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The Co-Development of Generativity and Well-Being into Early Late Life

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The preregistration for this project can be accessed at <https://osf.io/syp2u>. The data, code, and output for this manuscript can be found at <https://osf.io/z7x89/>. Preliminary well-being data from this manuscript were presented in a talk given at the 2018 meeting of the Gerontological Society of America as well as posters presented at the 2017 and 2019 American Psychological

Association convention, the 2018 Canisius College Ignatian Scholarship Day, and the 2018 Social Psychologists of Western New York conference.

Abstract

The current manuscript replicates and extends the few existing studies of generativity in later adulthood with regard to two aims: (1) to model individual differences in the development of generativity into early late life and (2) to quantify the relationship between development in generativity and development in well-being into late midlife and early older adulthood. Data from the Rochester Adult Longitudinal Study (RALS) are used to address these aims in a preregistered secondary analysis of existing RALS data (see <https://osf.io/syp2u>). Analyses quantify individual development of generativity in a sample of 284 RALS participants who completed the Loyola Generativity Scale (LGS; McAdams & de St. Aubin, 1992) and the Psychological Well-Being Scale (PWB; Ryff, 1989a) during the most recent two waves of the RALS (2000 – 2012). Both generativity and well-being demonstrated substantial rank-order stability and mean-level change as well as individual variability on both. Dual score change models showed a robust concurrent relationship between both constructs at the first assessment and meaningful correlated change between generativity and well-being over time. While demographic covariates were not associated with study findings, one of the most important limitations of the RALS is the racial and ethnic homogeneity of the sample that constrains generalizability to other racial and ethnic groups. Results are discussed in the context of our current understanding of the development and impact of generativity in later adulthood and directions for future research in this area are identified.

Keywords: generativity, well-being, aging, bivariate change model, individual stability

The Co-Development of Generativity and Well-Being into Early Late Life

Generativity is usually associated with midlife and captures the extent to which adults are willing to ensure the well-being of future generations through showing their care for society in prosocial ways. For example, generativity can be demonstrated through parenting, volunteering, spreading social values, participating in community activities, having a role in intergenerational activities, mentoring, being productive and creative, and showing a commitment to environmental preservation. Generativity is considered a core aspect of adult development independent from other Eriksonian psychosocial tasks (McAdams & de St. Aubin, 1992). Studies that focus on generativity have provided valuable insights on midlife development (e.g., Blatný, Millová, Jelínek, & Romaňáková, 2019; Bradley & Marcia, 1998; James & Zarrett, 2005; Malone, Liu, Vaillant, Rentz, & Waldinger, 2016; Westerhof, Bohlmeijer, & McAdams, 2017) but Eriksonian (Erikson, 1982) and neo-Eriksonian theory (Schoklitsch & Baumann, 2012) posit the continued development and importance of generativity throughout the lifespan. However, most research has, to date, been largely limited to midlife samples, with little evidence for the trajectory and impact of generativity in later adulthood.

The present manuscript uses data from the Rochester Adult Longitudinal Study (RALS) to add to our emerging understanding of the patterns, mechanisms, and consequences of generativity development from midlife into early older adulthood. The RALS is a sequential study that has provided decades of contributions to the scientific understanding of Eriksonian psychosocial development in adulthood. Prior analyses of the RALS center on the development of each of the Eriksonian stages measured with the Inventory of Psychosocial Development (Constantinople, 1969; e.g., Whitbourne, Sneed, & Sayer, 2009) and the association of identity and intimacy with general satisfaction with life (Sneed, Whitbourne, Schwartz, & Huang, 2012). The current project builds on this work by examining previously unexamined and newly-

available data from the RALS. Specifically, we examine the Loyola Generativity Scale (McAdams & de St. Aubin, 1992) and the Psychological Well-Being Scale (Ryff, 1989a) in three cohorts (Cohort 1, mean age 68 at time 2; Cohort 2, mean age 57 at time 2; Cohort 3, mean age 45 at time 3) during the most recent two waves of the RALS (2000 – 2012). While we are not able to conduct the complex growth analyses more than two time points would permit, this two-time point design does allow important understanding of the development of generativity through the testing of two preregistered aims:

