

Lay Theories and Self-Perceptions of Maturity in Young Adulthood

by

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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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Abstract

There is concern that maturity is becoming more and more of an elusive goal for contemporary young adults. Cultural definitions of maturity often emphasize timely achievement of traditional adult goals such as buying a house, launching a successful career, and starting a family. Changing economic and social conditions as well as recent financial crises, however, place these goals increasingly out of reach for many young adults. Another prominent cultural definition of maturity exists, however, one focused on the possession and development of character traits such as wisdom, responsibility, and prosociality. This character-based definition may provide an alternative basis for young adults to ground their sense of maturity when the more traditional adult goals are unattainable. The availability of both achievement-based and character-based definitions raises the question of how people define maturity. In this dissertation, I seek to explore young adults' lay theories of what it means to be mature in terms of personality, cognitive style, formative experiences, and phenomenology (Study 1). Building on these findings, I explore whether young adults apply these same theories to their own self-perceptions of maturity (Study 2). Next, using data from a nationally-representative, longitudinal study, I test whether some of the earlier explored indicators of self-perceived maturity are unique to young adults as well as what downstream consequences self-perceptions of maturity in young adulthood have for well-being in midlife (Study 3). Next, I study self-perceptions of maturity in the context of facing the on-going hardships of the COVID-19 pandemic (Study 4) and finally apply these findings in an intervention, attempting to induce greater feelings of maturity in participants as they go through the pandemic (Study 5). My findings show that young adults endorse both achievement-based and character-based conceptualizations of maturity; however, the character-based definition may provide the flexibility that is needed to ground one's sense of maturity even

when traditional adult goals are unattainable. These findings provide important insights, directions for future research, and implications for supporting young adults' development of a mature identity as they navigate the challenges of modern adulthood.

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Introduction

The transition to adulthood has aptly been described as “life’s unsurpassed drama” (Mintz, 2015). Like many dramas it is fueled by an air of suspense. Indeed, from the Lost Generation to the Greatest Generation; to the Boomers, Beatniks, and Hippies of mid-century; to the Slackers of the late 20th century, to the new century’s Millennials and Gen Z, each successive generation of young people seems to face fresh doubts about how they are maturing. All this begs the question: what does it even mean to be a mature adult? It turns out that there have been a variety of different ways people have gone about answering this question.

The “résumé virtues”: maturity as a set of standardized accomplishments

One prominent approach defines mature adulthood against the standard of what David Brooks calls the “résumé virtues” (Brooks, 2015). According to this standard, maturity is signified by a person’s progress towards making their mark on the world and taking on traditional roles and responsibilities such as completing higher education, launching a career, achieving financial independence from one’s parents, owning a home, and getting married and raising children (Hogan & Astone, 1986; Settersten Jr, Furstenberg, & Rumbaut, 2008; Shanahan, 2000; Stanger-Ross, Collins, & Stern, 2005). Judged against the standard of the résumé virtues, contemporary young people increasingly face challenges reaching maturity.

Consider the following hypothetical composite:

Mari, a 28-year-old, lives in a big city. She works a job that she wished paid more, but at her experience and education level she was shut out from starting at more lucrative positions. She could have gone back to school, but that would mean incurring more student debt and even then, that would be no guarantee of finding a better, higher-paying job. She rents a small place she can just afford and is thankful it is rent-controlled. One

day she hopes to own a place of her own but that is not going to happen soon with housing prices the way they are. Maybe she will be able to afford one if she and her partner pool their money after saving for a couple of years, assuming they can also get a favourable loan and mortgage. Speaking of her partner, he expressed he does not want to get married until they are financially secure. Mari agrees but wonders when that will be. This was the situation before the COVID-19 pandemic, now Mari lives back at home with her parents. She was laid off from her job and could no longer afford rent, so she accepted an offer from her parents to live in her old childhood room once again. “Maybe I’ve lived a sheltered life?”, she thinks, reflecting that nothing in her in life has come even close to preparing her for this. As she drifts off to sleep after video chatting with her partner, she cannot help but feel like a failure and that this was not how her adulthood was supposed to go.

Like Mari, many contemporary young adults struggle to find a path to a stable career, have to make painful decisions about whether to incur debt to pursue valued credentials, and are quickly being priced out of homeownership. In both the US and Canada, while post-secondary education levels are at an all-time high, so too is student debt and the competition for jobs (Pew Research Center, 2014; Statistics Canada, 2017). In Canada, housing prices have doubled in the last 20 years making it difficult for aspiring first-time homeowners to achieve their goal of owning a residence (Statistics Canada, 2021). The transition to adulthood for the current generation of young adults has been further destabilized by the double shock of living through the housing-bubble recession followed by the COVID-19 pandemic, which have both led to layoffs, evictions, and disrupted educational paths. These economic challenges bleed into social life with many young adults delaying marriage and the starting of families until they feel

financially secure (Shanahan, 2000). For example, by age 32 only 26% of millennials are married compared to 36% of Gen Xers when they were that age (Pew Research Center, 2014).

The challenges that contemporary young people face transitioning into stable career and family roles has led some to argue that a “crisis of maturity” is occurring (Karlgaard, 2019). Indeed, many young people feel a sense of shame for not being able to meet the traditional expectations for adulthood (Settersten Jr et al., 2008). Those who fail to pursue and achieve adult status milestones face societal stigma (Arnett, 2010; Rose & Ogas, 2018; Settersten Jr & Hägestad, 1996; Settersten, 2003). Parents and peers may pressure young adults to pursue a post-secondary education, even if this pressure is done with the well-meaning intention of pushing a person towards a better career (Agnew & Jones, 1988). Never-married persons and voluntarily childless adults are viewed less favourably than married or with-children adults (Byrne & Carr, 2005; Ganong, Coleman, & Mapes, 1990). Adults having to live in or move back to their childhood homes carry fear they may be thought of as failures by their close friends and family members (Copp, Giordano, Longmore, & Manning, 2017). Furthermore, when it comes to general life and career plans, “low” aspirations are punished or viewed with suspicion by others, while “high” aspirations are acceptable and expected, even if they are wildly unrealistic (Agnew & Jones, 1988).

The timeline for reaching adulthood has stretched in recent decades (Fussell & Furstenberg, 2008; Fussell & Gauthier, 2008), especially in more developed societies in which there are more opportunities and affordances for citizens. This stretched period, coined “emerging adulthood”, is a time between adolescence and full adulthood in which people have the time to explore and discover who they want to be and what is important to them in preparation for full adulthood (Arnett, 2000; 2006). With this extra time, people may be older

than those in previous generations before they start attaining the aforementioned adult markers and thus start feeling like full adults.

Paradoxically, emerging adulthood can create more pressure despite the more relaxed time frame. The expectation of when roles should be attained may be based on past-generational norms that lag behind reality (Moen & O'Rand, 2002). Thus, emerging adults may be judged by others (or even the self) for not attaining roles by certain ages and, indeed, subsequent generations have tended to be characterized as (more) entitled, lazy, and narcissistic (Stein, 2013; Thompson & Gregory, 2012; Twenge, 2013)¹. Furthermore, in the societies where the emerging adulthood period of life is most seen, other economic factors come into play. Post-secondary education, being more common, becomes more of a necessity to be competitive for jobs (Hamilton & Hamilton, 2006; Muller, 2019). This means that starting a career may be pushed later too, which reduces a person's income affecting other role transitions like moving out of parents' residence or starting a family. So, while the time frame may be relaxed, standards for things like education and jobs rise, potentially leading to frustration and delays in other facets of life.

The focus on attainment of role transitions and objective markers may be detrimental because it imposes a standardized set of expectations and ignores how complex and varied contemporary young adults' lives are. Rose and Ogas (2018) call this the "Standardization Covenant". Features of this covenant include an understanding that going to a good school, getting the right degree, and getting your coveted job is how to be a successful adult (Rose & Ogas, 2018). The pressures to meet the standards of this covenant may lead young adults to make

¹ Other research largely disagrees with this claim, finding only small effects, at best, on such variables (Trzesniewski & Donnellan, 2010)

decisions that are not in their long run best interests in order to avoid feeling that they are falling behind on the path to adulthood. For example, some young adults may commit to a career path and pursue relevant credentials before they are equipped to decide whether it is the right path for them. This may also create the implicit feeling that any other skills, interests, or endeavours should be secondary to the main goal of building your standardized adult résumé. This may cause a person to become too narrowly focused and specialized in their education and skillsets, reducing adaptability and flexibility, and may even lead to greater burnout and dissatisfaction (Epstein, 2021).

Given the increasing challenges of meeting the conventional standards of mature adulthood, some individuals may even cope by giving up on the goal of being an adult. The demoralizing impact of the pressure to conform to the conventional standards of adulthood is evident in the words of a young person who remarked, “If ‘adulthood’ means being saddled with a mortgage, a life-sucking 9-to-5 job, two expensive kids, an equally disgruntled spouse, and lifelong educational debt[,] I hope I never reach adulthood” (quoted in Mintz, 2015, p. 69).

The “eulogy virtues”: maturity as a set of hard-won character strengths

As one can see, conceptualizing maturity as the achievement of a standardized résumé of adult status markers has the potential to be stressful and demoralizing for contemporary young adults. Fortunately, these résumé virtues are not the only way people have defined what being a mature adult means. Another prominent cultural model defines maturity as progress towards developing a set of character strengths that David Brooks labels the “eulogy virtues” (Brooks, 2015). Contrasting the eulogy virtues with the résumé virtues, Brooks (2015) writes that “[t]he résumé virtues are the skills you bring to the marketplace. The eulogy virtues are the ones that are talked about at your funeral — whether you were kind, brave, honest or faithful. Were you

capable of deep love?” Thus, rather than defining maturity as a set of skills and achievements on the way towards a life of material security and comfort, the “eulogy virtues” define maturity as a set of traits that reveal the depth of one’s character. As Mintz (2015) describes it, “Growing up is not simply a matter of growing older. It is ultimately about maturation, the ability to control impulses, assess risks, resist peer pressure, cope with conflict and frustration, and fully appreciate the significance of key life decisions. Reflection, self-assessment and psychological self-understanding – these are attributes of an emotionally mature self.” (p. 325-326).

These mature character traits are not seen as inherent, rather they are strengths that are cultivated by enduring experiences that challenge people to learn and grow. As Mintz (2015) notes, “Unlike physical maturation, psychological maturity does not occur naturally, but if it emerges it grows out of hard-won experience and our confrontations with life’s unexpected, inexplicable occurrences, as well as through intimate encounters with loved ones, friends and other acquaintances” (p. 326). Mintz (2015) notes that this perspective on adulthood tends to emphasize that experiences of hardship and loss are essential for building a mature character:

A recurrent message in today’s therapeutic culture is that it is through heartbreak, disappointment, and frustration that adults are challenged to cope, adapt, and grow up. A challenge that adults face is to embrace and integrate loss and change into their lives and learn from them. The inevitable losses and separations from loved ones, friends, and parents are, unsettlingly, primary vehicles through which adults can become more self-reflective, self-sufficient, and empathetic. It is through the realities of gaining and losing that adults mature (p. 325).

The idea that challenging experiences lead people to develop mature character strengths is consistent with influential psychological models of adult development. For example, King

(2001; 2012) theorizes a process of challenge-focused growth whereby personal hardships conflict with people's expectations which leads them to accommodate by adopting a more mature, more reality-based outlook on life. Challenging experiences may dispel illusions about life and afford insights into its difficulties and tragedies. While the experience is unpleasant, this "shattering of assumptions" may represent movement away from youthful naïveté towards maturity (Janoff-Bulman, Berg, & Harvey, 1998; Janoff-Bulman, 1999). The notion that suffering promotes psychological and spiritual maturity is also a common theme in many cultures and religions, where pain, loss, and persecution are said to lead to understanding and enlightenment (Tedeschi & Calhoun, 1995).

Some cultural critics have raised concerns that our society's preoccupation with encouraging young adults to pursue the résumé virtues in order to achieve conventional adult career and family goals has led us to neglect the kinds of formative experiences that are needed to cultivate mature character traits (Haidt & Lukianoff, 2018). Indeed, the narrative suggests that society has become overprotective of young people out of a misguided motivation to shield them from risking failures and setbacks that might undermine their achievement of conventional goals of financial independence and material security. According to this account, the standardization of young people's lives has shielded them from character-forming experiences in which they have to cope with threatening situations and face consequences of their own risky choices. For example, Lukianoff and Haidt (2018) argue that a culture of "safetyism" is sheltering young people from facing the kinds of challenging experiences that are needed to develop mature adult character traits. They write,

Safetyism is the cult of safety—an obsession with eliminating threats (both real and imagined) to the point at which people become unwilling to make reasonable trade-offs

demanding by other practical and moral concerns. Safetyism deprives young people of the experiences that their... minds need, thereby making them more fragile, anxious, and prone to seeing themselves as victims. (p. 32)

They explain that this overprotection is a barrier to mature adulthood because,

Children, like many other complex adaptive systems, are antifragile. Their brains require a wide range of inputs from their environments in order to configure themselves for those environments. Like the immune system, children must be exposed to challenges and stressors (within limits, and in age-appropriate ways), or they will fail to mature into strong and capable adults, able to engage productively with people and ideas that challenge their beliefs and moral convictions. (p. 31)

These critiques of the culture of “safetyism” challenge us to shift from a culture that narrowly focuses on promoting young people’s success in achieving traditional benchmarks of adult success and recovering a definition of mature adulthood that emphasizes character strengths that are developed by enduring challenging experiences and personal adversities.

Possible advantages of defining maturity in terms of character strengths

The cultural model that defines maturity in terms of broad character strengths may have key advantages for contemporary young adults over the model that defines maturity by one’s success in achieving the conventional adult résumé of career and family goals. One key advantage is that character traits are subjective in nature and thus offer more latitude to perceive young adults as progressing towards maturity. For example, young adults can perceive themselves as progressing towards a mature character trait such as “wisdom” by contrasting how much wiser they are now to how relatively naïve they were in adolescence, or by making comparisons to same age peers who are relatively less wise. This can be a subjective

interpretation, hard to objectively prove or disprove, and this subjectivity can thus offer flexibility in perceiving oneself as mature. By contrast, the conventional adult résumé markers are quite objective and success towards achieving these markers is typically an inflexible, binary, either-or judgment: either one has achieved financial independence, home ownership, and marital status or one has not.

Thinking about maturity in terms of broad character traits may also offer more control than thinking about maturity in terms of achievements of concrete adult benchmarks. For example, developing broad character traits such as becoming more responsible or wiser can potentially be achieved in numerous ways. By contrast, a narrower benchmark goal like owning a house imposes stringent requirements of having sufficient financial resources and successfully navigating the housing market. The advantage of setting broad, subjective goals rather than narrow, concrete goals is supported by insights from sports psychology. The sports psychology literature indicates that setting narrow outcome goals, like scoring a certain number of goals in a season, is often counterproductive for maintaining an athlete's motivation because such outcomes are usually less within their control. For example, you can take a great shot, but get bested by an even better save by the goaltender. Instead, it is more useful to set broader goals that can be achieved in a variety of ways like the goal of improving one's effort, attitude, and skillsets (Burton, Naylor, & Holliday, 1993). These are more within an athlete's control, rely less on a binary "success-fail" evaluation metric, and likely correlate with a variety of outcome goals anyways, enabling progress on multiple fronts simultaneously. Compared to focusing on narrow outcome-achievement goals, focusing on broad strengths-building goals has been found to lead to higher levels of motivation, better sustained motivation, and less disappointment with competition outcomes (for a review on goal setting as studied by sports psychology see: Burton

et al., 1993). If something similar can be used in the approach to adult goals and maturity, that is, have young adults take less of a focus on outcomes and more on the “means” related to those outcomes, then it may be possible to enhance a person’s sense of maturity when the situation is such that outcomes are tough to achieve.

Finally, another important potential advantage of defining maturity as a set of character strengths is that it provides a possible means for emerging adults to reframe any of their failures to achieve traditional adult benchmarks as learning experiences that help them build a more mature character. This could be quite valuable considering the evidence reviewed about the increasing challenges that many contemporary young adults face in achieving those benchmarks. To the extent that the character-focused definition of maturity sees the experience of coping with failures and setbacks as a principal means to develop a mature character, then the very same obstacles and challenges that many young adults face in achieving the conventional career and family benchmarks could be seen as the kinds of adversities that help to build a more mature character. Consider the young person quoted in a previous section who decided to opt out of pursuing traditional benchmarks of adult success. It seems that her frustration coping with the pressure to pursue these traditional goals of adult success may have provided her with an arguably more mature approach to life that involved rationally selecting her own goals rather than racing to fulfill externally imposed expectations of a successful adult life.

Sociological research supports the idea that young adults may cope with obstacles to achieving conventional benchmarks of adult success by reframing these challenges as experiences that contributed to their developing a more mature identity. In interviews with working-class adults who had experienced difficult circumstances growing up (e.g., drug addiction, abusive parents, mental illness), Silva (2012) found that participants seemed to craft

“therapeutic” narratives in which they report the challenges they faced made them into the mature adult they feel they are today.

Thus, there are several reasons that a definition of mature adulthood that focuses on character strengths that are gained by coping with experiences of adversity may be beneficial for contemporary young adults. However, in order to derive these benefits young adults would first need to endorse this definition of maturity. This raises the question – what does maturity mean to contemporary young adults? Answering this question is a key goal of this dissertation.

This dissertation focuses on exploring contemporary young adults’ conceptualizations of maturity. As the achievement of conventional adult benchmarks of success becomes increasingly elusive, elucidating young adults’ own definitions of maturity may provide insights into how they cope with the challenges of being an adult in today’s world. I will start by uncovering and examining diverse ways that young adults conceptualize maturity in light of challenging situational factors. Are there particular personality traits, approaches to conflict, personal experiences, and phenomenological markers that people believe distinguish the mature from the immature person? Perceivers need to have some concept of what maturity is – a lay theory of maturity – to know how to label themselves and others as mature or immature.

