Congruence Scale and measures of parental support, living-up-to parental expectations, and life satisfaction.

Measuring adolescent-parent career congruence is particularly important as many studies have shown an association between correspondence with parents and positive outcomes for their children (Duffy & Dik, 2009; Phillips et al., 2001). An adequate measure of this construct will allow researchers to assess correspondence between adolescent and parents in the career domain. This will be helpful when designing research studies, and provide a boost for research in this area, which has been hindered by the lack of an adequate scale. At 12 items (7-item for complementary congruence, and 5-item for supplementary congruence), the Adolescent-Parent Career Congruence Scale will be practical and convenient to use with other measures in future research. The scale will be useful to career counsellors who work with young people on their career development issues, and useful to those who design interventions to assist adolescents to optimize their career development.

Having the capacity to assess two subdomains of adolescent-parent career congruence will be an additional benefit for researchers and practitioners who want to assess adolescent-

parent career congruence. The complementary congruence subscale will provide an assessment of how well the adolescent perceives his/her needs to be met by parents in the career domain and, reciprocally, perceptions of how satisfied the parents are with the adolescent's career progress; and the supplementary congruence subscale will reflect perceptions of similarity in beliefs and orientation between the adolescent and the parents.

Limitations of this study offer some prospects for future research. First, we developed the scale with Indonesian high school students. Despite there being differences in individualism and collectivism at the community level between Eastern and Western cultures that will affect and influence the degree of congruence between parents and their adolescent children, there will be different degrees of individualism and collectivism at the family and the individual level (Triandis, 1989). These family and individual differences operate as important influences affecting behaviour in all domains, including the career domain, and warrant testing. The Adolescent-Parent Career Congruence Scale, thus, has applicability in Western as well as eastern cultures, and needs to be tested on other, more diverse, populations to confirm the findings of the present study.

Regarding validity evidence, there were moderate correlations between the Adolescent-Parent Career Congruence subscales and life satisfaction. This is consistent with the idea that engagement in culturally appropriate behaviours leads to positive feelings (Oishi & Diener, 2001), which might occur in both Eastern and Western cultures (Oishi & Sullivan, 2005). Individuals from an interdependent culture seek to fit in, to stress conformity, and to develop a sense of connection, especially with significant others, and in particular, their parents. In this context, their well-being will depend, in part, on how well they achieve this relational cultural task (Oishi & Diener, 2001; Uchida, Kitayama, Mesquita, Reyes, & Morling, 2008). In independent cultural contexts, adolescent satisfaction might depend more on how well they seek to affirm positive internal attributes of the self, rather than please

others; however, this affirmation of the self also relies on the relationships developed and maintained with parents (Uchida et al., 2008). Thus, when testing the validity of the Adolescent-Parent Career Congruence Scale across cultures, these differing cultural influences could be tested.

Second, we investigated content validity and construct validity in this study. Further research could focus on establishing the predictive validity of the Adolescent-Parent Career Congruence Scale; for example, by testing the associations between students' career congruence with their parents and career-related outcomes. Finally, the present research supports the feasibility of developing an adolescent-parent career congruence scale. Given that academic achievement is closely related to career development, and considered to be important for adolescents, it may prompt interested researchers to develop a similar scale for the academic domain.

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Table 1

Factor Loadings for Adolescent-Parent Career Congruence Scale; Sample A (N = 550)

Items		Factor 1: Complementary Congruence	Factor 2: Supplementary Congruence
1.	My parents encourage me to explore the career areas I am interested in	.81	-.03
2.	My parents support me in my career plans	.74	-.05
3.	My parents show me how to get the information I need for my career interests (e.g., go to career exhibition, see someone)	.67	-.05
4.	My parents approve of the plans I am making for my future career	.63	-.11
5.	The progress I have made towards my career goals makes my parents happy	.62	.07
6.	My parents help me to explore my career interests (e.g., by buying me books, taking me to career fairs)	.58	-.16
7.	My parents are satisfied with the effort I have put in so far to achieve my career goals	.51	.07
8.	My parents want the same career for me as I want for myself	-.10	-.82
9.	My parents and I have similar career interests	-.07	-.79
10.	The career plans I have for myself are similar to the plans that my parents have for me	.15	-.68
11.	I am interested in the career areas that my parents expect me to enter	.09	-.66
12.	My parents and I have the same way of defining career success	.23	-.49
Eigenvalues		5.32	1.60
% variance explained		44.30	13.30

Note. Main loadings highlighted in bold.

Table 2

Summary Data, Bivariate Correlations, and Cronbach Alpha Levels for the Adolescent-Parent Career Congruence Scale, Parental Support Scale, Living-Up-to Parental Expectations Scale, and the Life Satisfaction Scale; N = 509

Scale	<i>M</i>	<i>SD</i>	Range	α	1	2	3	4	5	6
1. Full scale: Adolescent-Parent Career Congruence Scale	54.41	7.91	24-72	.87	-					
2. Subscale 1 (Complementary Congruence)	33.19	4.80	14-42	.83	.90	-				
3. Subscale 2 (Supplementary Congruence)	21.22	4.18	8-30	.80	.86	.55	-			
4. Parental Influence Subscale	35.37	3.86	21-42	.85	.58	.58	.42	-		
5. Living-up-to Parental Expectations – Academic Achievement	-7.86	6.05	-29-36	.84	.24	.27	.14	.15	-	
6. Life Satisfaction Scale	19.82	3.70	8-30	.73	.36	.27	.36	.28	.22	-

Note. All correlations significant at $p < .01$