Aim 1. Model Individual Differences in the Development of Generativity over Time

The first aim of this manuscript is to model the development of generativity over two time points into early older adulthood. While traditionally considered to be a focus of midlife development, research has suggested that “the predominance of generativity may not be confined to midlife” (Versey & Newton, 2013, p. 2) with young adults, as well as older adults, also showing generativity. While Erikson himself outlined that each of the eight stages in his model had a specific period of predominance, he also theorized that they were all present at all times throughout the lifespan; if not prominent, they were being pre-worked or re-worked. Indeed, cross-sectional evidence on the centrality of generativity at different points in the lifespan is mixed. Some cross-sectional evidence links generativity with a peak in middle adulthood (McAdams, de St Aubin, & Logan, 1993) while others suggest generativity is unrelated to age (Cox et al., 2010). Thus, we take the view that resolution of one stage before moving to the next is not perhaps the central tenet of Erikson’s model, but that the revisiting or dominance of the stage at certain times in life is elicited by certain social contexts. For example, the presence of generativity in younger adulthood may be associated with proximal family issues, whereas its presence in later adulthood can be tied to distal social roles, such as volunteering (MacDermid,

Franz, & DeReus, 1998). Additionally, Josselson (2003) felt that, at least for women, there were no definable stages: “Each woman fits these pieces in place in a sequence and pattern different from those of another” (p. 433).

Longitudinal evidence indicates that, like other personality constructs, generativity demonstrates both rank-order stability (Einolf, 2014; MacDermid, De Haan, & Heilbrun, 1996; Peterson, 2002; Whitbourne, Zuschlag, Elliot, & Waterman, 1992) and mean-level change throughout life (Einolf, 2014; Whitbourne et al., 2009). Patterns of rank-order stability in generativity follow the cumulative continuity principle of personality development (Roberts & Mroczek, 2008), showing greater rank-order stability with age (MacDermid, De Haan, & Heilbrun, Adult Dev, 1996). Prior longitudinal research from the RALS using data from the Inventory of Psychosocial Development indicates that generativity normatively increases across three time points from college to midlife (Whitbourne et al., 2009). However, findings from the National Survey of Midlife in the United States (MIDUS) indicate that generativity demonstrates a mean-level decrease over ten years as individuals enter later adulthood (Einolf, 2014) and findings from the Oakland Growth and Berkeley Guidance and Control Studies suggest no significant change in generativity in late midlife (MacDermid et al., 1996).

We hypothesize that we would replicate prior longitudinal research that has found rank-order stability in the LGS and some mean-level change in generativity. Further, the present manuscript extends this prior work by using latent change models to model mean-level change as well as individual stability coefficients (Asendorpf, 1992; Löckenhoff et al., 2008; Lodi-Smith, Spain, Cologgi, & Roberts, 2017; Terracciano, McCrae, & Costa, 2010). This analytic approach allows us to not only quantify normative development but also individual differences in both stability and change over time.

An important contribution of this individual differences approach is that it facilitates testing potential demographic covariates of the development of generativity over time into early late life. Research on generativity suggests that, as with the development of personality in general, demographic factors and social role context may be important determinants of generativity across the lifespan (Blatný et al., 2019; Cheng, Chan, W., & Chan, A. C. M., 2008; Cox et al., 2010; Einolf, 2014; MacDermid et al., 1996; Peterson, 2002; Versey & Newton, 2013; Whitbourne et al., 2009). The individual differences approach of the present paper allows us to test how cohort, age, gender, job prestige, relationship status, and parental status relate to the measurement and development of generativity over time. We anticipate replicating prior evidence for the impact of demographic variables on generativity development.

Aim 2. Quantify the Relationship between Development in Generativity and Development in Well-Being over Time

The individual difference analytic approach to modeling the development of generativity also facilitates the examination of the co-development of generativity and well-being into early late life. Erikson's writings highlighted generativity and care as main themes in late adulthood. Theoretically, achieving generativity and wisdom are linked to successful aging (Baltes & Baltes, 1990). If generativity is not achieved, adults will experience stagnation, which can be defined as "a sense that they cannot produce or generate and that their lives are not having the positive impact on others that they wish they might" (McAdams & Logan, 2004, p. 16). A robust body of evidence clearly supports the link between generativity and well-being in midlife (McAdams et al., 1993; Stewart, Ostrove, & Helson, 2001; Villar, Lopez, Celdran, 2013) and even into later adulthood (Fisher, 1995; Gruenewald, Liao, & Seeman, 2012; Navarro-Prados, Serrate-Gonzalez, Muñoz-Rodríguez, & Díaz-Orueta, 2018; Newton, Chauhan, & Pates, 2019;

Versey & Newton, 2013). A sense of stagnation and lack of involvement is even the focus of therapy for older adults (Schoklitsch & Baumann, 2012).