There has been surprisingly little research systematically exploring everyday theories of mature adulthood. The little work that exists supports the general idea that contemporary young adults may base their definition of mature adulthood on broad character strengths as much or more than they base it on achievement of conventional benchmarks of adult success. For example, Arnett (1997; 1998) presented young adults with a list of various criteria and asked them whether those criteria needed to be present before someone could be considered an adult. The two most highly endorsed criteria, which were each selected by over 75% of respondents,

were broad character traits: “Accept responsibility for the consequences of your actions” and “Decide on personal beliefs and values independently of parents or other influences.” Some of the conventional benchmarks of adult success were also endorsed as necessary criteria for being considered an adult by more than half of the respondents (e.g., (Being) financially independent from parents) (Arnett, 1997; 1998). However, many of the other traditional adulthood benchmarks were endorsed by less than 25% of the respondents, including: “Purchased a house”; “Employed full time”; “Married”; “Settled into a long-term career”; and “Have at least one child.” Though limited, these findings help to support the idea that character strengths are central to young adults’ definitions of maturity.

Overview of Studies

My dissertation aims to fill the gap in this literature by providing a richer examination of the contents of young adults’ theories of maturity. In particular, I seek to provide a multilayered description of lay theories of maturity that captures young adults’ assumptions about what mature people are like (mature personality), how they approach decision-making in challenging situations such as social conflict (mature cognitive style), where maturity comes from (maturity-forming experiences), and what being mature feels like (phenomenology of maturity). This map of lay theories of maturity will then guide more focused investigations of young adults’ self-perceptions of maturity as they face contemporary challenges. After all, just because people have a theory about qualities that differentiate mature from immature young adults, it does not necessarily mean that they apply that theory to themselves or that it is representative of actual experiences of self-perceived maturity. Thus, after I document the contents of people’s lay theories of maturity, I will assess participants’ level of self-perceived maturity to test if it correlates with the same personality traits, cognitive styles, formative experiences, and

phenomenological indicators that participants used to differentiate mature from immature people. I will further examine a longitudinal dataset to test whether experiences of coping with adversity foster a sense of maturity in young adulthood that prepares individuals to successfully navigate challenges they face later during their transition into midlife.

Finally, I will leverage the insights gained from these earlier studies to investigate young adults' self-perceptions of maturity as they face the challenge of the COVID-19 pandemic. The pandemic provides an interesting context to explore self-perceptions of maturity because for many young adults this situation blocked progress towards the career and family goals that define the conventional benchmarks of adult success. It thus was the kind of situation where it could be particularly beneficial for young adults to draw on a character-focused definition of maturity and reframe these setbacks in their pursuit of conventional goals as a maturity-building experience of coping with adversity. The insights gained from these studies help to enrich our understanding of how contemporary young adults manage to feel secure in their maturity even when conventional markers of adult success seem increasingly insecure and out of reach for them.

Study 1: Lay Theories of Maturity in Young Adulthood

A key goal of this dissertation is to document the contents of contemporary young adults' theories of maturity and test hypotheses about a variety of cues that people might associate with maturity. People are thought to be amateur scientists who use everyday experiences and observations to create interpretations and explanations about how the world around them works. These perceptions, or lay theories, affect how we think about the world and how we make decisions (for an overview of lay theories, see Argyle, 2013). Lay theories are often less formal, less reliable, more biased, and more generalized than actual scientifically tested theories (Valentine, 2013), nevertheless they represent how everyday people understand the world and can thus offer a valuable starting point for more formal testing of concepts, in this case, how maturity is conceptualized in young adults. Research shows that people have theories of a wide variety of social targets including social classes (Varnum, 2013), leaders (Lord, Foti, & De Vader, 1984; Rush & Russell, 1988), heroes (Goethals & Allison, 2012), moral exemplars (Walker & Hennig, 2004), and rational versus reasonable decision-makers (Grossmann, Eibach, Koyama, & Sahi, 2020) to name a few.

Lay theories play an important role in self-perception and person-perception by providing the conceptual schemata that guide perceivers' decisions about which individuals to label as members of particular social categories (Smith & Zarate, 1992). To the extent that an individual's characteristics match the lay theory's exemplars of a given social category then a perceiver will be more likely to label that individual as a member of that social category (Smith & Zarate, 1990). Thus, to understand young adults' self-perceptions of maturity it is important to first document people's theoretical assumptions about the characteristics that distinguish between mature and immature people.

I seek to provide a multilayered description of lay theories of maturity that captures young adults' assumptions about: 1) mature personality traits, 2) mature cognitive style, 3) experiences that indicate maturity, and 4) phenomenological markers of maturity. This map of lay theories of maturity will be useful for guiding more focused investigations of whether the maturity cues that are specified by these lay theories tend to predict young adults' self-perceptions of maturity.

Lay theories about mature personality traits

If people conceptualize maturity as a key organizing schema of character quality in adulthood, then they should tend to perceive mature and immature individuals as differing across a range of core personality traits. There has been a long history of examining personality in psychological research that has supported a Five-Factor Model of personality structure (McCrae & Costa Jr, 1985) or Big 5 (Goldberg, 1992). According to this framework the five core dimensions of personality include Emotionality (i.e., Neuroticism), Extraversion, Agreeableness, Conscientiousness, and Openness. More recent scholarship has uncovered an additional factor, labeled Honesty-Humility, that is distinct from the existing Big 5 dimensions, and an additional trait facet, labeled Altruism, that represents a blend of Honesty-Humility, Agreeableness, and Emotionality (Lee & Ashton, 2018). These traits are thought to be core elements of one's personality, useful in assessing one's general thoughts, attitudes, motivations, and behaviours.

What assumptions might we expect people to make about mature personality traits? One possibility is that we define the distinction between mature and immature personality based on how personality patterns have been found to change from adolescence into adulthood. A meta-analysis of longitudinal studies of personality development found that mean levels of self-reported conscientiousness, agreeableness, emotional stability, and openness to experience tend

to increase from adolescence into adulthood (Roberts, Walton, & Viechtbauer, 2006; Roberts & Mroczek, 2008). Furthermore, the social dominance facet of extraversion, which captures traits like independence and assertion, tends to increase during the transition to adulthood but not the social vitality facet of extraversion, which captures traits like sociability and positive affect (Roberts et al., 2006). Self-reported levels of honesty-humility and altruism also tend to be higher in adulthood than in adolescence (Ashton & Lee, 2016).

These changes in mean level traits can further be explained with other developmental theories and findings on maturity and the transition to adulthood. The finding that traits like conscientiousness, independence, and assertiveness increase with age lines up with work by Arnett in which he found that self-reported progress towards adulthood is often tied to feeling like one has achieved financial and decision-making independence from one's parents or caregivers (Arnett, 1997). Neuroscientific research on adolescents and young adults have shown that the brain is still physically developing and changing throughout adolescence into one's early to mid twenties, especially with regards to brain areas associated with traits like emotional stability, impulsivity, and conscientiousness (Luna et al., 2001; Steinberg, 2005). Pro-social attitudes, motivations, and behaviours have been studied and examined by multiple disciplines: psychology, philosophy, sociology, ethics and morality, economics, and biology and evolution (for a review see Eisenberg, Fabes, & Spinrad, 2007). Generally speaking, life-development models and philosophical writings have posited that concern for others, communal care, and the ability to look beyond the self to provide for others are major stages in becoming a functioning, well-adjusted, and virtuous member of society (Erikson & Erikson, 1998; Loevinger, 1966). So, to the extent that people are attuned to the ways that personality patterns change from

adolescence to adulthood, their lay theories about maturity and immaturity may reflect these patterns.

Lay theories mature cognitive style

While personality traits represent a key component of lay theories of what a given type of person is like, just focusing on these traits would provide only a partial look at the contents of most lay theories. To probe deeper into these contents, it is useful to consider another level of person description that involves assumptions about the person's characteristic social-cognitive qualities. This social-cognitive layer of lay theories involves assumptions about the person's reasoning strategies for coping with particular kinds of regularly encountered adaptive challenges.

There are reasons to think that wise reasoning in situations of conflict is a particularly relevant social-cognitive adaptation that people might associate with maturity. Researchers have identified a cluster of strategies for reasoning about interpersonal or social conflicts that correspond to classic definitions of wisdom (Grossmann et al., 2012). These "wise reasoning" strategies include seeking compromise; taking the other side's perspective; viewing the situation from the perspective of a neutral third-party; acknowledging personal biases and limitations of knowledge; and realizing that situations are multifaceted, changing, and have uncertain outcomes (Brienza, Kung, Santos, Bobocel, & Grossmann, 2018).

A common theme across these strategies involves transcending the self to consider more information and perspectives. Differing goals between parties can create disagreement and conflict, especially if parties are self-centred about the outcomes they wish to achieve. Thus, scholars have argued that a "wise" approach to conflict is one that can lead to not only more satisfactory outcomes for the parties involved but is also a mark of adult development and

maturation (Erikson & Erikson, 1998; Loevinger, 1966). Furthermore, research indicates that use of these wise reasoning strategies tends to increase over the lifespan, at least in Western cultural samples (Grossmann et al., 2012). Assessing lay theories with regards to wise reasoning will uncover whether young adults believe it is an essential aspect of maturity in line with extant and scholarly thinking.

Lay theories about formative experiences for maturity

In addition to associating particular personality traits and social-cognitive qualities with maturity, lay theories may also involve certain assumptions about where maturity comes from – i.e., formative experiences that distinguish mature from immature people. Experience performing “adult roles” may be one category of experiences that people associate with maturity, such as working or caregiving. The social investment theory of personality development indicates that the adaptive demands of adult work and family roles require people to develop mature traits and behaviour patterns in order to succeed in those roles (Roberts, Wood, & Smith, 2005). If people’s theories of maturity include some of the same assumptions as social investment theory, then people may expect that a mature young adult would have more experience with adult social roles than an immature adult.

Alternatively, lay theories may associate adult roles with maturity because people assume that young adults who are more mature to begin with tend to self-select into these roles earlier in life than young adults who are less mature. As yet another possibility, lay theories may assume a bidirectional pattern of links between maturity and experience in adult roles – i.e., young adults who are already mature tend to self-select into these roles and experience in these roles further enhances their maturity. For example, young people who already have mature levels of responsibility and caring may be more likely to be trusted with childcare duties such as taking

care of the younger siblings when parents are away and experience doing these childcare tasks may provide further opportunities to develop those mature skills and traits.

Enduring personal hardships is another key class of experiences that scholarly theories and research has linked to maturation (for a list see: Tedeschi & Calhoun, 1995). For example, King theorizes a process of challenge-focused growth whereby personal hardships compete with people's expectations and force them to accommodate their worldview (2001; 2012).

Challenging experiences may similarly dispel illusions about life and afford insights into the difficulties and tragedies it unfortunately has. While the experience is unpleasant, this "shattering of assumptions" may represent movement away from naïveté and towards maturity (Janoff-Bulman et al., 1998; Janoff-Bulman, 1999). For example, divorced women who more vividly reflected on their divorce showed more maturity (but less happiness) compared to women who reflected less vividly (King & Raspin, 2004). In a longitudinal study with parents of kids with Down Syndrome, a link was demonstrated between experiencing a "paradigmatic shift" in understanding and stress-related growth (King, Scollon, Ramsey, & Williams, 2000). The notion of suffering is also common theme in religion, where pain, loss, and persecution are said to lead to understanding and enlightenment (Tedeschi & Calhoun, 1995).

Perhaps everyday people share scholars' assumption that enduring personal hardships is a crucible experience that promotes a more mature character development. If so, then we may expect that people will attribute higher levels of maturity to young adults who have endured early experience of personal hardships. Unlike the experience of adult roles where it may be plausible for lay theorists to assume bidirectional links to maturity, in the case of enduring hardships lay theorists probably assume a more unidirectional link where experience enduring hardships leads to greater maturity but not vice versa.

Lay theories about the phenomenology of feeling mature

Lay theories of maturity may also include assumptions about the phenomenology of maturity, that is, what being mature versus immature typically feels like. “Subjective age” seems like a promising candidate for a phenomenological variable that may provide a signal of one’s level of maturity. Subjective age refers to the age that a person feels, which can be the same as, older, or younger than their chronological age. Research on subjective age has been plentiful in older adult samples. The general finding is that older adults tend to report feeling younger than their actual age (Rubin & Berntsen, 2006) and that doing so is linked with better psychological and physiological outcomes (Mroczek & Kolarz, 1998; Wettstein, Spuling, Cengia, & Nowossadeck, 2021). In this way, subjective age, as currently used in the psychological literature, can be considered a variable that measures middle-aged and older adults’ perceptions about their health, with those feeling older feeling like they are succumbing to the various old-age stereotypes about failing health and abilities (Eibach, Mock, & Courtney, 2010). With younger-aged adults, however, subjective age as a variable is less explored and thus in need of further research. Extant research shows that young adults on average report feeling very close to their actual age or sometimes a little older, though only by a year or two (Goldsmith & Heiens, 1992; Montepare & Lachman, 1989). Since one possible understanding of maturity is possessing greater qualities than what is expected for one’s age, substantiated by the phrase, “mature for your age”, lay theories may associate maturity with feeling older than one’s age and they may associate immaturity with feeling relatively younger than one’s age.

I will also ask participants to nominate five words or short phrases that, to them, characterize mature or immature targets. This will allow participants to share their thoughts in a

less structured manner and potentially elucidate further facets of maturity and immaturity that I did not consider.

Self-perceived Maturity

After understanding peoples' lay theories of maturity, I will also explore whether these lay perceptions line up peoples' actual feelings and experiences. After all, just because a lay theory exists, it does not necessarily mean people apply it to themselves or that it is representative of actual experiences. In an exploratory manner, I will look at participants' perceptions of their own subjective age and how it relates to their own lived experiences. I will then see if this pattern matches the lay theory.

Method and Measures

Participants

Data was collected from the University of Waterloo's participant pool. In total, there were 209 participants but 3 were excluded for incomplete responses and an additional 9 were excluded as they were over 30 years old (my cut-off for young adulthood)² bringing the total to 197 participants used in the final analyses³; $M(SD)_{age} = 20.31(1.86)$ years; 18.8% Man/Transman, 56.3% Woman/Transwoman, 4.0% Prefer another term or prefer not to answer, 20.8% no data.

² I opted to use age 30 as cutoff for young adulthood as it is a round number that I felt represented a psychologically significant boundary between young adulthood and mid-adulthood (Peetz & Wilson, 2013). Indeed, in Study 3, numbers ending in 0 or 5, such as 30 or 35 tended to be reported more often for participant's subjective age, suggesting that such numbers represent significant milestones.

³ Post-hoc sensitivity analysis indicated that for $N = 197$, 2 groups, $\alpha = .05$, and power $(1 - \beta) = .80$, effect sizes of $d = .20$ are reasonably detectable (Faul, Erdfelder, Lang, & Buchner, 2007; Faul, Erdfelder, Buchner, & Lang, 2009).

Procedure

Upon beginning the study, participants were randomly assigned to either the “Mature” or “Immature” condition. The measures they were asked to assess were mostly identical, but which target participants were told to focus on differed between conditions. In an initial prompt, participants were told, “Think of a person who is approximately the same age as you AND is particularly [mature/immature] for their age”. In addition, participants were told not to think of anyone in particular, but rather, in general about [mature/immature] people around their age. This prompt was repeated in the various instructions for each of the measures the participants filled out.

HEXACO: Observer version. Participants first filled out a modified version of the observer HEXACO personality inventory, a 100-item personality measure (Lee & Ashton, 2006), and were instructed to “Think, in general, about a particularly [mature/immature] person who is approximately the same age as you” as well as to “Please answer every statement, even if you are not completely sure of your response.” HEXACO is an acronym for Honesty -Humility, Emotionality, E(X)traversion, Agreeableness, Conscientiousness, and Openness. The HEXACO is similar to the “Big 5” personality measure and in fact shares five personality dimensions with it. The HEXACO, however, captures two unique traits that the classic Big 5 does not: Honesty/Humility and Altruism. In addition, each personality dimension (except Altruism) in the HEXACO can further be broken down into 4 sub-traits. Each item is answered on a 1 to 5 scale, Strongly disagree to Strongly Agree. (See Appendix A for a list of these items.)

Situated Wisdom Scale. Participants next filled out the other-focused version of the Situated Wisdom Scale (SWIS; Brienza et al., 2018), a 21-item measure which captures what a person tends to do when faced with an interpersonal conflict. The scale can be broken down into

five relatively independent sub-components which measure the tendency for a person to: 1) consider the other party's perspective; 2) consider the complexity and changing nature of conflicts; 3) intellectual humility, that is, recognize the limits of one's own knowledge; 4) search for compromise or satisfactory outcomes; and 5) take the perspective of an outsider. For this study, items were re-worded further so that participants would be answering about their assigned target (i.e., a mature or an immature person). Participants were asked to continue thinking about a particularly [mature/immature] person around their age and to consider to what extent such a person was likely to do certain actions in the case of an "interpersonal conflict, such as a disagreement or misunderstanding". Items were answered on a 5-point scale, *not at all* to *very much*. Higher scores indicate that targets are more likely to take "wise" approaches to dealing with conflicts. (See Appendix B for these items.)

Target Subjective Age Difference. Continuing to think about their target group, participants answered a subjective age item which read "Sometimes we feel older or younger than our chronological age. For the [mature/immature] person who is about the same chronological age as you, what age do you think this [mature/immature] person typically feels?" Two values were assessed for this measure. The first was the participants' estimate of the target's subjective age (Target Subjective Age). The second was a calculated value taking the actual answer and subtracting the participant's chronological age (Target Subjective Age Difference), such that positive values indicate that the participant feels the target in question would feel older than the participant's own age.

Target Roles and Hardships. Participants rated five roles and hardships on how likely a [mature/immature] person was to have experienced them compared to an average person around the same age. These included: 1) had divorced parents; 2) had been in a tough financial position;

3) had a close loved one pass away; 4) had significant experience raising children or siblings; and 5) worked a job to put themselves through school. Participants responded on a 7-point scale, *much less likely to much more likely*.

Open-ended Qualities. Participants were asked to list up to 5 distinctive qualities of a mature (an immature) person. Participants had 5 open-ended text boxes to provide their answers.

Participant Subjective Age. Participants answered two items asking about their own subjective age. The first read, “Sometimes people feel older or younger than they actually are. What age are you feeling right now?”. Participants were instructed to provide their response in years. Participants actual chronological age was then subtracted from this subjective age response such that positive values represented a participant feeling older than their actual age. This score was then winsorized to minimize the effect of outliers, that is, subjective age difference values greater than 3 standard deviations from the mean were set at exactly 3 standard deviations. A second subjective age (scale) question was also asked in which participants responded on a 1 to 5 scale to indicate how old or young they felt relative to their actual age, “*(I feel) much younger*” to “*(I feel) much older*”.