In her work on psychological well-being, Ryff (1989b) was intentional that the subscales of positive relationships with others, purpose in life, and personal growth scales were related to generativity. However, Ryff (1989b) also outlined other theoretical bases for the development of the Psychological Well-Being Scale and its subscales; thus, Erikson's concept of generativity is a foundation concept for psychological well-being and understanding the co-development of these important measures of psychosocial function in adulthood will provide valuable theoretical insights and developmental information on these core aspects of psychosocial maturation.

This project aims to replicate and extend previous cross-sectional evidence for the relationship of generativity and well-being over time by modeling how the development of generativity corresponds to the development of well-being into early late life. Bivariate latent change models allow us to estimate four relationships between generativity and well-being across two time points: (1) the concurrent relationship between generativity and well-being in 2000; (2) the prospective association of the initial level of generativity in 2000 with change in well-being; (3) the prospective association of the initial level of well-being in 2000 with change in generativity; and (4) the correlated change of generativity and well-being from 2000 to 2012.

We hypothesize that each of these effects would be moderate in size. Additionally, the integration of individual stability coefficients allows us to model how individual stability of generativity is associated with stability and change in well-being and vice versa. We anticipate that stability itself is independent from mean-level change and is itself a marker of adaptive function in later life and thus should also demonstrate moderate effects.

Overview

The present manuscript takes an individual differences approach to the development of generativity using data from the RALS to identify normative developmental patterns of generativity from young adulthood into later life as well as the demographic covariates of variability in these patterns. Further, this manuscript examines the co-development of generativity and well-being in this sample. This manuscript therefore provides a novel empirical conceptualization of the development of generativity and its impact on well-being into later adulthood.

Method

Participants

Participants in the RALS are University of Rochester alumni who graduated in 1965-68 (Cohort 1), 1976-77 (Cohort 2), and 1988-89 (Cohort 3). The only inclusion criteria for participation in the initial wave for a given cohort was that participants were undergraduates at the University of Rochester at the time of the initial data collection for that cohort. The only inclusion criteria for participation in subsequent waves was participation in the initial wave of assessment for the cohort and the availability of contact information from the participants. There were no exclusion criteria within these inclusion parameters for the general RALS assessments. The 2000-02 (Cohort 4) RALS participants were not included in the current manuscript as they did not complete either of the focal measures during their first wave of assessment. The analyses described below were only conducted on that subset of RALS participants who completed assessments in 2000 and/or 2012. All data collection efforts adhered to APA ethical guidelines. The Canisius College Institutional Review Board protocol 2017-18#23 covers the archival analysis of Rochester Adult Longitudinal Study data.

From these criteria, 269 RALS participants were included in the present analyses. This represents 22% of the original 1224 RALS participants from all 4 cohorts and 29% of the 937 participants from Cohorts 1, 2, and 3. Of the 348 original participants of the first cohort, 127 are included in the present analyses. For the 298 members of Cohort 2, 82 are included in these analyses. Sixty of the original 291 participants from Cohort 3 are included in the present analyses. Attrition in the RALS has largely been due to loss of contact information over the years (Whitbourne et al., 2009) though advances in online resources are helping to reestablish contact with participants. For all cohorts, the most recent wave of assessment was completed between 2012 and 2014 when Cohort 1 participants were in their 60s ($M = 67.73$, $SD = 1.28$, range = 65 - 71), Cohort 2 participants were in their 50s ($M = 56.78$, $SD = 1.23$, range = 54 - 60), and Cohort 3 participants were in their 40s ($M = 45.47$, $SD = 2.54$, range = 42 - 58). The sample is 48% female. For the 259 participants who provided data on race and ethnicity, 98% reported being Caucasian. These demographic characteristics are comparable to the general demographics for the RALS available on the RALS Repository (Lodi-Smith, Baranski, & Whitbourne, 2019). Because of the very few racial minorities in the sample ($n = 4$), this information cannot be used as a demographic covariate and is not included in the publically available OSF data set as there is a strong potential for participant identification based on this demographic variable. Attrition analyses indicate that, relative to excluded participants, participants included in this sample were slightly older when they first participated in the RALS during college and were more likely to be from Cohort 1. It may also be important to note that, where the information was available, participants included in the present sample reported higher levels of generativity during college than those who are not in the current sample; however, in this analysis, generativity was measured by the Inventory of Psychosocial Development (Constantinople, 1969) and was only

assessed in Cohorts 2 and 3. Details on these analyses are available in supplementary materials archived at <https://osf.io/z7x89/>.

Measures

Generativity. Generativity was measured with the Loyola Generativity Scale (LGS; McAdams & de St. Aubin, 1992). Participants who take the LGS rate how well 20 statements describe them (e.g., “I try to pass on the knowledge I have gained through my experiences”) on a 4-point Likert scale (0 = never, 3 = almost always). Six items on the Loyola Generativity Scale are reverse scored. Generativity at each time point was specified using three parcels of items via the item-to-construct balancing technique (Little, Cunningham, Shahar, & Widaman, 2002) to help ensure robust model fit for subsequent models.

Well-Being. The Psychological Well-being Scale (Ryff, 1989a) measures participants’ sense of well-being with 54 items summarized across six subscales: self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth. All questions are rated on a 6-point Likert scale from “strongly disagree” (1) to “strongly agree” (6). Questions include: “In general, I feel confident and positive about myself” (self-acceptance); “Maintaining close relationships has been difficult and frustrating for me” (positive relations with others-reversed); “My decisions are not usually influenced by what everyone else is doing” (autonomy); “The demands of everyday life often get me down” (environmental mastery-reversed); “I have a sense of direction and purpose in life” (purpose in life); and “I enjoy seeing how my views have changed and matured over the years” (personal growth). Participants completed this measure at both waves of the RALS included in this analysis. The six subscale scores were used to calculate three parcels that served as manifest indicators of the higher-order latent well-being factor used in latent change models. Supplementary analyses archived at

<https://osf.io/z7x89/> examine the co-development of generativity and each of the subscales of well-being.

Social role status covariates. Job prestige, relationship status, and parental status were computed following procedures described in Whitbourne et al. (2009) to create dichotomous indices of each social role status variable. Job prestige data were based on Nakao-Treas job prestige codes with 143 (55%) being in high prestige jobs at the first wave of assessment. Of the 162 people who provided information about their relationship status, 68% were in a committed romantic relationship. Sixty percent of the 142 participants who reported on their parental status had children at the first assessment.

Analysis

Analyses are based on our prior bivariate development work (Lodi-Smith et al., 2017) as well as a recent paper on latent change models (Kievit et al., 2018) and are guided by the texts of Enders (2010), Little (2013), and Preacher, Wichman, MacCallum, and Briggs (2008). Each analysis builds on successful completion of the preceding analysis. Model fit comparisons were evaluated by comparing comparative fit indices (CFI) and root mean square error (RMSEA) with acceptable fit thresholds of .95 and .08 (respectively). Effect size was interpreted based on current guidelines in the field (Funder & Ozer, 2019). Analyses were conducted in *R* (*R* core team, 2018). General power computed with the *pwr* package (Champely, 2018) indicates that the identified sample was able to detect small to moderate effects ($d = .28$ and $r = .20$) with power of .90 and p thresholds at .05. This suggests that the present sample is powered to detect prior findings of high rank-order stability in generativity ($r = .61$, Einolf, 2014) but that prior modest mean-level change and demographic differences ($d = .02 - .28$) may not be statistically significant in this sample. Missing data are imputed with maximum likelihood estimation in

lavaan (Rosseel, 2012). The data, code, and R Markdown output for this manuscript can be found at <https://osf.io/z7x89/>.

Measurement invariance. Determining measurement invariance of a measurement model is an essential precursor to testing the primary aims of the manuscript. Measurement invariance tests the extent to which loadings of manifest parcels on the higher-order latent construct are equivalent between waves of assessment, cohort, gender, and role status variables. Supplementary results available at <https://osf.io/z7x89/> indicate assumptions of measurement invariance in the underlying measurement model hold and that observed differences can be attributed to actual differences in the scales and not due to differential parcel functioning.

Individual stability coefficient. Individual stability coefficients (Löckenhoff et al., 2008) between each time point quantify individual differences in the stability of generativity and well-being. The individual stability coefficient is computed as:

$$Ipa = \frac{1 + 2M^2 - d^2}{\sqrt{10}}$$

where M is the mean of the standardized scores for a given participant across the two waves of assessment and d is the difference between these two standardized scores.