Participant Roles and Hardships. Participants were asked if they possessed any of the following adult roles: 1) working full-time, 2) working part-time, 3) self-employed, 4) volunteer 15 hours a week, 5) primary caregiver, or 6) a full-time homemaker. For hardships, participants were asked if they had experienced or are currently experiencing any of the following: 1) parents divorced or separated, 2) parents never lived together, 3) personally divorced or separated, 4) a close loved one had passed away, or 5) their current financial situation is much worse now than it was 5 years ago. Sums were created for both roles and hardships. Student roles were also asked about as well: 1) student full-time and 2) student part-time.

Hypotheses

Personality attributions. I hypothesize that lay perceivers will attribute higher levels of conscientiousness, agreeableness, and openness, and lower levels of emotionality to mature (vs. immature) targets. Perceivers may also attribute higher levels of extraverted traits related to social dominance (e.g., boldness) to mature (vs. immature) targets, but not extraverted traits related to social vitality (e.g., sociability, liveliness). I also hypothesize that lay perceivers will attribute higher levels of honesty-humility and altruism to mature (vs. immature) targets.

Wise reasoning attributions. I hypothesize that lay perceivers will attribute higher levels of wise reasoning to mature (vs. immature) targets.

Experiences. I hypothesize that lay perceivers will attribute more experience of adult roles and hardships to mature (vs. immature) targets.

Subjective age. I hypothesize that lay perceivers will attribute an older subjective age to mature (vs. immature) targets.

Self-perceptions. To the extent that lay theories define feeling an older subjective age and experiencing adult roles and life challenges as markers of maturity then I hypothesize that participants who report more experience performing adult roles and enduring life hardships will tend to report an older subjective age.

Analyses and Results

I conducted a series of one-way ANOVAs to compare the means of the aforementioned measures between the mature versus immature target conditions.

Personality trait ratings. Starting with the HEXACO results, Table 1 on the next page displays the means on each personality dimension and sub-dimension for the mature and immature conditions.

Table 1.
ANOVA HEXACO Personality Traits

Personality Dimension	Sub-dimension	Mature		Immature		Effect Size Cohen's d
Honesty-Humility	Sincerity	3.2	>>>	2.7	$F(1,195)=50.5$	1.0
	Fairness	3.7	>>>	2.5	$F(1,195)=141.5$	1.7
	Greed Avoidance	3.0	>>>	2.3	$F(1,194)=40.3$	0.9
	Modesty	3.2	>>>	2.5	$F(1,195)=72.9$	1.2
	Total	3.3	>>>	2.5	$F(1,195)=141.0$	1.7
Emotionality	Fearfulness	3.0	=	3.0	$F(1,192)=0.1$	0.0
	Anxiety	3.0	=	3.0	$F(1,195)=0.2$	0.1
	Dependence	3.1	<<<	3.4	$F(1,194)=13.7$	0.5
	Sentimentality	3.0	<<	3.2	$F(1,189)=12.5$	0.5
	Total	3.0	<<	3.1	$F(1,195)=6.1$	0.4
Extraversion	Social Self-Esteem	3.6	=	3.4	$F(1,194)=2.1$	0.2
	Social Boldness	3.6	>>>	3.3	$F(1,194)=12.5$	0.5
	Sociability	3.5	=	3.5	$F(1,193)=0.3$	0.1
	Liveliness	3.3	=	3.2	$F(1,195)=1.0$	0.1
	Total	3.5	=	3.4	$F(1,194)=3.7$	0.3
Agreeableness	Forgiveness	3.1	>>>	2.3	$F(1,195)=99.7$	1.4
	Gentleness	3.3	>>>	2.5	$F(1,181)=49.2$	1.0
	Flexibility	3.3	>>>	2.2	$F(1,194)=117.9$	1.2
	Patience	3.5	>>>	2.3	$F(1,192)=194.0$	2.0
	Total	3.3	>>>	2.3	$F(1,190)=161.3$	1.8
Conscientiousness	Organization	3.8	>>>	2.2	$F(1,184)=301.9$	2.5
	Diligence	4.0	>>>	2.4	$F(1,187)=258.9$	2.3
	Perfectionism	3.3	>>>	2.3	$F(1,184)=239.7$	2.2
	Prudence	3.7	>>>	2.0	$F(1,192)=260.7$	2.3
	Total	3.8	>>>	2.2	$F(1,195)=407.6$	2.9
Openness	Aesthetic Appreciation	3.4	>>>	2.4	$F(1,188)=106.9$	1.5
	Inquisitiveness	3.2	>>>	2.4	$F(1,190)=79.4$	1.2
	Creativity	3.4	=	3.3	$F(1,195)=2.7$	0.2
	Unconventionality	3.2	>>>	2.9	$F(1,186)=18.6$	0.6
	Total	3.3	>>>	2.7	$F(1,193)=86.9$	1.3
Altruism		3.8	>>>	2.8	$F(1,192)=118.6$	1.5

Note. 1 to 5 scale; >>> or <<< $p < .001$; >> or << $p < .05$; = ns

Participants attributed significantly higher levels of Honesty-Humility, Agreeableness, Conscientiousness, and Openness, and significantly lower levels of emotionality to mature (vs. immature) targets. There was no overall difference in Extraversion, but participants attributed higher levels of the Social Boldness facet of Extraversion to mature (vs. immature) targets. Participants also attributed higher levels of the Altruism facet to mature (vs. immature) targets.

Wise reasoning. As Table 2 shows, participants attributed significantly more wise reasoning strategies, both overall and on each of the sub-dimensions, to the mature target than to the immature target.

Table 2.
ANOVA Wise Reasoning

	Mature		Immature		Effect Size Cohen's d
Consider Other's Perspective	4.0	>>>	2.3	$F(1,191)=269.1$	2.0
Consider Complexity and Change	4.0	>>>	3.3	$F(1,191)=179.3$	1.7
Intellectual Humility	3.7	>>>	2.4	$F(1,191)=135.7$	1.5
Search for Compromise	3.9	>>>	2.5	$F(1,191)=207.8$	1.8
Take an Outsider Perspective	3.8	>>>	2.1	$F(1,191)=187.8$	1.8
Total (average)	3.9	>>>	2.4	$F(1,191)=256.6$	2.3

Note. 1 to 7 scale; >>> or <<< $p < .001$; >> or << $p < .05$; = ns

Subjective age. As Table 3 shows, participants attributed significantly older subjective ages to the mature target than to the immature target. Recall, Subjective Age Difference subtracts out the participant's age.

Table 3.
ANOVA Target Subjective Age

	Mature		Immature		Effect Size Cohen's d
Target Subjective Age (in years)	25.7	>>>	17.4	$F(1,190)=150.0$	1.7
Target Subjective Age Difference (in years)	5.1	>>>	-2.6	$F(1,194)=131.0$	1.6

Note. >>> or <<< $p < .001$; >> or << $p < .05$; = ns

Experiential correlates of maturity. As Table 4 shows, participants judged that the mature target was significantly more likely to have experienced adult-like roles and several hardships compared to the immature target, the exception being having divorced parents which showed no differences.

Table 4.
ANOVA Experiential Correlates of Maturity

	Mature		Immature		Effect Size Cohen's d
Divorced parents (hardship)	4.1	=	4.4	$F(1,190)=2.6$	0.2
Tough financial spot (hardship)	4.5	>>	3.8	$F(1,183)=9.2$	0.4
Close loved one pass a way (hardship)	4.6	>>>	3.8	$F(1,188)=18.6$	0.6
Experience raising kids or siblings (adult role)	4.8	>>>	2.8	$F(1,195)=75.3$	1.2
Worked during school (adult role)	5.2	>>>	2.9	$F(1,187)=111.2$	1.5

Note. 1 to 7 scale; >>> or <<< $p < .001$; >> or << $p < .05$; = ns

Open-ended Traits. The 5 distinctive qualities provided by participants were first edited for clarity and spelling by research assistants (RA). I then examined the responses along with my advisor and we discovered several common themes. The themes included skills, character traits, and attitudes that had to do with: a prosocial (vs. pro-self) focus, strong (vs. poor) control of emotions and impulses, traits effective (vs. non-effective) for goal pursuit, and other desirable (vs. undesirable) traits (generally used if the quality listed did not fit any of the other categories). An RA then rated each response for the presence of these themes. Because the responses were relatively free of additional context, the RA was instructed not to overthink the coding and to try and assign responses to only one theme or a max of two if necessary.

For the mature qualities, 218 unique qualities were given while for the immature qualities, 284 were given⁴. As an example of some of these qualities, Table 5 is a list of the top-15 mentioned qualities for mature and immature targets and how they were coded.

Table 5.

Top 15 Nominated Characteristics of Mature and Immature Targets

Mature	Times Listed		Immature	Times Listed	
1. Organized	24	GP	1. Impulsive	26	CO
2. Responsible	20	GP	2. Stubborn	19	PS
3. Kind	15	PS	3. Selfish	17	PS
4. Empathetic	15	PS	4. Inconsiderate	16	PS
5. Respectful	14	PS	5. Irresponsible	15	GP
6. Calm	14	CO	6. Self-centred	12	PS
7. Open-minded	12	OT	7. Disorganized	12	GP
8. Hardworking	12	GP	8. Careless	11	GP
9. Honest	10	PS	9. Lazy	7	GP
10. Caring	9	PS	10. Arrogant	6	PS
11. Understanding	8	PS	11. Irrational	5	OT
12. Level-headed	8	CO	12. Rude	5	CO/OT
13. Ambitious	8	GP	13. Unempathetic	5	PS
14. Self-aware	8	OT	14. Aggressive	4	CO/OT
15. Thoughtful, Patient, Intelligent	7	PS PS GP	15. Childish, Emotional, Energetic, Naïve, Uncaring	4	CO CO OT OT PS

GP – Effective/Ineffective for Goal Pursuit

PS – Prosocial/Pro-self

CO – Control/Lack of Control of Emotions and Impulses

OT – Other Desirable/Undesirable Traits

Examining the coded themes, it seems that maturity and immaturity are not simply the inverse of each other. Participants listed prosocial qualities in the mature target condition ($M = 1.1$, $SD = 1.1$) more often than pro-self qualities were listed in the immature target condition (M

⁴ The list can be cleaned further, admittedly. With short responses there is not a lot of context and so I opted to be conservative in my consolidating of similar terms. For example, “leader” and “leadership” were treated as unique terms despite them probably meaning similar things.

= 0.8, $SD = 0.82$); $t(191) = 2.26, p = .026$. On average participants listed strong emotional and impulse control qualities less often in the mature target condition ($M = 0.5, SD = 0.6$) than they listed poor emotional and impulse control qualities in the immature target condition ($M = 0.9, SD = 0.9$); $t(191) = -4.1, p < .001$). Participants listed effective goal pursuit in the mature target condition ($M = 1.4, SD = 0.9$) as often as they listed ineffective goal pursuit in the immature target condition ($M = 1.3, SD = 0.9$; $t(191) = -0.7, p = .475$). So, while all three themes came up frequently for both target groups, it seems that having prosocial traits is a more significant sign of maturity than having pro-self traits is a sign of immaturity. Likewise, having poor impulse and emotional control is more a sign of immaturity than having good control is a sign of maturity. Lastly, having good and bad goal pursuit traits are equal signs of maturity and immaturity, respectively.

Self-perception: Links between subjective age and mature experiences. I next looked at participants' own subjective age ratings and how they correlated with their own roles and hardships. Table 6 shows both the individual roles and hardships, as well as the sums of the roles and hardships. For the most part, there is convergence with the lay theory and actual feelings. In both cases, parents being divorced or separated was not predictive of higher maturity. Depending on which participant subjective age measure you look at⁵, the other four adult roles and hardships also follow the same pattern as the lay theory. That being said, there are very few participants who have some of the roles (self-employed, caregiver, homemaker) and hardships (personally

⁵ Participants throughout my studies were asked to report subjective age in both years and on a scale. While these two measures correlated with each other (0.434^{***} in this study), often times how they correlate with other variables differs. I suspect part of the reason is that subjective age when reported in years is tougher to answer. For example, if you feel a little older, what is a good age to put? One year older? Two? Contrast this to the scale question where the appropriate response is likely "I feel a little older". If you feel a lot older, the problem may be magnified. What is much older, 10 years, 20 years, 30 years? It is very easy for the average subjective age or correlations using it to get skewed by large numbers which is why I winorize the subjective age in years score so that the effect of outliers are limited.

divorced) and so for simplification, looking at the sums is probably more helpful. In this case, adult roles and hardships are positively associated with subjective age and, interestingly, student roles are not.

Table 6.

Zero-order Correlations between Participant Roles and Hardships and Subjective Age

Correlations (and number of participants who have the role or hardship provided in brackets)	Participant Subjective Age Difference (Years)	Participant Subjective Age (Scale)
Student Roles Sum	-0.10	-0.10
Student Full-time (164)	-0.06	-0.05
Student Part-time (34)	0.03	0.02
Adult Roles Sum	0.31***	0.12
Working Full-time (22)	0.12	0.10
Working Part-time (55)	0.24***	0.13
Self-employed (4)	-0.04	-0.10
Volunteer 15 hours per week (9)	0.14*	0.03
Primary Caregiver (1)	0.16*	-0.01
Homemaker (2)	0.14	-0.01
Hardships Sum	0.10	0.23**
Parents divorced or separated (49)	0.03	0.01
Parents never lived together (7)	0.08	0.19**
Personally divorced (1)	-0.13	0.07
Close loved one passed away (85)	0.05	0.19**
Tough financial position (31)	0.12	0.17*

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Discussion

Results from this study indicate various different ways mature adults are conceptualized differently from immature adults. Mature targets, relative to immature targets, are thought to be higher on a number of personality traits, are thought to handle conflict more wisely, are thought to feel older than their actual age, are thought to be more likely have experienced or be experiencing adult roles and hardships, and likely have traits that are indicative of high prosociality and effective goal pursuit as opposed to poor impulse and emotion control and ineffective goal pursuit.

Personality Traits

Mature adults in comparison to immature adults are thought to be more honest and humble, less dependent on others and less sentimental about others, more socially bold, more agreeable, more conscientious, more open to new experiences, and more altruistic. These traits paint a very virtuous picture of what a young-adult sample thinks of mature targets. Many of these traits actually line up with extant research on personality change and development as one ages. Emotional stability, social dominance, agreeableness, conscientiousness, and openness all increase on a mean level during young adulthood (Costa Jr & McCrae, 2006; Roberts & Mroczek, 2008) and more recent research with the HEXACO model also finds higher levels of honesty-humility and altruism in adults compared to adolescence (Ashton & Lee, 2016). So, it seems that lay theories around mature and immature adults are convergent and perhaps reflective of what longitudinal data finds. These results also point to relevance of a personality or character-related conceptualization of maturity, that is, personality traits seem to be factors that participants use to distinguish between mature and immature people.

Immature targets were rated higher on dependence on others and sentimentality. The finding for dependence on others converges with research that finds young adults rate “financial independence from parents” as a key determinant in whether one has reached adulthood (Arnett, 1997). This may also line up with the achievement-related conceptualization of maturity mentioned by authors like Mintz (2015) and Brooks (2015) in the introduction of this dissertation. While the HEAXCO does not measure “financial independence”, it does measure sentimentality, which can be interpreted as emotional independence. The sentimentality sub-trait is an interesting one in that it is not inherently an “undesirable” trait. In fact, when one reads the items, they can be interpreted as care, empathy, and sympathy for others, traits that are arguably

desirable. That being said, it is perhaps when these traits are taken to the high extreme that the higher attribution to immature targets begins to make sense. For example, one item reads “They feel like crying when they see other people crying” and so the more a person endorses this item, it can be interpreted as the less a person has control over their emotions. Thus, mature targets being less sentimental can perhaps be interpreted to mean they have control over their emotions whereas immature targets have less control.

One possible explanation for these results may be the halo effect. The halo effect occurs when a person has positive traits and because of this, people have the tendency to apply further positive attributes to them (Nisbett & Wilson, 1977). For example, a good-looking and charming celebrity might also be assumed to be moral, honest, and intelligent, despite their looks and charms having no real correlation to these other traits. Similarly, it could be that participants believe being mature is a positive trait and as such, are more willing to apply positive personality traits to this group. Contrary to this explanation, however, not every positive personality trait on the HEXACO was associated with mature targets. Creativity, arguably a very positive trait to possess, was rated as equally descriptive of a mature and immature adult. Even more telling is the nuanced pattern with the extraversion traits in which, other than social boldness, there was no significant perceived difference between mature and immature targets. This result challenges the halo effect interpretation because sociability, is generally a positive trait especially in Western cultures (Cain, 2013). Meta-analytic review shows support for this claim as, in workplace contexts, higher extraversion is linked to higher job performance ratings from supervisors, peers, and subordinates and this is due to more highly extraverted people coming across as more positive, more eager, and better in social situations than less extraverted (more introverted) people (Wilmot, Wanberg, Kammeyer-Mueller, & Ones, 2019). As further evidence against a

simple halo effect interpretation, the sub-traits fearfulness and anxiety under emotionality do not favour mature targets. As the names suggest, these sub-traits assess one's reactions to dangers and stressors. If a halo effect existed towards mature people, I would expect that mature targets would be rated favourably here as well. Thus, while mature targets seem to be rated quite positively relative to immature targets, it is not on every personality trait or sub-trait, lending confidence that these may be thoughtful lay theories and not just reflect a simple halo effect.

Maturity During Conflict

Mature targets were also expected to act more wisely in situations of interpersonal conflict. This was the case for the SWIS as a whole and across all its sub-components. Thinking about this from the other direction, that is, from the perspective of thinking about an immature target is perhaps more helpful. In situations of interpersonal conflict, immature people are less expected to take the other side's perspective; to consider the complexity of the situation; to recognize personal biases and limits of knowledge; search for compromise; or take a third-party perspective. In this way, someone who is immature is expected to be more self-centred and narrow-minded relative to a mature person, who is more apt to take in more information and consider alternatives when they get into conflicts. This lay theory lines up with life development and philosophical models which propose that moving beyond the self and becoming more prosocial are signs that a person has reached full maturity and become fully realized (Erikson & Erikson, 1998; Loevinger, 1966).

Subjective Age

Results also indicated that within lay theories subjective age may be seen as a phenomenological cue of maturity. When young adult participants were asked what age their mature or immature target would likely feel, the mature target was rated on average as feeling

5.1 years older than the participants' average chronological age while the immature target was rated as feeling 2.6 years younger. Thus, the lay theory seems to indicate that someone who is mature likely feels older than their actual age and someone who is immature likely feels younger than their actual age. This is perhaps a reflection of the common phrases "mature for one's age" and "immature for one's age".

Adult Roles and Hardships

The adult roles and hardships a mature and an immature target are likely to have experienced also differed. Other than parents going through divorce, in which there were no difference between targets, the other four roles and hardships were thought to be more likely to have happened to a mature person (being in a tough financial spot, having a close loved one pass away, having childcare experience, and having to work through school). One way to interpret this is that these roles and experiences build a sense of maturity in a person because of the challenges they represent. For example, being in a tough financial spot might mean having to learn to budget and manage one's finances, not taking things for granted, and learning to sympathize with the less fortunate. Having childcare duties may require and teach one about responsibility and patience. Losing a close loved one may force someone to deal with grief and the realization that life can be unfair. It may also thrust one into a role of more responsibility if, say, one's parent passes away at a young age. In this way, roles and hardships may be linked to maturity because of the character traits they build. Simultaneously, some may also reflect early adult-like achievements, for example, caregiving and working are similar to starting a family and a career. More generally speaking, roles and hardships may simply just represent a challenge that needs be overcome with a novel method or with development of novel skills. So, independent of the lessons a particular role or hardships may teach a person, it is perhaps the experience of being

challenged and having to adjust to overcome it that is associated with maturity (Gray, Litz, Hsu, & Lombardo, 2004; Turner & Wheaton, 1995).

Hardships in particular may also be attributed to mature targets as they may represent the experience of becoming disillusioned about the world, that is, coming to the realization that that world it is not always a kind place and bad things happen. Coming to understand this may be expected in adulthood, but perhaps not in childhood where we are generally sheltered from negative experiences. Participants may be picking up on this and reasoning such experiences early in life are teaching people this tough lesson early and thus making them more mature (Janoff-Bulman et al., 1998).

Interestingly, having divorced parents was not differentiated between mature and immature targets. I think it is possible that there are competing lay theories when it comes to this hardship. On the one hand, it can build maturity in as much as it may force an adolescent to take on more parental type roles such as earning an income or taking care of siblings in order to support the family. On the other hand, research shows there are stereotypes about single-parent children being expected to have problems because they lacked attention or a fatherly or motherly role model (Ganong et al., 1990).

Nominated Traits

Participants seemed to nominate skills and traits in three broad categories: prosociality (pro-self); good (poor) control of impulses and emotions; and effective (ineffective) goal pursuit. Interestingly, mature and immature targets were not simply the opposite of each other. When it comes to mature targets, skills and traits having to do with prosociality were more commonly listed than traits dealing with pro-self motives were for immature targets. This may be indicative of prosociality being seen as a better sign of maturity than pro-self motives are of immaturity.

Likewise, traits indicative of low impulse and emotion control came up more often for immature targets than good control came up for mature targets. So, for participants, a lack of control seems more diagnostic of an immature person than good control is diagnostic of a mature person. Perhaps a slightly different way to interpret these results is in reference to an “average” person. Compared to an average person who is not necessarily mature or immature, prosociality sticks out for mature targets while poor impulse and emotion control sticks out for immature targets. To say this another way, the average person may be expected to be a little self-centred but generally have decent impulse and emotional control. In this way, emotional control may be taken for granted as a normal developmental achievement, notable only when it is absent. Similarly, egocentrism may be taken for granted as normal and expected such that orientation towards others is especially noteworthy trait indicative of higher-than-average maturity. For both mature and immature targets, skills and traits dealing with effective and ineffective goal pursuit were equally nominated, respectively. So, it seems like for young adults, being competent when it comes to pursuing goals is the expectation.

One last overall observation with regards to the lay theories is that there is the presence of both the achievement and character conceptualizations of maturity as mentioned in the introduction section of this dissertation. Mature targets being rated higher on conscientiousness, being rated as more likely to work and have childcare experience, and the emergence of effective goal-pursuit theme in the open-ended trait questions are consistent with the pursuit and accumulation of achievements being a conceptualization of maturity. Traits like higher honesty-humility and agreeableness, having experienced hardships, and possessing pro-social traits are consistent with possessing “character” also being a conceptualization of maturity.

Integrative Profile of Young Adult Maturity

An integrative profile emerged when I examined the qualities that perceivers particularly used to differentiate mature versus immature young adults. I noted particularly high effect sizes (Cohen's $d = 1.5$ or higher) in attributions of traits related to conscientiousness, altruism, fairness, patience, and wise reasoning during conflicts. This set of character traits may be interpreted as indicating that the profile of the mature young adult involves effective agency in service to goals that transcend the self. The effective agency part of this profile is captured by the strong attribution of traits related to conscientiousness, while the attributions of high levels of altruism, fairness, and wise reasoning may further indicate that to be considered mature, that high agency needs to be focused on concerns that transcend one's own self-interest. This interpretation is further supported by the relatively high frequency of listing traits related to both effective goal pursuit and prosocial values in participants' open-ended descriptions of mature (vs. immature) young adults. These patterns suggest that the lay theory views mature adulthood as a successful integration of agency and communion, which aligns with prominent models of development that emphasize that psycho-social maturation involves developing the self-regulation skills and personal values necessary to shift from a relative ego-centric orientation typical of adolescence to the more self-transcendent, generative orientation of fully mature adulthood (e.g., Erikson & Erikson, 1998).

Self-perceptions related to maturity

Assessing the correlation between participants' own subjective age and their own roles and hardships produced converging evidence with the lay theory. Having more adult roles and experiencing hardships was correlated with an older subjective age, just like participants thought would be the case with mature and immature targets. Also, having divorced or separated parents

on its own was not predictive of an older subjective age. Interestingly, being a student was not predictive of an older subjective age despite it requiring similar skills to thrive in as other adult roles do (e.g., being responsible, hard-working, organized). It could be possessing non-age-normative roles then that predicts whether someone feels older and more mature. For a student sample mostly in their early twenties, being a student is the norm, whereas working is less common. So, it may be the case that only additional roles on top of the ones that are expected of your age group predicts an older subjective age. Alternatively, it could be the sum of the roles you have. Since almost everyone in this study is a student and thus has one role, maybe effects on subjective age are only detectable when someone has additional roles.

In the next study, I will expand on self-perceptions of maturity. With a larger sample, I will explore the links between subjective age and adult roles and hardships. As well, I will introduce new measures that more directly measure participants self-perceptions of maturity.

Study 2: Self-perceptions of Maturity in Young Adulthood

The results of Study 1 indicated that lay perceivers attribute distinctive personality traits, reasoning strategies, experiences, and feelings of subjective age to mature versus immature others. Specifically, participants perceived mature young adults as having higher levels of several adaptive personality traits, such as conscientiousness; higher levels of wise reasoning in situations of conflict; more experience in adult roles and enduring personal hardships; and an older subjective age compared to immature young adults. Furthermore, I found exploratory evidence for my hypothesis that participants also apply these lay theories of maturity to determine their own self-perceptions of maturity. Specifically, participants who reported feeling subjectively older also possessed more experience performing adult roles and enduring hardships. Since the pattern of intercorrelations for these variables in individuals' self-perceptions matched the common associations of these variables with lay theories of maturity, this is evidence that young adults may apply the same lay theories of maturity to determine their own sense of felt maturity.

Two important factors, however, limit the interpretation of Study 1's exploratory findings regarding mature self-perceptions. First, I did not include any direct measures of self-perceived maturity and so the evidence is only suggestive that the correlations between subjective age and adult roles and hardships reflect self-perceived maturity. Second, participants' self-reports of subjective age and experiences of adult roles and hardships were measured after they had made ratings of the typical characteristics of a mature or immature person. This ordering of the measures may have introduced a procedural demand that led participants to apply their lay theories of maturity to their own self-perceptions. It remains to be seen whether the relationships between these self-perceptions would be robust if participants' lay theories of maturity were not

as strongly evoked through a preceding task that asked them to focus on applying those theories to another target.

In Study 2, I sought to address the limitations of Study 1's exploratory findings and more systematically test my hypothesis that young adults apply lay theories of maturity as schemas to organize and integrate their own self-perceptions of maturity. To test this hypothesis, I examined whether young adults' self-reports of personal characteristics, experiences, and subjective feelings interrelate in ways that fit the common associations of these variables with maturity according to the lay theories of maturity that I documented in Study 1. Specifically, if young adults use lay theories of maturity to define their own sense of self-perceived maturity, then I would expect positive interrelations between their self-reports of maturity; traits like wisdom and responsibility; using wisdom in conflicts; experiences performing adult roles and enduring hardships; and older subjective age. Study 2 improves on the methodology of Study 1 by including a direct measure of self-perceived maturity as well as several other self-perceived characteristics that are relevant to lay theories of maturity. Also, in Study 2 these self-perceptions were measured without asking prior questions about the typical characteristics of a mature or immature person, which allows me to assess whether young adults' self-perceptions show patterns that fit with lay theories of maturity even when those lay theories have not been strongly activated through a prior task.

The data for studying these self-perceptions are compiled from a series of studies that were conducted early in this line of research in which I attempted to experimentally induce a greater sense of maturity in participants by focusing their attention on experiences that I thought might connect to lay theories of maturity. These experimental inductions included the following (with non-experimental conditions in brackets):

- A. Think about a time you planned well for the future and what you learned from it (vs. an enjoyable event in your life)
- B. Think about a significant or challenging event vs. a time you planned well for the future (vs. an enjoyable event in your life)
- C. Think about a significant challenge that you successfully coped with (vs. a significant challenge that someone else had to cope with)
- D. Think about a significant challenge that someone else had to cope with and the lessons that can be learned (vs. a lesser challenge that someone else had to cope with)

The results from these studies mostly contained null or inconsistent results with regards to the experimental conditions promoting a greater sense of maturity or older subjective age over the control conditions. These data are still useful, however, to test my hypotheses about how participants' self-reports of personal qualities, experiences, and subjective feelings should intercorrelate if they are applying the lay theories of maturity to self-perceive maturity in themselves. So, in Study 2 I am pooling the data from the aforementioned studies into a "mega analysis" where I will explore the relationships between self-perceived maturity, character traits, experiences of roles and hardships, and subjective age, while controlling for any condition effects from individual studies. The advantage of pooling data into an omnibus analysis is the larger sample size increases the ability to detect and confirm significance of effects (Cooper & Patall, 2009). As seen in the chart below, this mega-analysis will pool data from the 4 studies that are described in the bulleted list above (Studies A, B, C, and D).

Table 7.
Summary of Participants (Study 2)

	Study A	Study B	Study C	Study D	Total
Sample Source	MTurk	Student Pool	Student Pool	Student Pool	
<i>N</i>	174	245	286	195	900
<i>M_{age}</i> (<i>SD</i>)	21.6 (1.8)	20.2 (2.1)	19.9 (2.0)	19.5 (2.2)	20.3 (2.1)
Gender					
-Man/Transman	47.7%	31.4%	27.2%	23.1%	31.4%
-Woman/Transwoman	50.6%	50.2%	53.5%	71.8%	56.0%
-Prefer another term or Prefer not to answer	1.7%	0.8%	3.8%	3.1%	2.5%
-No data		17.6%	15.4%	2.1%	10.1%

Hypotheses

Firstly, I hypothesize that self-reported levels of maturity will be positively correlated with: a) other character traits indicative of maturity, b) tendency to use wise approaches in conflict, c) feeling an older subjective age, and d) experiences performing adult roles and enduring personal hardships. Secondly, I further hypothesize that the self-perception variables, wise approaches in conflict, subjective age, and experiences performing adult roles and enduring hardships will also be positively interrelated with each other in ways that fit their shared connection to lay theories of maturity.

Measures

For all 4 studies, the study-specific experimental and control manipulations were the first tasks participants completed⁶. After that, the below measures were collected in the order presented:

⁶ With one exception, in Studies A and B, subjective age was asked about both before and after the manipulations to measure potential change in subjective age. For the subsequent analyses, I am only looking at the post-manipulation response.

Subjective Age. In all the pooled studies, participants answered an item asking about their subjective age. Wording varied slightly between studies but generally was as follows: “Sometimes people feel older or younger than they actually are. What age are you feeling right now?”. Participants were instructed to provide their response in years. Participants’ actual chronological age was subtracted from their subjective age response such that positive values represented feeling older than their actual age, that is, an older subjective age. This score was then winsorized to minimize the effect of outliers, that is, subjective age difference values greater than 3 standard deviations from the mean were set at exactly 3 standard deviations. For studies C and D, an additional subjective age (scale) question was also asked in which participants responded on a 1 to 5 scale to indicate how old or young they felt relative to their actual age, “(I feel) much younger” to “(I feel) much older”. Descriptives can be found in Table 8.

Wise Reasoning. In Study C only, participants answered the Situated Wisdom Scale (SWIS; Brienza et al., 2018). Unlike Study 1, where they answered the SWIS with regards to a hypothetical mature or immature target, in Study C participants answered about themselves and how they think they generally handle conflict. Items were answered on a 7-point scale, *not at all* to *very much*. Higher scores indicate that targets say they are more likely to take “wise” approaches to dealing with conflicts, that is, expand beyond their own perception and interests during conflicts. Descriptive statistics can be found in Table 8.

Table 8.

Descriptive statistics: Situated Wisdom Scale, Age, and Subjective Age (Study 2)

	Actual Age	Subjective Age Difference (Years, before winsorizing)	Subjective Age (Scale)	Situated Wisdom Scale
N	900	897	481	285
Studies	All	All	C and D	C
Mean	20.3	1.9	3.1	5.3
Median	20.0	0.0	3.0	5.3
Standard deviation	2.1	6.7	0.9	0.9
Minimum	17.0	-22.0	1	1.8
Maximum	30.0	53.0	5	7.0

Interesting to note with the two subjective age measures are their means. Subjective age is frequently studied in older adult populations (above age 40) where the norm is that people report a subjective age on average 20% younger than their actual age (Rubin & Berntsen, 2006). Less studied is subjective age in younger adults where the extant research suggests that young adults tend to feel around their age or a little older on average (Goldsmith & Heiens, 1992; Montepare & Lachman, 1989). Indeed, this is what I find in my data. Participants on average feel only 1.9 years older than their actual age and on average score only 0.1 points above the midpoint of the subjective age scale question, with the midpoint marked “(I feel) neither younger or older”.

Felt Maturity and other Self-Perceived Character Traits. For all the studies, I created a set of questions designed to assess how mature a participant felt. Participants were asked “Compared to *same-age peers*, how *X* do you feel?”. Studies A to D used four words/phrases: *mature, wise, accomplished, close to achieving my goals*. Participants answered these items on a 1 to 7 scale, “(I feel) A lot less *X*” to “(I feel) A lot more *X*”. Additionally, studies C and D had three more items: *responsible, reliable, and moody*. Studies C and D also included another question asking if participants felt they had reached “full adulthood” on a 5-point scale: “*Not close at all*” to “*I have reached full adulthood*”. This last question was adapted from work by Arnett (1997). His original question had 3 answer options: *yes, in some respects* and *no*. I chose to modify this to a 1 to 5 scale to allow for more variability in participants’ responses.

I chose the initial set of words and phrases because they were face-valid adjectives related to maturity. “Mature” is of course directly asking about maturity. The word “wise” is playing off the phrase “wise beyond one’s years”. “Accomplished” and “close to achieving goals” were meant to capture achievement-related connotations of maturity. As argued in the

introduction of this dissertation, obtaining “adult” milestones is a common conceptualization of maturity. Likewise, as we saw in the qualities listed by participants in Study 1, traits and skills dealing with making effective progress towards goals were also considered a sign of maturity and so having participants evaluate their goal progress seemed like a good way to measure felt maturity. The traits “responsible”, “reliable”, and “moody” were added based on the Study 1 results because these traits relate to conscientiousness and emotional stability and control. Such traits are also in line with the character-related conceptualization of maturity.

All these items were evaluated by comparing oneself to same-age peers. This was a conscious decision as research on social comparisons has shown that evaluating the self this way leads to more objective appraisals, relative to evaluating the self relative to something like a past self (earlier point in one’s life) which can be more open to subjective interpretation (Wilson & Ross, 2001). Descriptive statistics for these variables can be seen in Table 9.

Table 9.
Descriptive statistics: Maturity Variables (Study 2)

	Mature	Wise	Accomplished	Close to Achieving Goals	Responsible	Reliable	(Less) Moody	Close to Adulthood
N	900	900	900	900	481	481	481	481
Studies	A to D	A to D	A to D	A to D	C and D	C and D	C and D	C and D
Mean	5.1	4.9	3.8	3.8	4.9	4.9	3.9	2.9
Median	5.0	5.0	4.0	4.0	5.0	5.0	4.0	3.0
Standard deviation	1.4	1.2	1.5	1.5	1.3	1.4	1.4	1.1
Minimum	1	1	1	1	1	1	1	1
Maximum	7	7	7	7	7	7	7	5

Adult Roles and Hardships. In studies C and D, participants were asked if they possessed any of the following adult roles: 1) working full-time, 2) working part-time, 3) self-employed, 4) volunteer 15 hours a week, 5) primary caregiver, or 6) a full-time homemaker. For hardships, participants were asked if they had experienced or are currently experiencing any of the following: 1) parents divorced or separated, 2) parents never lived together, 3) personally

divorced or separated, 4) a close loved one had passed away, or 5) their current financial situation is much worse now than it was 5 years ago. Sums were created for both roles and hardships. Student roles were also asked about as well: 1) student full-time and 2) student part-time.