Latent change models. Latent change models define the normative trajectories of generativity and well-being into early late life in the sample as well as quantify variability in these trajectories. While they are not as robust as models that include more than two time points, latent change models provide important information on individual differences in change over the two time points, allowing for tests not just of patterns of change but of mechanisms and outcomes of change. In addition, bivariate latent change models allow us to estimate four relationships between generativity and well-being over time: (1) the concurrent relationship between generativity and well-being in 2000, (2) the prospective effect of the initial level of

generativity in 2000 on change in well-being, (3) the prospective effect of the initial level of well-being in 2000 on change in generativity, and (4) the correlated change of generativity and well-being from 2000 to 2012. A visualization of this model can be seen in Figure 1.

Additional covariates. Cohort, gender, and social role status (job prestige, relationship status, parental status) are included as covariates in the latent change models. Age was used instead as a covariate in latent change models, since cohort and age were confounded and age is the more continuous of the two variables. These variables were modeled as covariates rather than as moderators, given the relatively small sample sizes when subsetting the data into specific demographic groups.

Results

Developmental Patterns

Table 1 provides an overview of the basic descriptive statistics for generativity and well-being at both time points. It also shows the normative pattern of both high rank-order stability and robust mean-level change, with increases in generativity over time and decreases in well-being. Echoing the ubiquitous finding of individual differences in development in aging research in general and personality development in particular (Asendorpf, 1992; Baltes, Reese, & Nesselroade, 1977; Löckenhoff et al., 2008; Mroczek, 2007; Roberts & Mroczek, 2008; Terracciano et al., 2010), Table 2 indicates a substantial amount of individual variability in change in both generativity and well-being, as visualized in Figure 2. Table 2 also shows model fit for each latent change model, both with and without covariates included. Model fit is not ideal; however, CFIs are generally acceptable and estimates are stable across distinct models. Interestingly, demographic covariates did not emerge as meaningful indicators of change or stability in generativity or well-being. Because of this finding, demographic covariates were not

included in the subsequent bivariate change model.¹ Individual stability in generativity and well-being were associated with each other and were related to change in the respective construct. Individual stability in well-being was also associated with level of both generativity and well-being in 2000².

Co-Development of Generativity and Well-Being

Table 4 provides the path estimates for the bivariate change model with and without individual stability included in the model. Both versions of the bivariate change model demonstrated a robust concurrent relationship between generativity and well-being at the initial assessment as well as robust correlated change between the two constructs over time, as illustrated in Figure 3. Prospective paths were quite small. The inclusion of individual stability as an indicator in the bivariate change model did not alter these patterns and individual stability was not significantly related to level or change of either generativity or well-being in the bivariate change model.

Discussion

The present manuscript is the first we are aware of to use an individual differences approach to quantifying development in generativity across adulthood and into early late life. The results echo prior longitudinal work on generativity in finding evidence for both robust rank-order stability (Einolf, 2014; MacDermid et al., 1996; Peterson, 2002; Whitbourne et al., 1992) and mean-level change in generativity (Einolf, 2014; Whitbourne et al., 2009).

¹ Analyses including these covariates did not alter study findings and are available in supplementary files at <https://osf.io/z7x89/>.

² Visualization of these effects revealed a curvilinear relationship between well-being in 2000 and individual stability in well-being over time that may be of interest to some readers but is outside of the scope of this manuscript. Please see supplementary visualizations at <https://osf.io/z7x89/>.

Surprisingly, while there was variability in the development of generativity in the sample, this variability was not substantively associated with demographic factors. Instead, higher individual stability was associated with increases in generativity over the course of the study. These patterns echo other studies modeling individual developmental patterns of personality development (Lodi-Smith et al., 2017) and together suggest that stability itself may be a marker of adaptive function in adulthood and associated with psychosocial growth over time. Indeed, previous research on conceptions of well-being over the life course demonstrates that throughout adulthood, individuals emphasize self-acceptance as an indicator of well-being, whereas older individuals relate acceptance of change to well-being (Ryff, 1989c). Thus, stability may be valued more throughout adulthood.

The manuscript also provides further support for the relationship between generativity and well-being across the adult years. There was a robust concurrent association between generativity and well-being at the first assessment. Generativity and well-being also demonstrated meaningful correlated change over time. This is particularly interesting, as generativity and well-being showed opposite normative patterns: generativity increased on average between the two time points whereas well-being decreased. This finding supports previous research outlining the presence of a U-shaped curve in well-being over the full period of adulthood (Stone, Schwartz, Broderick, & Deaton, 2010), at least in terms of life satisfaction (Scommegna, 2015). The current sample may well be still approaching or settled in the ‘trough’ of the U, given their age range (50s and 60s); previous research also demonstrates an increase in life satisfaction as adults enter the young-old period of life (usually defined as 65-75 years of age). This finding also supports the importance of taking an individual difference approach to studying developmental processes over time. However, as neither construct prospectively

predicted the other, the mechanisms driving individual differences in the patterns of development of these constructs remain unidentified. Articulating these mechanisms will be an important next step in future research on this topic.

Future research can also build on the present findings by modeling individual trajectories of development over more than two time points. While latent change models and the individual stability coefficient allow for robust quantification of individual development over time, they are necessarily limited to assumptions of linearity. Future research with more waves of data will be able to provide a more complete picture of the trajectory of generativity in adulthood and its relationship to well-being. In doing so, it may be fruitful to consider emerging evidence suggesting that, similar to positive and negative affect, the poles of generativity and stagnation may be more accurately represented as unique scales in their own right (Newton, Stewart, & Vandewater, 2019; Van Hiel, Mervielde, & De Fruyt, 2006). Likewise, future research should integrate additional Eriksonian psychosocial tasks and consider recent research suggesting that psychosocial tasks may be best construed as a single higher-order factor (Dunkel & Harbke, 2017).

Future research should also take a more nuanced approach to conceptualizing the impact of social roles on the development of generativity. Null findings in the present manuscript may have less to do with a lack of impact of work, relationships, or parenting on the development of generativity and more to do with the limitations of dichotomized operationalizations of these variables. An approach that focuses more on the importance of a role to an individual rather than role status may be more fruitful in understanding the impact of role identity on the development of generativity and its subsequent impact on adjustment later in life.

It is critical that future research on generativity later in life expands to examine the impact of generativity beyond the domain of psychological well-being. Successful aging is a multi-faceted and complex phenomenon (e.g., Cosco, Prina, Perales, Stephan, & Brayne, 2014; Rowe & Kahn, 2015). Future studies should build a robust battery of physical health, cognitive performance, and psychological well-being outcomes to best understand the impact of generativity in the context of aging. It will also be important to extend this work past early late life and into the final decades of life.

Finally, future research must also address a number of limitations of the RALS. While one of the strengths of the RALS is the balanced representation of both men and women, one of the most important limitations of the RALS is the lack of generalizability to non-Caucasian samples. Race appears to be critically important to understanding generativity (Newton & Baltys, 2014) but the RALS lacks the racial diversity necessary to test its impact on study findings. In addition, the present work examines a necessary subset of those individuals who have continued their engagement in the RALS. Attrition in the RALS since its inception in the 1960s has largely been due to unavailable contact information from the sample (Whitbourne et al., 2009). Future work on the RALS sample will continue to leverage the opportunities created by online tools to increase retention in this important longitudinal study.

Conclusion

In sum, the present findings indicate that, in this two time-point longitudinal sample of adults, generativity showed both stability and change into later adulthood. Further, changes in generativity were associated with parallel changes in well-being over time, despite normative declines in well-being in the sample. This suggests a general pattern of maturation for some but not all individuals that was largely independent of demographic covariates in the present sample.

The findings therefore support the view that personality development occurs in a continuous fashion across adulthood and can exist across multiple psychosocial qualities.

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Table 1. Descriptive, reliability, rank-order stability, and mean-level change of generativity and well-being.

	<u>Generativity</u>		<u>Well-Being</u>	
	Time 1	Time 2	Time 1	Time 2
<i>N</i>	265	267	203	267
Alpha reliability	.84	.85	.95	.94
Mean (SD)	2.06 (.39)	2.52 (.39)	43.19 (5.34)	35.76 (3.84)
<i>r</i>	.74		.73	
<i>p</i>	<.001		<.001	
<i>t</i>	26.21		27.62	
<i>d</i>	1.18		1.63	
Ipa <i>N</i>	263		201	
Ipa Mean (SD)	.70 (.84)		.66 (.84)	

Note. Ipa = individual stability coefficient.