Table 10.
Descriptive Statistics and Frequencies for Roles and Hardships (Study 2)

	Student Roles		Adult Roles		Hardships	
N	481		481		463 (18 opted to not answer)	
Studies	C and D		C and D		C and D	
Mean	1.0		0.4		0.6	
Median	1.0		0.0		0.0	
Standard deviation	0.2		0.6		0.8	
Frequencies						
	Student Roles		Adult Roles		Hardships	
0	12	2.5 %	325	67.6 %	193	41.7%
1	465	96.7 %	133	27.7 %	195	42.1%
2	4	0.8 %	21	4.4 %	58	12.5%
3	-	-	0	0.0 %	15	3.2%
4	-	-	2	0.4 %	2	0.4%

As one can see from Table 10, almost every participant was a student. About one third of participants had at least one adult role and about just under 60% had experienced at least one hardship. As observed in Study 1, with student roles being so common I do not expect possessing them to correlate with higher felt maturity, the self-perception traits, wisdom in conflicts, or an older subjective age. Since participants are comparing themselves to same-age peers when it comes to assessing their felt maturity, they will likely be comparing themselves to fellow students given that data for Studies C and D was collected through the University’s student pool. As such, being a student may not be anything special when it comes to assessing one’s maturity. Also, given the age range of participants of 17 to 30, being a student during this period in life is extremely common and so it likely will not translate to a greater felt maturity, greater ratings on

the self-perception traits, wisdom during conflict, or an older subjective age, unlike adult roles or hardships which are less common at this age range.

Analyses and Results

Correlations of Self-perceived Maturity with Relevant Traits, Feelings, and Experiences

To test my hypotheses, I looked at correlational analyses controlling for the study and condition a participant was in (i.e., partial correlational analyses⁷). In Table 11, I first looked at the measure of self-perceived maturity and its correlation with self-perceived wisdom, accomplishment, closeness to one’s goals, responsibility, reliability, moodiness, and closeness to adulthood (as well as their correlations with each other.) In support of my first hypothesis, “mature” correlated positively and significantly with all the other self-perception measures. Likewise, and mostly in support of my second hypothesis, all these other self-perception measures correlated positively and significantly with each other, with the exception of moodiness and accomplished with closeness to adulthood.

Table 11.
Partial Correlations between Felt Maturity Variables

	Mature	Wise	Accomplished	Close to Goals	Responsible	Reliable	(Less) Moody
Wise	.56***						
Accomplished	.36***	.37***					
Close to Goals	.32***	.37***	.78***				
Responsible	.61***	.42***	.41***	.34***			
Reliable	.48***	.41***	.36***	.30***	.60***		
(Less) Moody	.12**	.12*	.13**	.22***	.19***	.16***	
Close to Adulthood	.08*	.07*	.05	.07*	.25***	.21***	.06

Note. controlling for study and condition; * $p < .05$, ** $p < .01$, *** $p < .001$

⁷ Studies and conditions were dummy coded when running partial correlation analysis.

I next looked at the partial correlations between maturity and these self-perception variables with wisdom during conflict and subjective age. I also included actual age as well, as it is possible that as one gets older, they are more likely to feel more mature and feel superior on the self-perception variables. If this is the case, maturity and the related variables may simply be a reflection of getting older and not about how one thinks about their subjective age. In support of my first hypothesis (Table 12), self-perceived maturity correlates positively and significantly with the tendency to use wisdom during conflict and both subjective age measures. In support of my second hypothesis, the tendency to act wisely during conflict positively and significantly correlated with the self-perception measures, except moodiness where the relationship was negative. Many of the other self-perception variables also positively and significantly correlate with the subjective age measures. Importantly, maturity does not correlate significantly with actual age, nor do any of the other self-perception traits with the exception of wise. This indicates that feeling more mature and feeling superior on the self-perception variables is not simply a matter of getting older, but rather how one feels relative to their actual age.

Table 12.
Partial Correlations between Age Variables and Felt Maturity Variables

	Situated Wisdom Scale	Actual Age	Subjective Age (Year)	Subjective Age (Scale)
Mature	.43***	.03	.19***	.12**
Wise	.28***	.09*	.14***	.10*
Accomplished	.19***	-.05	.11***	.16***
Close to Goals	.12*	-.05	.14***	.16***
Responsible	.38***	-.02	.06	.13**
Reliable	.39***	-.01	.02	.06
(Less) Moody	-.14*	-.08	.04	-.03
Close to Adulthood	.17**	-.08	.02	.14**
Actual Age	.14*			
Subjective Age (Years)	-.06	-.14**		
Subjective Age (Scale)	.25***	.04	.18***	

Note. controlling for study and condition; * $p < .05$, ** $p < .01$, *** $p < .001$

As last test of my hypotheses, I looked at the partial correlations with adult roles, student roles, and hardships (Table 13). In support of my first hypothesis, feelings of higher maturity significantly correlated with possessing more adult roles and experiencing more hardships. Also as expected, student roles did not correlate significantly with feeling more mature (or the other self-perception measure or subjective age). The tendency to use wisdom during conflict positively correlated with student roles, adult roles, and hardships, though this only reached significance with student roles. Contrary to my second hypothesis subjective age did not correlate significantly with adult roles or hardships.

Table 13.

Partial Correlations between Roles and Hardships with Subjective Age and Maturity

	Student Roles	Adult Roles	Hardships
Mature	.05	.13**	.13**
Wise	.03	.08	.13**
Accomplished	-.06	.13**	.04
Close to Goals	-.08	.13**	.01
Responsible	.03	.15***	.12*
Reliable	.05	.12**	-.01
(Less) Moody	.02	.03	-.01
Close to Adulthood	-.01	.06	.04
Situated Wisdom Scale	.17**	.12	.10
Subjective Age (Years)	-.06	-.03	.06
Subjective Age (Scale)	-.03	.05	.02

Note. controlling for study and condition; * $p < .05$, ** $p < .01$, *** $p < .001$

Factor Analysis. Examining the correlations among the self-reported trait ratings in Table 11, it is evident that some ratings correlate more strongly with each other than with other traits. For example, accomplished and close to goals correlated with each other very highly at .78. Mature and wise also correlated highly together at .56. To statistically test for these patterns and simplify the trait rating measures, I ran a factor analysis on these four variables. I only focused on the 4 traits that were measured in all 4 studies: mature, wise, accomplished, and close to achieving goals. Parallel analysis indicated that a 2-factor solution was appropriate for the data and exploratory factor analysis resulted in the following loadings seen in Table 14.

Table 14.
Factor Analysis of Self-Perception Variables (Study 2)

	Factor		Uniqueness
	1	2	
Mature		0.867	0.2745
Wise		0.606	0.5478
Accomplished	0.756		0.3465
Close to Goals	0.993		0.0485

Note. 'Minimum residual' extraction method was used in combination with an 'oblimin' rotation

As suspected, mature and wise loaded together into a single factor. Also, as suspected, accomplished and close to achieving goals loaded together. These findings suggest that, in accordance with work talked about in the introduction, conceptualizations of maturity may take distinct forms emphasizing either mature character or a sense of achievement. In light of these new findings, I created composite maturity measures, one composed of the average of how “mature” and “wise” a participant feels, labelled *character-based maturity* and a second composed of the average of “accomplished” and “close to goals” labeled *achievement-based maturity*.

Re-testing my hypotheses (Table 15), both subjective age measures significantly correlated with the new composite maturity items. Also, the new composite maturity items correlated significantly with the other non-factor analyzed self-perception measures and wisdom during conflict, except in the case of achievement-based maturity with closeness to adulthood. One other thing to note is that responsible and reliable seem to correlate a bit more strongly with character-based maturity than they do with achievement-based maturity. This makes sense as responsible and reliable are more character traits than reflections of achievement. Possessing adult roles is correlated significantly with both character-based maturity and achievement-based maturity. Having experienced hardships is correlated significantly with character-based maturity

but not with achievement-based maturity. This difference is interesting in that it suggests that adult roles and hardships do not contribute in the same way to enhancing one's felt maturity. While both seem to be associated with feeling more mature and wiser, having experienced hardships is not associated with feeling accomplished or closer to your goals. As expected, student roles were still not correlated with maturity.

Table 15.
Partial Correlations with Composite Maturity Variables

	Character-based Maturity	Achievement-based Maturity
Achievement-based Maturity	.42***	
Responsible	.59***	.40***
Reliable	.50***	.35***
(Less Moody)	.13**	.18***
Close to Adulthood	.09*	.07
Subjective Age (Years)	.19***	.13***
Subjective Age (Scale)	.12**	.17***
Situated Wisdom Scale	.41***	.17***
Student Roles	.04	-.07
Adult Roles	.12**	.14**
Hardships	.14**	.04

Note. controlling for study and condition; * $p < .05$, ** $p < .01$, *** $p < .001$

Psychological Well-being. As a last set of analyses, I wanted to explore the relationships these measures of maturity in young adulthood had with measures of psychological well-being (Ryff & Keyes, 1995). Specifically, well-being was measured by self-reported feelings of autonomy, personal growth, environmental mastery, purpose in life, and self-acceptance⁸. Each individual construct contained 7 items and were answered on a 1 to 7 scale, *Disagree strongly* to *Agree strongly*. Being high in autonomy represents someone who is self-determining, independent, and resists social pressures (e.g., “My decisions are not usually influenced by what

⁸ Autonomy was not assessed in Studies C and D.

everyone else is doing”). Being high in personal growth represents a person who carries a mindset of continuous development and sees oneself as constantly growing and open to new experiences (e.g., “For me, life has been a continuous process of learning, changing, and growth”). Someone high in environmental mastery feels a sense of control and competence when it comes to navigating their life (e.g., “In general, I feel I am in charge of the situation in which I live”). A person high in purpose in life believes their life has direction and meaning (e.g., “I enjoy making plans for the future and working to make them a reality”). Lastly, self-acceptance reflects a positive attitude about the self in terms of confidence, characteristics, and past achievements (e.g., “When I look at the story of my life, I am pleased with how things have turned out”). (See Appendix C for the full scales)

Looking at Table 16, subjective age was not correlated with any of the psychological well-being variables. However, both composite measures of maturity were correlated positively with all the psychological well-being variables. Likewise, the other self-perception variables, such as responsible and reliable were also correlated positively with the psychological well-being measures as was the tendency to use wise approaches in conflict. In terms of roles and hardships predicting well-being, there are some significant results, but nothing uniform across all the measures. Possessing more adult roles was correlated with higher environmental mastery and self-acceptance. Further, the more hardships a participant had experienced, the more personal growth they tended to report.

Table 16.
Partial Correlations with Psychological Well-being (Study 2)

	Autonomy	Personal Growth	Environmental Mastery	Purpose in Life	Self-Acceptance
Personal Growth	.40***				
Environmental Mastery	.38***	.42***			
Purpose in Life	.38***	.60***	.58***		
Self-Acceptance	.44***	.45***	.74***	.57***	
Subjective Age (Years)	.05	-.03	-.04	-.02	-.03
Subjective Age (Scale)	—	.00	-.01	-.01	.02
Character-based Maturity	.38***	.27***	.18***	.28***	.30***
Achievement-based Maturity	.30***	.23***	.49***	.41***	.58***
Responsible	—	.22***	.22***	.26***	.34***
Reliable	—	.20***	.26***	.25***	.35***
(Less) Moody	—	.17**	.20***	.28***	.27***
Close to Adulthood	—	.14*	.46***	.20***	.33***
Situated Wisdom Scale	—	.39***	.04	.26***	.16**
Student Roles	—	.15*	.00	.12*	-.02
Adult Roles	—	.06	.12*	.06	.15*
Hardships	—	.12*	-.05	.07	.04

Note. controlling for study and condition; * $p < .05$, ** $p < .01$, *** $p < .001$

Discussion

This study made several contributions to understanding how the lay theories of maturity relate to individual young adults' self-perceptions of maturity. By directly asking participants to rate their level of maturity I was able to test the hypothesis that self-perceived maturity is related in hypothesized ways to other traits, adult-related experiences, and subjective feeling of aging that were associated with lay theories of maturity in Study 1. Specifically, the results showed that self-perceived maturity is positively correlated with self-reports of traits such as wisdom, responsibility, and feelings of achievement; a tendency to use wise approaches during conflict; feeling a relatively older subjective age; and experience performing adult roles and enduring hardships. Furthermore, results showed that these traits, subjective feelings of aging, and experiences intercorrelated with each other in ways that fit their shared relation to lay theories of

maturity in young adulthood. Overall, these results support my hypothesis that young adults apply the same lay theories that they used to distinguish between mature and immature people in Study 1 to define their own self-perceptions of maturity.

The positive correlations between the subjective age measures with maturity and other maturity-related traits such as wisdom, responsibility, and sense of accomplishment provide further evidence that in young adulthood an older subjective age has distinct positive connotations as a phenomenological marker of maturity. By contrast, in midlife and older adulthood an older subjective age seems to primarily serve as a phenomenological marker of perceived physical and cognitive declines associated with aging stereotypes (Montepare & Lachman, 1989; Wettstein et al., 2021) This suggests that in the liminal period of young adulthood when there is still some uncertainty about a person's status as an adult, feeling older may be affirming a sense of mature adulthood. Put another way, during this transition period of identity, feeling younger than one's age may be a threatening signifier of self-perceived immaturity.

Character-based and Achievement-based Maturity

Another important contribution of Study 2 was the evidence for two distinct conceptualizations of self-perceived maturity. My factor analysis of the self-reported perceptions identified one factor that is more character-based, while the other is more achievement-based. Character-based maturity consists of perceiving oneself as mature and wise (with responsible and reliable also correlating highly with this factor). Achievement-based maturity consists of perceiving oneself as accomplished and close to achieving goals. This finding matches up with the conceptualization discussed in the introduction.

Results showed that there was a significant association between participants' subjective age and both character-based and achievement-based maturity, that is, feeling older than your actual chronological age was associated with greater felt maturity. Character-based maturity was connected to both adult roles and hardships whereas achievement-based maturity was only connected to adult roles. Feeling either character-based or achievement-based maturity was connected to higher psychological well-being.

While character-based maturity and achievement-based maturity are correlated positively with each other, additional analysis shows that they do indeed possess unique predictive power. When I control for achievement-based maturity, character-based maturity is still significantly correlated with hardships ($r = .15$) and subjective age ($r = .12$), though the connection to adult roles, while still positive, drops off to insignificant levels ($r = .07$). Likewise, when I control for character-based maturity, achievement-based maturity is still significantly correlated with adult-roles ($r = .10$) and subjective age ($r = .13$). All these findings suggest that two different conceptualizations of maturity exist.

Character-based maturity, as the name I have given it suggests, seems to be about more abstract traits that relate to functioning in a wide range of roles and contexts. Achievement-based maturity, on the other hand, seems more narrowly focused on accomplishment of goals, perhaps similar to the traditional emphasis on attainment of adult goals and status markers. Two different conceptualizations of maturity can be advantageous, especially since both are predictive of greater well-being. If a person's circumstances are such that achievements or goals are difficult or blocked, they can potentially still develop a self-perception of maturity by focusing on qualities related to character-based maturity, such as building wisdom or by working at becoming more responsible and reliable. This type of maturity may have a further advantage in

that it is, as mentioned previously, more abstract in nature. Research shows that certain traits and skills may lend themselves more towards favourable self-perception than others (Dunning, Meyerowitz, & Holzberg, 1989). More ambiguous or nebulous terms like “disciplined” or “sensible” are more open to interpretation compared to terms like “mathematical” or “well-read”. The latter are more tied to a quantifiable skill (i.e., how much mathematical training do you actually have or how many books have you read?) whereas the former can more easily be bolstered with (selective choice) of anecdotes.

In this way, some of the differential associations between maturity and other variables may make more sense. Possession of adult roles was connected to feeling both more character-based and achievement-based maturity. Having experienced hardships, however, was only connected with more character-based maturity. These different associations make sense as experiencing a hardship such as losing a loved one or being in a tough financial spot very likely do not produce objective achievements but can plausibly lead to an enhanced sense of maturity or wisdom because of the lessons learned from the hardship. Having adult roles like working or having caregiving experience are achievements that are close to the adult goals of starting a career or starting a family, so in that way they can lead to feelings of achievement-based maturity. At the same time, they can plausibly build ones’ sense of character-based maturity because of the duties involved in these roles.

While evidence points to two distinctive bases for maturity, I want to be clear in expressing that I believe people carry and can endorse both conceptualizations. It is like other lay theories, such as Dweck and colleagues’ research on incremental versus entity theories of traits, in that it can be domain specific and individuals may know and use both theories even when they have a chronic preference for a particular theory (Dweck, Chiu, & Hong, 1995). For example, a

person may think achievement-based qualities matter more when it comes to assessing maturity in the domain of careers but character traits may matter more when it comes to assessing someone's maturity in the domain of relationships. Or a person may weigh character more overall but this does not mean they completely discount accomplishments.

Finally, this study explored some potential benefits of feeling more mature. It was found that feeling more mature was associated with higher psychological well-being. Interestingly, feeling an older subjective age was not predictive of higher well-being despite subjective age and maturity being positively associated with each other.

As to why adult roles and hardships seem to lead to a greater sense of maturity, as speculated in the discussion section of Study 1, it is possible it has to do with the novel challenges they represent and how they may force a young adult to adapt and grow in order to overcome them. Additional data from Study C lends support to this hypothesis. In Study C, participants were asked how they tended to cope with challenging situations. A coping-style questionnaire revealed a significant positive correlation between a self-reported tendency to use "problem-focused" coping and greater feelings of both character-based ($r = .30$) and achievement-based maturity ($r = .21$). Problem-focused coping strategies include directly and actively looking to solve the problem. This is in comparison to "emotion-focused" coping which involves denial, venting of emotions, and goal disengagement to essentially avoid the problem. A tendency to use emotion-focused coping was not significantly correlated with either character-based maturity ($r = -.01$) or achievement-based maturity ($r = .01$). In this way, it seems like those who aim to solve their problems in a direct matter, such as the challenges adult roles and hardships may pose, may see growth in maturity. Those that avoid addressing the challenge, however, do not observe any consistent pattern of growth in maturity.

Participants from Study 1 touched on this when they nominated traits for immature targets, where a common theme was the poor impulse and emotional control. Additional data from studies C and D support this. A single, 6-point item assessed whether participants, when faced with a tough decision, were more likely to “go with their gut” or “think things through carefully”. A stronger tendency towards thinking things through carefully, correlated significantly with both character-based ($r = .37$) and achievement-based maturity ($r = .21$). Similarly, in Study D, an item assessed perceived growth in one’s self-control and here, higher feelings of growth similarly significantly correlated both character-based ($r = .54$) and achievement-based maturity ($r = .49$). Essentially, adult roles and hardships may lead to greater feelings of maturity, but it is not simply through experiencing these things but rather coping with and handling them effectively. If a person feels overwhelmed by these situations and avoids dealing with them, they may not experience benefits to maturity. That being said, it is also possible that benefits to maturity are delayed and it is not until later, such as after the experience, that a person can reflect on lessons learned and feel more mature. Adult roles and hardships can be objectively tough to handle and cope with in the moment depending on their intensity and severity. Conceivably, more difficult challenges may only garner maturity benefits at a later point.