Table 2. Model fit and estimates for latent change models.

Model and Covariates	<u>Fit</u>				<u>Estimates</u>			
	χ^2	<i>df</i>	CFI	RMSEA	Level Intercept (SE)	Slope Intercept (SE)	Level Variance (SE)	Slope Variance (SE)
<u>Generativity latent change</u>								
No covariates	82.78	9	.90	.19	-.28 (.02)	.36 (.02)	.05 (.01)	.02 (.01)
With Demographics	242.24	39	.78	.14	-.28 (.46)	.37 (.02)	.05 (.01)	.02 (.01)
With Ipa	97.34	17	.91	.14	-.25 (.03)	.37 (.02)	.05 (.01)	.02 (.01)
<u>Well-being latent change</u>								
No covariates	101.80	9	.89	.22	7.06 (.35)	-6.90 (.32)	15.39 (2.08)	6.47 (1.16)
With Demographics	250.75	39	.80	.15	5.28 (.42)	-6.98 (.33)	15.25 (2.08)	6.45 (1.18)
With Ipa	117.57	17	.89	.16	5.07 (.29)	-6.90 (.32)	15.37 (2.09)	6.45 (1.17)
<u>Dual score latent change</u>				<u>Construct</u>				
No covariates	155.72	48	.94	.10	Generativity	-1.17 (.11)	.21 (.10)	.06 (.01)
					Well-being	-9.17 (.31)	-9.99 (.88)	23.61 (2.57)
With Ipa	257.39	67	.90	.11	Generativity	-.16 (.13)	.23 (.11)	.06 (.01)
					Well-being	-6.23 (.31)	-8.41 (.88)	25.72 (2.74)

Note. Ipa = individual stability coefficient.

Table 3. Relationship of Covariates to Level, Change, and Individual Stability of Generativity and Well-Being.

Covariate	Generativity <u>Level</u>		Generativity <u>Change</u>		Generativity <u>Ipa</u>		Well-Being <u>Level</u>		Well-Being <u>Change</u>		Well-Being <u>Ipa</u>	
	β	p	β	p	r	p	β	p	β	p	r	p
Demographics												
Age	4.87	.14	-.05	.99	.09	.17	.49	.01	.96	.05	.03	.66
Sex	.17	.27	.04	.89	.06	.37	.01	.61	-.01	.48	-.09	.21
Job prestige	-.04	.80	.33	.27	-.03	.66	-.01	.41	.02	.25	.09	.19
Relationship status	.06	.77	-.28	.52	-.01	.96	.01	.41	.04	.10	.01	.92
Parental status	.55	.01	.14	.75	.04	.62	.03	.06	.00	.97	-.20	.08
Individual Stability												
Generativity	-.92	.02	-.27	.60			-.05	.02	-.05	.14	.52	<.001
Well-being	-1.09	.01	.27	.61	.52	<.001	-.09	.01	.00	.98		

Note. Ipa = individual stability coefficient.

Table 4. Model estimates of dual score change models.

	Without Ipa		With Ipa	
	<i>Estimate</i>	<i>p</i>	<i>Estimate</i>	<i>p</i>
Concurrent relationship	.79	<.001	.82	<.001
Generativity level → Well-being change	1.31	.26	1.71	.14
Well-being level → Generativity change	.00	.92	.00	.86
Correlated Change	.25	<.001	.25	<.001
Ipa Generativity → Generativity Level			-.71	.19
Ipa Generativity → Generativity Change			.26	.74
Ipa Generativity → Well-being Level			-.03	.30
Ipa Generativity → Well-being Change			-.06	.26
Ipa Well-being → Well-being Level			-.07	.10
Ipa Well-being → Well-being Change			-.04	.60
Ipa Well-being → Generativity Level			-.21	.61
Ipa Well-being → Generativity Change			.43	.57

Note. Ipa = individual stability coefficient.

Figure 1. Bivariate latent change model estimating four relationships between generativity and well-being over time: (1) the concurrent relationship between generativity and well-being in 2000, (2) the prospective effect of the initial level of generativity in 2000 on change in well-being, (3) the prospective effect of the initial level of well-being in 2000 on change in generativity, and (4) the correlated change of the generativity and well-being from 2000 to 2012.

Figure 2. Individual change trajectories of generativity and well-being

Figure 3. Correlated change of generativity and well-being