In the next study, I will test two main questions. Firstly, I will test whether subjective age and its association with maturity, adult roles, and hardships are exclusive to young adults or whether this is the case with older adults as well. Recall that past research on subjective age has been conducted mostly with older adults and it has mostly been found to be associated with feelings of youth and health (Montepare & Lachman, 1989; Wettstein et al., 2021), as opposed to feelings of maturity. Making this distinction will contribute to strengthening my argument for

subjective age being a phenomenological marker of maturity for young adults and conceptually different to how older adults think about subjective age. Secondly, I will explore well-being more deeply as a consequential outcome of maturity, subjective age, roles, and hardships. Study 2 found that maturity is positively correlated with psychological well-being, but well-being was less directly connected to subjective age, adult roles, and hardships despite these variables being connected to maturity themselves. The next study will aim to untangle these relationships as well as introduce longitudinal data to test if self-perceived maturity gained through facing early life hardships predicts gains in well-being later on.

Study 3: Distinct Predictors and Consequences of Self-perceived Maturity in Young Adulthood

Lay theories of maturity in young adulthood attribute distinctive traits, life experiences, and phenomenology of aging to mature young adults. In Study 1, I found that participants believe that mature young adults tend to be wiser, have more experience performing adult roles and enduring hardships, and feel subjectively older compared to less mature young adults. In Study 2, I showed that these lay theories of maturity are reflected in young adults' self-perceptions of their own maturity: young adults who perceive themselves as more mature, including feeling wiser, have a relatively older subjective age, and have more experiences performing adult roles and enduring hardships compared to those who perceive themselves as less mature. Lastly, I found that self-perceived maturity is positively correlated with higher psychological well-being. Of note, Studies 1 and 2 only examined the links between these variables with young adult samples. Thus, it remains an open question as to whether the aforementioned associations and patterns are exclusive to young adults and thus represent maturity or if they exist for people in other periods of adulthood like middle and older adulthood. Furthermore, Studies 1 and 2 examine these associations cross-sectionally and so there are open questions about short- and long-term benefits of feeling more mature with respect to well-being. For this study, I plan to examine these questions, splitting these analyses into two parts. Part 1 will examine whether aforementioned associations are distinct to young adults as I hypothesize, and Part 2 will examine short- and long-term effects on well-being.

Part 1: Distinctive Meaning of Self-perceived Maturity for Young Adults

I hypothesize that experiencing adult roles and hardships promote a sense of maturity during young adulthood because this is a period of transition when one's maturity is in question

as opposed to older adulthood. To address this question, I examined a longitudinal dataset that tracked the experiences of “young”, “middle-aged”, and “older” adults over two time periods, approximately 10 years apart. If lay theories of maturity provide a schema that helps to structure individuals’ self-perceptions primarily during early adulthood, then I would expect that young adults’ self-reports of maturity-related traits, experiences, and phenomenology of aging should interrelate in ways that correspond with the lay theories of maturity documented in the preceding studies, but not cohere as reliably for participants who have already entered midlife when maturity is less likely to be a salient focus of concern. Specifically, I predict that for young adults there should be positive correlations between subjective age and perceiving oneself as having grown in maturity on character traits such as wisdom. I also predict that for young adults, experience performing adult roles and enduring hardships should be associated with a relatively older subjective age and perceiving oneself as having gained maturity, but not so for older adults.

Differences between subjective age in younger adults and middle-aged adults are particularly promising to explore because there are reasons to expect that this variable may have distinct psychological implications for these age groups, that is, serving as a potential phenomenological marker of maturity for young adults but serving primarily as a marker of perceived age-related physical and cognitive decline in middle-aged and older adults. Research generally shows that middle-aged and older adults tend to report feeling approximately 20% younger than their actual age (Rubin & Berntsen, 2006) and that an older subjective age for these age groups is negatively correlated with psychological and physical well-being (Mroczek & Kolarz, 1998; Wettstein et al., 2021). For middle-aged and older adults, feeling older seems to reflect self-perceptions of age-stereotypic declines in physical robustness and cognitive fluency and thus a younger subjective age or things that signal a younger subjective age may be

favourable (Wettstein et al., 2021). With younger adults, however, feeling relatively older may be construed more positively as a signal of one's maturity during a period of life when there is still some ambiguity and social uncertainty about one's attainment of maturity.

Sample and participants

I performed secondary data analysis on data from two waves (approximately 10 years apart) of the Midlife Development in the United States (MIDUS) study, a longitudinal investigation of health and well-being outcomes in a representative United States sample of adults (National Institute on Aging, 2018). Wave 1 of the MIDUS study was conducted in 1995 and 1996 during which the research team recruited a nationally representative, multistage probability sample of over 7,000 English-speaking adults residing in the United States. Wave 2 of the survey was conducted in 2004 and 2005 and consisted of approximately 70% of the Wave 1 participants including the main sample (N= 3,487), an urban oversample of people living in five large municipalities (N = 757), a sample of non-twin (N= 950), and twin (N= 998) siblings of the main sample participants.

To examine the differences between age groups, I categorized participants into three groups depending on whether at Time 1 they were in their *20s* (age range: 25-29 years; N = 269), in their *30s* (age range: 30-39 years; N = 870), or in their *40s* (age range: 40-49 years; N=1052)⁹.

Measures

Subjective Age. Similar to Study 2, participants answered a subjective age item which read, "Sometimes people feel older or younger than they actually are. What age are you feeling right now?". Participants were instructed to provide their response in years. Participants' actual

⁹ 20s Group – Ethnicity: 94.5% White, 4.8% Non-white, 0.7% No-response; Sex: 40.1% Male, 59.9% Female
30s Group – Ethnicity: 91.6% White, 7.6% Non-white, 0.8% No-response; Sex: 43.2% Male, 56.8% Female
40s Group – Ethnicity: 94.9% White, 4.4% Non-white, 0.8% No-response; Sex: 47.6% Male, 52.4% Female

age was subtracted from this subjective age response to create a subjective age difference score such that positive values represent feeling older than their actual age¹⁰.

Self-perceived Change in Traits. The MIDUS did not ask specifically about maturity but participants did rate the degree to which they felt they possessed various traits currently and ten years ago. Specifically, “How [*calm and even tempered/willing to learn/energetic/caring/wise/knowledgeable*] [are you now/were you 10 years ago?]” For each of these traits participants rated their current and past self on an 11-point scale that ranged from 0 (not at all) to 10 (very much). I created a difference score for each of these variables by subtracting the past-self rating from their current-self rating such that positive values represent perceiving an increase in the trait. While not as face valid as my maturity measures in Study 2 were, these variables offer a decent analog, especially “wise” which was identified both in Study 1 and 2 as a key component of maturity. Likewise, the other traits are very similar to some of the participant-nominated traits as described in Study 1.

Target roles. Similar to Studies 1 and 2, I identified items assessing participants’ role experiences as of Time 1. To assess experiences in *adult roles* I examined participants’ reports of any of the following: 1) working full-time; 2) working part-time; 3) self-employed; 4) volunteering 15 hours a week; 5) primary caregiver; or 6) homemaker. To assess experiences in *student roles* I examined participants’ reports of 1) student full-time or 2) student part-time.

General hardships. Also similar to Studies 1 and 2 (previously referred to as “hardships”), I identified five items assessing participants’ experiences of general hardships as of Time 1. Specifically, I examined participants’ experiences of the following hardships: 1) parents

¹⁰ Unlike my other studies, subjective age difference was not winsorized for the final analyses and results presented in this study. I checked if winsorizing affected final results and it did not.

divorced or separated; 2) parents never lived together; 3) personally divorced; 4) child or sibling passed away; or 5) financial situation worse now than 10 years ago.

Health-related hardships. New to this study, participants reported whether they experienced symptoms related to 29 chronic health conditions (e.g., lung problems, back problems, AIDS) within the last 12 months as of Time 1, as a *yes* or *no* for each illness. I summed any *yes* responses for an index of the overall quantity of health-related hardships participants had endured. (See Appendix D for a full list of these illnesses)

Analyses and Results

Measures Related to Self-perceived Maturity. As a first step, I examined the subjective age means for each age group. One of my hypotheses was that subjective age reflects a sense of maturity for young adults, but for older adults reflects feelings of decline in physical and mental robustness. Table 17 displays the means (and standard deviations) for actual age and subjective age difference (SA-Diff) for the three age groups as of Time 1: 20s (25 to 29 years old), 30s (30 to 39 years old), and 40s (40 to 49 years old).

Table 17.

Mean (SD) for Age and Subjective Age Difference (Study 3)

	Time 1 Actual Age	Time 1 SA-Diff	Time 2 Actual Age	Time 2 SA-Diff
20s	27.0 (1.2)	-0.4 (7.8) ^a	36.1 (1.5)	-4.0 (7.0) ^a
30s	34.1 (2.1)	-4.1 (6.9) ^b	43.8 (2.8)	-6.8 (9.0) ^b
40s	44.3 (2.3)	-6.9 (8.8) ^c	53.5 (2.9)	-9.3 (9.8) ^c

Note. Within columns a, b, c sig different at .05 level; SA-Diff = Subjective Age Difference = Age Felt minus Actual Age

At Time 1, the average SA-Diff for the 20s group is very close to zero, that is, they feel close to their actual age. The average SA-Diff is negative for those in their 30s and 40s, that is, on average those in their 30s and 40s reported feeling younger than their actual age. This is the first indication that subjective age does not operate the same for younger adults as it does for

middle-aged adults. Older adults tend to feel younger (replicating extant work; Montepare & Lachman, 1989; Rubin & Berntsen, 2006; Wettstein et al., 2021), while adults in their 20s feel around their age. In addition, at Time 2 when the participants who began the study in their 20s had transitioned to their 30s, their SA-Diff (-4.0 years) now looks remarkably similar to the SA-Diff for those who were in their 30s at Time 1 (-4.1 years). Likewise, the Time 2 SA-Diff scores for participants who transitioned into their 40s (-6.8 years) now looks similar to the Time 1 difference scores for those who were in their 40s at Time 1 (-6.9 years). This suggests that the differences in subjective age between the age groups is not a reflection of different eras (i.e., growing up as a young adult in the 1990s vs. the 1970s or 1980s), but rather an effect of how subjective age changes at different stages of life (i.e., young adulthood vs. middle adulthood). Again, when one is in their twenties, subjective age is very close to their actual age, but as one transitions into mid-adulthood, the trend moves towards feeling younger than their actual age.

To measure self-perceived maturity, I examined participants self-perceptions of changes in traits that are associated with lay theories of maturity. To do this I looked at how wise, calm, willing to learn, caring, knowledgeable, and energetic one felt now vs. ten years ago (i.e., a difference score in which positive values means perceiving an improvement). Table 18 displays the means (and standard deviations) for perceived changes in the various traits for the three age groups at Time 1. The results show that participants in their 20s on average perceived themselves as being wiser, calmer, more willing to learn, more caring, more knowledgeable, and less energetic than they were 10 years ago. Participants in their 30s and 40s perceived the same direction of change in themselves, however, One-way ANOVAs and Tukey tests showed that generally the magnitude of the perceived changes tended to be highest for those in their 20s, intermediate for those in their 30s, and lowest for those in their 40s for most of the traits.

Table 18.

Means (SD) for Change in Self-reported Traits (Current Self-Rating Minus Rating of Self 10 Years Ago) and ANOVA tests

	Wise	Calm	Willing to Learn	Caring	Knowledgeable	Energetic
20s	2.6 (1.9) ^a	1.0 (2.6) ^a	1.5 (2.3) ^a	1.3 (2.1) ^a	2.3 (1.7) ^a	-0.9 (2.2) ^a
30s	2.1 (1.7) ^b	0.7 (2.5) ^a	0.8 (2.3) ^b	0.7 (1.6) ^b	1.8 (1.5) ^b	-1.1 (2.0) ^{ab}
40s	1.6 (1.6) ^c	0.9 (2.4) ^a	0.4 (1.8) ^c	0.5 (1.5) ^b	1.2 (1.4) ^c	-1.2 (1.9) ^b

Note. Within columns a, b, c sig different at .05 level

I then examined zero-order correlations between SA-Diff and changes in these traits (Table 19). I hypothesized that these traits would be positively associated with subjective age only for the 20s group and this would be reflective of growth on these traits representing growth in maturity.

Table 19.

Zero-order correlations between Self-reported Traits and Time 1 SA-Diff

	Wise	Calm	Willing to Learn	Caring	Knowledgeable	Energetic
20s	.16**	.05	.09	.04	.04	-.11 [†]
30s	-.03	-.05	-.09**	-.07*	.04	-.22**
40s	-.07*	-.07*	-.06 [†]	-.05	-.10*	-.28**

Note. [†]p < .10, * p < .05, ** p < .01

In support of my hypothesis, for participants in their 20s, feeling subjectively older was significantly associated with perceiving oneself becoming wiser over the last ten years (and positively, though non-significantly, with the other traits, except “energetic”). For the 30s and 40s groups, there were no significant positive correlations between subjective age and gains on these traits. In fact, the correlations are mostly the opposite direction, that is, feeling older is associated with feeling worse off on these traits compared to ten years ago. These results illustrate that perceiving growth on traits means something different for younger and older adults. While everyone, on average, seems to feel progression as they get older (i.e., the results from Table 18), only with the younger adults is this progression associated positively with

subjective age, such that perceiving progression on these traits, especially wisdom, is associated with feeling older. For older adults, perceiving progression is associated with feeling younger which lends further evidence to extant work that connects subjective age in older adults with positive health and functioning (Wettstein et al., 2021). The one exception is “energetic” which is negatively correlated with subjective age for all three groups. This variable is interesting because it is arguably more a physical trait than a character trait. Not only do all three age groups feel like they were less energetic compared to ten years ago, but all three groups also had a negative relationship with subjective age on this variable, particularly the two older groups. It seems that as everyone gets older, there is a general feeling of a loss of (youthful) energy. Since feeling wiser was the only significant positive correlate with subjective age for the under 20s group, I will focus on that trait going forward.

Experiential Correlates of Maturity

I next looked at which experiences seem to predict SA-Diff and feeling wiser at Time 1. I assessed four different types of experiences, three of which were previously examined in Study 2, that is, student roles, adult roles, and general hardships. The new experience for this study was the number of chronic illness symptoms the participant reported having in the last 12 months, which I call “health hardships”. One-way ANOVA and Tukey tests showed that adult roles and health-related hardships conditions were less common for participants in their 20s compared to the two older age groups (Table 20). Student roles were more common for participants in their 20s and there was no significant difference in the number of general hardships experienced between the three age groups. Most of these mean differences are not so surprising. As people get older, it is normal for them to take on more adult roles and experience more chronic health problems. Likewise, being in school is common in one’s twenties. I would have expected general

hardships to also have been more common for the older groups, simply because they have lived longer, but no differences emerged.

Table 20.

Mean (SD) number of roles, hardships, and health condition by age group

	Adult Roles	Student Roles	General Hardships	Health Hardships
20s	1.6 (0.9) ^a	0.2 (0.4) ^a	0.7 (0.7) ^a	1.6 (1.9) ^a
30s	1.8 (0.9) ^b	0.1 (0.4) ^b	0.6 (0.7) ^a	2.0 (2.3) ^b
40s	1.8 (0.9) ^b	0.1 (0.3) ^b	0.6 (0.8) ^a	2.2 (2.2) ^b

Note. Within columns a, b sig different at .05 level

I then examined correlations between SA-Diff and feeling wiser with these experiential variables (Table 21), hypothesizing that, similar to Studies 1 and 2's findings, more adult roles, more general hardships, and more health hardships would be associated with an older SA-Diff and greater perceived growth in wisdom for the 20s group, but not the older adult groups.

Table 21.

Zero-order correlations between roles, hardships, health conditions and Time 1 Subjective Age Difference and Wise Now vs Ten Years Ago

	Adult Roles	Student Roles	General Hardships	Health Hardships
Predictor:				
Time 1 SA-Diff				
20s	.15*	-.01	.18*	.16**
30s	-.04	-.07	.03	.18**
40s	-.05	-.04	.01	.17**
Predictor:				
Wisdom Gains				
20s	.05	.08	.16*	.11*
30s	.03	.07*	.03	.01
40s	.07*	.07*	.03	.04

†p < .10, *p < .05, **p < .001

Starting with subjective age, I found that possessing more adult roles (but not student roles) and experiencing more general hardships were predictors of an older SA-Diff for those in their 20s but not for the those in their 30s and 40s. I also found that having more health-related

hardships was a predictor of an older SA-Diff but this was the case for all three age groups, not just the 20s group. Also, in Table 21, I examined perceived gains in wisdom related to experiences of these roles and hardships for each age group. In support of my hypotheses, for those in their 20s, perceived gains in wisdom were significantly and positively correlated with experiences of both general hardships and health-related hardships, which was not the case for the two older groups. Interestingly though, unlike with SA-Diff, for the older groups there is a trending positive correlation with wisdom gains and experiences, reaching significance for adult and student roles.

Taken together, my hypothesis that more experiences of adult roles and hardships would be predictive of an older subjective age and perceived growth in wisdom for the 20s group was supported. As to why this does not occur in the same way for older adults, the means in Table 20 may lend some answers. For older adults, adult roles and health hardships are more common. As such, the norm may be that when one reaches mid-adulthood, they should expect to have more adult roles and health hardships. In this way, there is not an accompanying boost in maturity for middle-aged adults because they are simply experiencing what is “normal” for that period of life. For younger adults, however, adult roles and health hardships are relatively less common and therefore experiencing them this early in life may be construed as experiencing them “ahead of time”. Therefore, they may build maturity because young adults feel like they are being challenged earlier in life than what is normally expected.

That being said, adult and student roles also positively related to wisdom in older adults, a result I did not expect to emerge. Thinking about this result post-hoc, I suspect the relationship is not reflective of a sense of maturity. This is because the correlation between wisdom and subjective age for the older adults is negative (Table 19), that is, higher perceived growth in

wisdom is associated with feeling younger than one's actual age for older adults. For younger adults, it is the opposite, higher perceived growth in wisdom is associated with feeling older than one's actual age. I surmise then that adult and student roles may serve to enhance feelings of youth for older groups, possibly because they represent a person who is (still) actively taking on responsibilities in life compared to someone who does not have these roles or is losing them. This may be related to theories on aging, specifically those who maintain "continuity" of roles and activity levels vs. those who "disengage", where continuity is linked to more positive feelings (Atchley, 1989).

One last finding is the consistent positive association between health hardships and subjective age for all age groups. I would offer up the same explanation as I did with the "energetic" trait in that health hardships likely reflect poorer or declining health, something typically associated with getting older. For those of us who notice ourselves getting sleepier earlier and earlier in the evenings, or who go to bed with aches and pains and still wake up with them, a common sentiment may be "I'm getting old". Thus, regardless of age group, having health hardships is associated with feeling older. It should be noted, however, that health hardships also predicted significantly higher wisdom gains for the 20s group. For them then, health hardships may reflect two feelings, declining health but also a challenging life circumstance being experienced "ahead of time" that builds wisdom and maturity.

Part 1 Summary

Subjective age and perceived growth in wisdom seem to operate differently for adults in their 20s compared to older adults in their 30s and 40s. Young adults, on average, carry a subjective age very close to their actual age, while older adults carry a younger subjective age. Furthermore, when subjective age is assessed again ten years later, the younger cohorts look

remarkably similar to the older cohorts suggesting it is age that affects subjective age perceptions and not an effect of growing up in different eras. While all three age groups perceive themselves as growing in traits like wisdom, only with the 20s group do we see a positive correlation with subjective age, that is, feeling wiser is connected to feeling older. With the older age groups, this pattern is the reverse, feeling wise is connected to feeling younger. Furthermore, experiential correlates like adult roles, general hardships, and health hardships predict feeling both older and wiser for those in their 20s. This may be because these experiences are relatively rarer for this age group and, thus, the experience of having to deal with them “ahead of time” may be what builds a sense of maturity in the form of feeling older and wiser. For the older age groups, these experiences (other than health hardships) do not seem to influence subjective age. Adult and student roles do, however, positively influence perceived growth in wisdom for the older groups, something I did not hypothesize. Given that growth in wisdom is correlated negatively with subjective age, perceived wisdom gains for the older groups may be reflective of continued pursuit of goals and feeling youthful, rather than of maturity. Lastly, variables like feeling less energetic and having more health hardships negatively correlate with subjective age for all age groups. This may represent a common interpretation of subjective age that has to do with healthy functioning of one’s body and when a person has evidence that their body is losing such functioning, it has the effect of making a person feel older.

Part 1 of this study established how variables like subjective age, perceived growth in wisdom, and adult roles and hardships differed between age groups. It seems that for younger adults, these variables interrelate in such a way that they reflect a sense of maturity, while for older adults the interrelations suggest more a sense of a benefit of feeling youthful. In Part 2 now, I will explore the short- and long-term benefits of these feelings on well-being.

Part 2: Short and Long-term Impact on Well-being

In Study 2, I explored the connection between subjective age, maturity, roles and hardships, with psychological well-being. The general finding was that subjective age was not correlated significantly with well-being but both character and achievement-based maturity were positively related to well-being, and, in some cases, roles and hardships were also positively related to well-being. While these positive relationships existed, I wanted to explore them further as I believe it is possible for negative relationships to exist, especially in the short term. This is because adult roles and hardships, which represent challenges, are likely stressful and do not feel great in the moment (e.g., working while being a student, losing a close loved one, being diagnosed with a chronic condition). As such, I hypothesize that in the short term, negative well-being may emerge for young adults who report these experiences.

Furthermore, because Study 2 was limited to a single time point, I was not able to test long-term effects of gaining an early sense of maturity. I suspect that individuals who experience a stronger sense of maturity during young adulthood may, in a sense, become pre-adapted to handle the challenges of midlife. Having already faced similar things as a young adult, they may be able to navigate mid-life more effectively compared to those who have less experience with adult roles and hardships and are less mature. This effect would be similar to work on posttraumatic growth in which difficult life crises can lead to positive change in a person's outlook on life, personal relationships, and sense of control (Jayawickreme et al., 2021; Tedeschi & Calhoun, 2004). Theories on stress-related growth similarly argue that challenges earlier in life can lead to better preparedness later in life (King et al., 2000; King & Raspin, 2004). The idea is growth (immediate or delayed) in the aftermath of stressful, assumption-violating events occurs because the experiencer is forced to deal with the event in a novel way. That is, an event

that violates one's normative assumptions represents a challenge that one currently does not have the resources, skills, or mindset to deal with and therefore they have to seek, gather, or develop them in order to make it through the challenge. So, while I hypothesize that in the short term, negative well-being may emerge for mature young adults who experience these maturity-building experiences, I also hypothesize that to the extent maturity is built from these experiences there will be a long-term positive benefit to well-being. Specifically, for the 20s group I hypothesize that maturity, as operationalized by as older subjective age and greater perceived gains in wisdom, will predict lower well-being in the moment (Time 1), but higher well-being when they reach midlife (Time 2).

For older adults, I hypothesize the relationship between subjective age and perceived gains in wisdom with well-being will follow a different pattern. Specifically, an older subjective age during middle and older adulthood will be negatively associated with well-being (in line with extant work on subjective age and its connection to physical and mental health) and furthermore, there will be no delayed benefit on well-being for these older groups. Following the unexpected results Part 1 in which a younger subjective age correlated with higher perceived gains in wisdom for the older groups, I hypothesize that perceived gains in wisdom will correlate positively with well-being at both time points for the older adults.

Measures

All the previous measures from Part 1 of this study will be used again in Part 2. New for Part 2 are psychological well-being variables. Psychological well-being was assessed on 6 dimensions: feelings of autonomy, personal growth, environmental mastery, purpose in life, self-acceptance, and positive relations with others (Ryff & Keyes, 1995). Each of these dimensions were assessed with 7 items which were answered on a 1 to 7 scale, *Disagree strongly to Agree*

strongly. These items were the same as used in Study 2, except for positive relations with others which was added for this study (sample item: “I know that I can trust my friends, and they know they can trust me”). (See Appendix C for a full list of these measures.)

Commentary and further research on these psychological well-being scales have supported separating these measures into distinct scales (Springer, Hauser, & Freese, 2006). As such, I will report four well-being variables in accordance with the commentary: 1) an *Overall Psychological Well-being* index that averages all six sub-scales; 2) *Autonomy* on its own; 3) *Positive Relations* on its own; and 4) a composite of the other well-being measures (Environmental Mastery, Purpose in Life, Personal Growth, Self-acceptance), which I label *Other Well-being*.

Analyses and Results

As a first test of my hypotheses, I examined regression models with Time 1 SA-Diff predicting Time 1 psychological well-being and gains in wisdom predicting Time 1 psychological well-being¹¹. These analyses test how subjective age and perceived gains in wisdom predict concurrent (i.e., Time 1) well-being. In support of my hypotheses, for all three age groups, an older Time 1 SA-Diff predicted lower Time 1 well-being (except for Autonomy for those in their 20s and 30s, see Table 22). To say this another way, feeling older than your actual age predicted lower concurrent well-being for all age groups. In terms of wisdom gains predicting well-being (also in Table 22), for the younger adults, there was also a negative relationship such that wisdom gains were correlated with feeling worse well-being. So again, to the extent that members of this age group feel wiser, it seems to come at the expense of well-

¹¹ Controlling for participant’s actual age, income, education, ethnicity, and sex.

being, supporting my hypothesis. Generally, for the middle-aged adults, this relationship was positive and feeling wiser generally was associated with better well-being, especially for the 40s group. This supports my hypotheses and again is indicative of the differing meaning and sources of self-perceived maturity between age groups.

Table 22.

Time 1 SA-Diff and Wisdom Gains predicting Time 1 Psychological Well-being

	T1 Overall Psychological Well-being	T1 Autonomy	T1 Positive Relations	T1 Other well-being
Time 1 SA-Diff				
20s	-.164*	.025	-.113 [†]	-.191*
30s	-.194**	-.045	-.116*	-.215**
40s	-.197**	-.086*	-.106*	-.211**
Wisdom Gains				
20s	-.142*	-.019	-.133*	-.135*
30s	.013	.030	-.080*	.042
40s	.073*	.089**	-.011	.079**

Note. Standardized betas; [†] p < .10, * p < .05, ** p < .01; controlling for participant's actual age, income, education, ethnicity, and sex

As a next step, I examined how SA-Diff predicts future well-being (see Table 23). I created a regression model with Time 1 and Time 2 subjective age scores (and the interaction term) predicting Time 2 psychological well-being¹². This allowed me to examine whether Time 2 well-being was predicted by not only one's concurrent subjective age (Time 2), but also one's subjective age at an earlier period of adulthood (Time 1).

¹² Controlling for participant's actual age, sex, ethnicity, well-being at Time 1, education and income level at Time 2.

Table 23.

Time 1 and Time 2 Subjective Age Predicting Time 2 Well-being

	T2 Overall Psychological Well-being	T2 Autonomy	T2 Positive Relations	T2 Other well- being
20s				
T1 SA-Diff	.168*	.221*	.054	.138 ⁺
T2 SA-Diff	-.224**	-.078	-.209**	-.226**
T1T2 Interaction	-.024	-.059	.056	-.018
30s				
T1 SA-Diff	-.008	-.014	-.007	-.011
T2 SA-Diff	-.130*	-.027	-.132**	-.131**
T1T2 Interaction	-.047 ⁺	-.012	-.020	-.054 ⁺
40s				
T1 SA-Diff	.002	.018	-.018	-.001
T2 SA-Diff	-.141**	-.068*	-.113**	-.157**
T1T2 Interaction	.012	.007	-.012	.013
Time 1 Wisdom Gains				
20s	.060	.148*	.020	.038
30s	.029	.035	-.002	.031
40s	.074*	.054 ⁺	.025	.078*

Note. Standardized betas; ⁺ $p < .10$, * $p < .05$, ** $p < .01$; controlling for participant's actual age, sex, ethnicity, well-being at Time 1, education and income level at Time 2

For all three age groups, there was a significant main effect of Time 2 subjective age on Time 2 well-being, specifically, an older subjective age at Time 2 was predictive of lower concurrent well-being at Time 2 much like the relations between Time 1 subjective age and Time 1 well-being. For the participants who were initially in their 20s, however, having an older Time 1 subjective age predicted significantly higher psychological well-being when they were later in their thirties (i.e., Time 2 well-being). This was not the case for the two older age groups where subjective age at Time 1 (when they were in their 30s and 40s) did not significantly predict their well-being at Time 2 when they reached their 40s and 50s, respectively. These results support my hypothesis that there is a delayed boost in well-being for the more mature young adults, one

that is not present for the older adults. Specifically, a higher Time 1 subjective age predicted higher overall psychological well-being, higher autonomy, and marginally higher other well-being at Time 2 and this effect is present even though a higher Time 1 subjective age predicted lower well-being at Time 1.

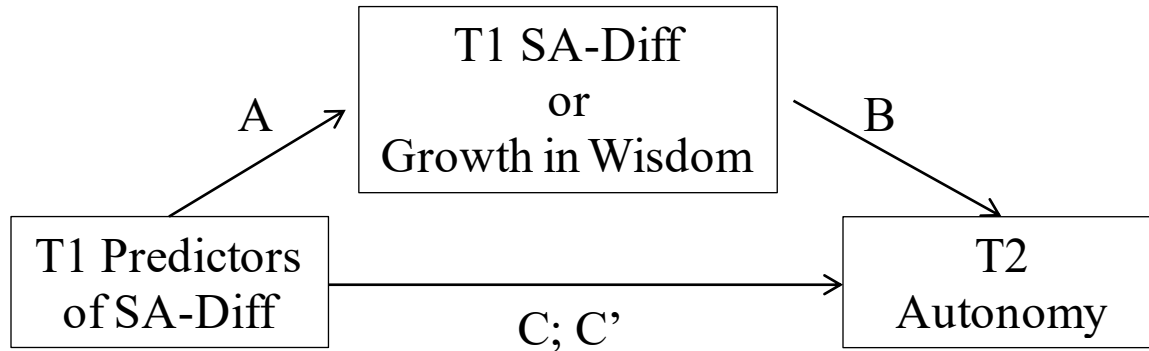
I ran a similar analysis with perceived growth in wisdom predicting Time 2 psychological well-being. Since this variable was only assessed at Time 1, I was unable to run a Time 1 and 2 interaction like I previously did for subjective age. I found that for those in their 20s, feeling wiser predicted higher Autonomy at Time 2, but not significantly with the other well-being variables. Thus, although perceiving gains in wisdom predicted lower overall well-being for young adults while they were still in their 20s these gains in wisdom predicted higher autonomy later when these individuals were in their 30s. Additionally, feeling wiser seemed to benefit those in their 40s as they transitioned into their 50s. Again, this highlights the difference that feeling wiser has between age groups. Feeling wiser for older adults seems tied to self-perceived youthfulness, continued participating in roles, and well-being.

Linking Maturity Indicators in Young Adulthood and Midlife Well-being

To further examine the relationship between Time 1 SA-Diff and Time 2 psychological well-being for the 20s group, I created a mediation model with adult roles, general hardships, and health-related hardships simultaneously predicting Time 2 well-being, mediated through Time 1 subjective age or growth in wisdom. These analyses allowed me to examine whether experiencing adult roles, general hardships, and health-related hardships in one's 20s indirectly predicts higher well-being ten years later, and this is because these experiences are associated with feeling older or feeling wiser during one's 20s (see Figure 1). For well-being, I specifically

chose Autonomy since it was a significant outcome for both subjective age and perceived growth in wisdom.

Figure 1.
Mediation Models Predicting T2 Autonomy



Starting with subjective age as the mediator, when all three Time 1 experiential predictors of subjective age are entered simultaneously, only the path from Time 1 Health-related Hardships to Time 2 Autonomy as mediated by an older SA-Diff was statistically significant with an indirect (AB) effect of 0.010, 95% C.I. [.0006, .0273] (see Table 24). Adult roles and general hardships both trended in the same direction but did not reach statistical significance¹³.

Next, running the same model but with perceived growth in wisdom as the mediator, a marginally significant mediational path was supported from General Hardships predicting feelings of wisdom gains predicting higher T2 Autonomy with an indirect (AB) effect of 0.022, 95% C.I. [-.0004, .0572]. Other predictors and dependent measures showed similar patterns but did not reach significance.

¹³ I also tested the other well-being dependent measures and while they showed similar patterns, they did not reach significance.

Table 24.
Mediation Models Predicting T2 Autonomy Results

	T1 SA-Diff	Growth in Wisdom
A PATH - General Hardships	1.063	0.443*
A PATH - Adult Roles	0.905	0.172
A PATH - Health Hardships	0.741*	0.160*
B PATH - Mediator to T2 Autonomy	0.013 ⁺	0.050*
AB PATH - General Hardships	0.014	0.022 ⁺
AB PATH - Adult Roles	0.012	0.009
AB PATH - Health hardships	0.010*	0.008
C PATH - General Hardships	0.009	0.036
C PATH - Adult Roles	0.086	0.098
C PATH - Health Hardships	0.013	0.023
C' PATH - General Hardships	0.009	0.012
C' PATH - Adult Roles	0.098	0.089
C' PATH - Health Hardships	0.023	0.015

Note. Unstandardized coefficients; ⁺p < .10, * p < .05, ** p < .01; controlling for participant's actual age, income, education, ethnicity, sex, and autonomy at Time 1

Part 2 Summary

For all age groups, an older subjective age generally predicts lower concurrent well-being. This was true for Time 1 subjective age predicting Time 1 well-being and Time 2 subjective age predicting Time 2 well-being. For the younger adults, however, there was a delayed positive effect on well-being not seen with the older groups. For the 20s group, an older subjective age at Time 1 predicted higher overall psychological well-being, higher feelings of autonomy, and marginally more “other” well-being at Time 2. I then linked this to the experiences that predicted higher subjective age in young adulthood and found a significant mediational path, whereby health hardships predicted feeling older during one’s 20s which in turn predicted feeling more autonomous ten years later. Adult roles and general hardships also trended in the same direction, as did other well-being measures when entered as the final dependent measure, but their models did not reach statistical significance.

I also examined the impact of perceived growth in wisdom, another indicator of self-perceived maturity, and found that perceived gains in wisdom predicted worse well-being during one's 20s but higher feelings of autonomy 10 years later when these individuals were in their 30s. I then linked this to the experiences that predicted wisdom gains during one's 20s and found a marginally significant mediational path, whereby general hardships predicted perceived gains in wisdom during one's 20s which in turn predicted feeling marginally more autonomy ten years later. Adult roles and health hardships also trended in the same direction, as did other well-being measures, but these models did not reach statistical significance. For the older adult groups, these patterns were different. There was no detriment to well-being that came from perceiving gains in wisdom during one's 30s and 40s and, in fact, perceiving wisdom gains during these periods were generally beneficial to well-being.

These findings illustrate that subjective age and perceiving growth in wisdom again do not work the same way for younger and older adults. For younger adults, there exists a delayed effect of feeling more mature, in which, early feelings of maturity actually seem to negatively affect well-being in the moment, but later in life predict higher well-being. This effect is similar to posttraumatic or stress-related growth in which early tough experiences of course lead to suffering in the immediate future but later down the line can lead to growth (Jayawickreme et al., 2021; King et al., 2000; Tedeschi & Calhoun, 2004). For the older adult groups, however, well-being seems more tied to not feeling old, that is, feeling a younger subjective age and feeling like one has not lost wisdom. This makes sense as extant work on subjective age in older adult groups seem to support the notion that a primary goal of middle-aged adults as they get older is to maintain a sense of youth and avoid old-age stereotypes about failing health and mental abilities (Wettstein et al., 2021).

Discussion

In Part 1 of this study, I hypothesized that young adults, for whom a sense of maturity should be particularly relevant, would have different relationships between variables related to maturity compared to older adults, for whom a sense of maturity is less relevant. Such variables include an older subjective age, feeling wiser, and experience with adult roles and hardships. My hypotheses were generally supported as the pattern of associations between these variables differed between younger (20s group) and older adults (30s and 40s groups). An older subjective age correlated with experiencing adult roles, general hardships, and health hardships for young adults. Furthermore, feeling like one had grown in wisdom correlated positively with both subjective age and these same experiences for young adults. Given that adult roles and health hardships were rarer for young adults, compared to more normative for older adults, this hints at the possibility that one reason maturity is built in the younger group is because adult and hardships represent challenges that are faced ahead of the “normal” time. “Normal” time being middle or older adulthood. As such, they are perhaps interpreted more as “challenges that one will need to cope with ahead of time” vs. an acceptance or recognition that “these are just the things one has to deal with at this age”.

It is this latter interpretation that seems prevalent for older adults. The norm for older adults was to feel younger than one’s actual age, that is, a younger subjective age. Extant work shows doing so is beneficial for mental and physical health and avoidance of feeling old-age stereotypes such as failing mental and physical abilities (Eibach et al., 2010; Mock & Eibach, 2011; Montepare & Lachman, 1989; Rubin & Berntsen, 2006). Indeed, health hardships were a strong predictor of an older subjective age for older adults. Interestingly, feeling wiser was connected to possessing student roles for the 30s and 40s group, as were possessing adult roles

for the 40s group. While this association is in the same direction as the 20s group, feeling wiser was negatively correlated with subjective age for these older groups, that is, feeling wiser was connected to feeling younger. In this way, role participation is perhaps something that allows middle-aged adults to continue feeling vital and young.

In the short term, feeling older and wiser seems detrimental to well-being for younger adults. Regression and mediational analysis show, however, that this detriment is temporary and that feeling more mature leads to feeling higher psychological well-being, in particular higher autonomy, ten years later when they reach midlife. So, while feeling that one is growing older and wiser through coping with the demands of adult roles and hardships may be unpleasant in the moment, gaining this early sense of maturity seemingly has benefits for them later in life, almost as if they were pre-adapted to the roles and hardships they would be facing in midlife. For adults in the 30s and 40s groups, however, there is no delayed effect ten years forwards and largely how one currently feels is the only predictor of later well-being, that is, if you feel young and that you are still gaining wisdom, you will have higher well-being compared to someone who feels older or that they are not gaining wisdom.

Implications. One important contribution of the present study is further evidence of the lay theory between coping with hardships in young adulthood and how it helps to build character traits, such as wisdom. I found that young adults who experienced hardships, particularly health hardships, reported indicators of self-perceived maturity, including an older subjective age and gains in wisdom, and these self-perceptions of maturity in turn predicted greater well-being in midlife. Another important implication of this study is the interpretation of variables like subjective age and growth in wisdom. Subjective age has been well studied in older adult populations where findings consistently show it to be a strong proxy for healthy and youthful

mental and physical function (Wettstein et al., 2021). In my three studies, thus far, I have shown subjective age has a different meaning for young adults. While there is at least some connection to health, there also seems to be a connotation of subjective maturity in which, if one feels older than their actual age, it may be akin to saying “I feel mature for my age”. Likewise, the finding that perceiving growth in wisdom correlates with subjective age in opposite directions depending on age group (positively for 20s group and negatively for the older groups) is not necessarily intuitive, especially for the older adults. There is prevailing belief that wisdom is something that develops with age and so it is curious that wisdom seems linked to feeling younger among older adults. It seems like a more salient motivation for younger adults is to feel mature and competent for their age, while for older adults there is a motivation to feel young or at least avoid feeling old.

This study also provides insights into how adult roles and hardships build maturity in young adults. Adult roles and hardships are less common for young adults compared to older adults so, there is perhaps the perception that if a young adult goes through them, they are doing so “ahead” of time. For this reason, they may lead to greater feelings of maturity. For older adults going through these same roles or hardships, they may feel it is normal or expected for their age groups. For them, no maturity is built because these experiences are to be expected.

The delayed positive effects on feelings of autonomy shows that adult roles and hardships may be beneficial for young people in the long run, even though those benefits come at the expense of cost of immediate well-being. Based on these findings one practical suggestion might be to encourage young adults to actively seek out opportunities to take on adult roles as a way to build maturity and the long-run benefits that come with it. These opportunities to build maturity through experience may extend beyond the specific adult roles I studied. Potentially, any role

that challenges a young adult to move beyond their comfort zone or what is normal for them may help to build mature character traits. An example may be going deep into a hobby or sport which would require discipline, time management, and dedication. The act of having to build these skills in order to find success in the roles may lead to somewhat dampened well-being due to the stresses and pressures of stretching oneself, but in the long run these challenging roles can build character-based maturity that will prepare them for later adult challenges.

By contrast, even though personal hardships, particularly chronic health hardships, were also associated with indicators of self-perceived maturity gains in young adults and the long run benefits of those gains, it would not be practical or humane to encourage young adults to actively seek out such inherently tragic experiences just to promote their growth towards maturity. For those, however, who are forced by circumstances to endure such experiences, it may be reassuring to recognize the silver lining of how these experiences build maturity that makes them stronger in the long run (Silva, 2013).

This raises the need to examine different ways that young adults construe a hardship experience to explore whether some of these construals are more effective in building a sense of maturity out of that experience. When they are facing a hardship, some young adults may interpret it as a crucible experience that promotes the development of mature character whereas others may focus only on the immediate negativity of the experience with little or no consideration of longer term gains they may take from the experience. As alluded to briefly in Study 2, a problem-focused coping style was more predictive of maturity than emotion-focused coping, that is, confronting a problem was better for building maturity than was avoiding it. In essence, I believe that how one copes with and frames a challenge matters in building maturity (or other positive outlooks). If one carries the mindset that the challenge can be overcome despite

all its difficulties, I theorize that they will experience growth in maturity. If, however, they feel resigned and hopeless in the face of the challenge, I theorize they will experience no movement or even a decrement to maturity.

In my next study I will test these hypotheses in the context of an on-going hardship, the COVID-19 pandemic, to see whether how one copes with the pandemic and its restrictions predicts feelings of maturity. Furthermore, because the pandemic restrictions seem to specifically block certain things like academic and career-related activities and goals, I will also be testing whether character- and achievement-based maturity are differentially affected. I suspect that achievement-based maturity may be harder to optimize during the pandemic since so many things are shut down. Character-based maturity, since it is relatively more abstract, may be less susceptible to being blocked by the shut down, thus offering an effective avenue to positive feelings in an otherwise very difficult situation.

Study 4: Self-perceived Maturity in a Situation of Blocked Goals

The previous studies have shown how adult roles and hardships are related to feeling more mature for young adults. In Study 4, I build on these previous insights and examine an on-going hardship, the COVID-19 pandemic, to see if individuals' interpretations of this hardship predict their self-perceived maturity. Studies 2 and 3 provided some initial suggestions that it is not just simply experiencing hardships or challenges, but how one handles and interprets them that predicts feeling more mature. Specifically, in Study 2's Discussion section, I presented some exploratory analyses showing that a problem-focused coping style, in which a person actively confronts problems, was positively correlated with felt maturity. By contrast, an emotion-focused coping tendency, in which a person avoids dealing with problems, showed no relation to maturity. Furthermore, Study 3 showed that possessing adult roles and experiencing hardships predicted an older subjective age and perceived growth in wisdom in young adults more consistently than in older adults. This was possibly because these challenges were less normative for the younger age group and thus could be construed as distinctive challenges that might contribute to becoming wise and mature beyond one's years. Building on these insights, I hypothesize that "positive" construals vs. "negative" construals of the pandemic will lead to feeling greater maturity and an older subjective age in young adults. To say this another way, young adults' perceived gains in maturity arise not just from going through a hardship, but from managing, viewing, and coping with it in particular ways. If a hardship overwhelms you, frustrates you, and you cannot find any positives from the experience I hypothesize you will not feel any more mature. If, however, you feel you can construe some benefits in the experience, then it may lead you to feel that you have become more mature.

Furthermore, because of the unique circumstances of the pandemic with the shutdown of many public spaces and services, maturity may be affected in different ways. Recall in Study 2, two different types of maturity were identified in character-based and achievement-based maturity. Character-based maturity was composed of feeling mature and wise (and to a lesser extent feeling responsible and reliable). Achievement-based maturity was composed of feeling accomplished and close to achieving your goals. Since the pandemic has shut down, delayed, or altered so many things, including school, work, and leisure activities, it stands to reason that opportunities for achievement-based maturity may be hit harder than opportunities for character-based maturity. As such, I hypothesize that the more a participant feels that their lives have been negatively altered by the pandemic, the less achievement-based maturity they will feel. For character-based maturity, on the other hand, I hypothesize it will be relatively insulated from negative effects. This is because character-based maturity is more abstract and personal in nature. It is not necessarily dependent on obtaining the desired outcome, for example, getting hired for the job you applied for, but rather dependent on whether one's gains growth from the experience.

Pandemic Construals and Views

Data for this study was collected starting June 2020, with the materials prepared in April and May 2020 and the first round of pandemic lockdowns in Canada occurring in mid-March of 2020. Through personal experiences; talking with others such as friends, family, my advisor, and research assistants; and watching and reading the news, I started to notice several themes in the way people were construing and viewing the pandemic. Early on, and indeed still now, there were doubts about the severity or even existence of a pandemic. Some felt that COVID-19 was some sort of government conspiracy, no worse than a flu, or that little to no additional

precautions needed to be taken to limit its spread. There were also views that the pandemic was serious, that no one knew how it would turn out, and that we could be in lockdown for a long time. This was a time before the vaccines were ready, when there were shortages of masks and cleaning supplies, and when hospitals were facing capacity problems because of outbreaks. It was even possible to carry both of these beliefs despite them sounding contradictory. For example, it was possible to think we were overreacting in our precautions and also feel pessimistic about the future because of all the unnecessary precautions. Generally, these were what I considered “negative” construals of the pandemic, that is, having a very cynical or pessimistic view on it or being frustrated by the situation.

Other construals I noticed were more “positive”, one being that the lockdown may allow for more personal projects and growth. Because a lot of people were now working from home, time spent doing things like commuting or getting ready for work was eliminated for a lot of people. This extra time could be spent getting extra rest or for personal hobbies. Likewise, because going out was limited, this also limited certain activities. It was possible then to save money on recreational activities or eating out, while at the same time picking up new skills like cooking. Another more positive view is an enhanced sense of collective connection and trust in society. Because this was a global event affecting everyone and the vast majority of people were adhering to the precautions set forth by governments and health officials, this may have allowed for a sense of a common sense of united purpose and shared sacrifice. For example, the pandemic has much in common with World War II in which the precautions are very similar to things like rationing and curfews that occurred during the war. Obviously, there is no actual war-like conflict or atrocities going on and the immediate death toll is much lower, but nevertheless it is global-spanning event that no one has been spared in experiencing. Finally, I also noticed that

some people may actually not have been affected too negatively from the pandemic. Whether it was because their lifestyle did not really need to change that much or they were overwhelmed with work and responsibilities beforehand and the pandemic actually offered somewhat of a break. Thus, I thought it was possible to view the pandemic and lockdown as actually not such a bad thing.

Along with my advisor and research assistants, I created a list of 91 different statements that reflected positive and negative construals and views of the pandemic that were prevalent in public discussions at the time. These were guided by keeping five general themes in mind: 1) silver linings from the lockdown; 2) common fate; 3) making sacrifices for a noble cause; 4) societal overreaction; and 5) feelings of powerlessness. Statements were also phrased to be either present or future oriented and self or other-focused. While we suspected factors would emerge in line with these a priori categorizations, these were not strong predictions and categorizing was mostly done to ensure that we generated a broad range of relevant items. An exploratory factor analysis will be run and I will use the resulting factors, rather than the a priori categories, for the analyses.

Hypotheses

I first predict that the more routines and goals have been blocked, the less positive affect and more negative affect participants will tend to report. Essentially, the more a participant's "normal" is affected, the more frustration they will be feeling. Secondly, I hypothesize that character-based maturity, because of its more abstract nature, will not be as negatively affected by routines and goals being blocked compared to achievement-based maturity. In general, I expect to see negative correlations between both types of maturity and routines and goals being blocked, but for the magnitude with achievement-based maturity to be higher. Thirdly, I

hypothesize that after factor analyzing the pandemic construals, “positive” and “negative” factors will emerge. Positivity and negativity will be determined in two ways. Firstly, by subjectively evaluating the items that load under each factor and secondly, by observing how each factor correlates with positive and negative affect. Fourthly, I hypothesize that factors that end up being positive construals and views will correlate with higher feelings of maturity and an older subjective age. Similarly, I hypothesize that negative construals and views will not correlate with feelings of maturity or subjective age or even negatively correlate, that is, negative construals and views will be associated with feeling less mature or feeling younger compared to before the pandemic.

Method and Measures

Participants

Participants were recruited through the University of Waterloo’s participant pool. This study took place in June and August of 2020. Originally, 264 participants provided responses but 16 were excluded for incomplete data, being above age 30, or not having variability in responses (e.g., answering “3” repeatedly) bringing the total sample analyzed to 248; $M(SD)_{age} = 20.9 (2.1)$ years; 19.4% Man/Transman, 71.4% Woman/Transwoman, 2.8% Preferred another term or preferred not to answer, 5.6% no data.

All participants went through the same procedure. Participants started by answering about how much they felt certain positive and negative affective states during the pandemic, that is, “(from) mid-March 2020 to the present (date they were participating)”. The positive states included the following: *cheerful; in good spirits; extremely happy; satisfied; full of life; grateful; motivated; and nostalgic*. Negative states included: *so sad nothing could cheer you up; nervous; restless or fidgety; hopeless; that everything was an effort; worthless; disappointed; bored; and*

disillusioned. Most of these affect states were the same ones used in the MIDUS affect scales (National Institute on Aging, 2018) but I added grateful, motivated, disappointed, bored, and disillusioned to get a deeper range of feelings. This scale was answered on a 1 to 5 scale, *None of the time to All of the time*.

Missing Daily Routines. Participants were then asked two questions about how much their normal routines and lives had been affected by the pandemic: 1) “To what extent do you feel your everyday routines have changed because of the COVID-19 pandemic and the various social and physical distancing precautions?” and 2) “To what extent do you miss the simple things like shopping, seeing friends and family, getting food from restaurants, going out for drinks, going to the movies, chatting with strangers, etc.?” Participants answered these on a 1 to 5 scale, *Not at all to A great deal*.

Goals Blocked or Delayed. Participants then answered the question “To what extent do you feel your goals have been blocked or delayed because of the COVID-19 pandemic?” followed by a list of goals which were each individually rated: *Academic goals; Career goals; Goals related to professional development; Financial goals; Social and relationship goals; Religious or spiritual goals; Goals related to personal hobbies or interests; Goals related to leisure, recreation, and relaxation; and Other goals not listed above*. Each were answered on a 1 to 5 scale, *Not at all to A great deal*.

Pandemic Construals. Participants next read and responded to a list of 91 statements regarding possible thoughts, feelings, and experiences they might be having during the pandemic (Sample items: “Looking back on this situation, members of my generation will be proud of the sacrifices that we made to stop the spread of COVID-19”; “*During the pandemic, I have actually been able to pick up some new, positive habits.*”). Participants were asked to describe

how well each statement applied to them on a 1 to 5 scale, *Does not describe me* to *Describes me extremely well*. The full set of items will be described in detail in the upcoming pages.

Subjective Age and Maturity Measures. I used the same subjective age measures as I did in Study 2. Participants were asked for their subjective age both in years and on a 5-point scale with options ranging from *Much younger* to *Much older*. Subjective Age Difference was then calculated by subtracting a participant's reported subjective age in years from their actual chronological age. The mean Subjective Age Difference was +2.4 years, with a standard deviation of 9.0 years. To remove the effect of outliers, this variable was winsorized such that any participants 3 standard deviations away from the mean were set at exactly 3 standard deviations.

To measure character-based and achievement-based maturity I asked participants to rate the extent to which various traits described them. Participants were asked how *mature*, *wise*, *accomplished*, *close to achieving goals*, *responsible*, and *dependable* (changed from "reliable" in Study 2) they felt. Newly added for this study were two additional items potentially relevant to achievement-based maturity: *confident in my abilities* and *ready to face life's challenges*. Unlike Study 2, in which participants compared themselves to same-age peers, in this study participants evaluated their current feelings compared to how they *felt before the pandemic started*. They rated each item on an X-point scale ranging from 1 to 7 scale, "*(I feel) A lot less X*" to "*(I feel) A lot more X*".

Analyses

The positive and negative affective states were averaged to create an average positive affect and negative affect score for each participant. The reliability for these scales were $\alpha = .82$ and $\alpha = .82$, respectively. "Nostalgic" was then dropped from the positive affect scale as doing so

raised reliability to $\alpha = .86$. Likewise, “bored” was dropped from the negative affect scale as doing so raised reliability to $\alpha = .84$.

The two items assessing routines correlated significantly at $r = .34$ ($p < .001$). I somewhat expected them to correlate more highly with each other and so while my original plan was to average them together, I examined them as separate items.

The nine goals blocked or delayed items, when treated as a single scale had a high reliability ($\alpha = .80$). That being said, looking at the correlations between each goal, values ranged from $r = .11$ to $.76$, indicative of individual participants having differing goal priorities.

Subsequent analyses will look at goals in two ways. The first will average across all nine goals to create a mean level of goals blocked or delayed. The second will take the highest score each participant reported across the nine goals. This second value is an attempt to consider that a participant may have one (or a few goals) that are particularly important to them but would otherwise be obscured if only their average value is looked at.

As with Study 2, I ran an exploratory factor analysis on my maturity measures. This time I included all the maturity measures, not just mature, wise, accomplished, and close to goals. To replicate findings from Study 2, I expected mature and wise to emerge as one factor (character-based maturity) and accomplished and close to goals to emerge as another (achievement-based maturity). Given how responsible and reliable seemed to correlate highly with the mature and wise factor in Study 2, I also expected responsible and dependable to load onto the character-based factor. I expected the new items, confident in abilities and ready for life’s challenges, to load on the achievement-based factor.

Table 25 shows the results of the parallel and exploratory factor analysis. As expected, mature, wise, responsible, and dependable emerged as a factor. Also as expected, accomplished,

close to goals, confident, and ready for life’s challenges loaded together. Ready for life’s challenges loaded decently well with the character-based maturity measures, but since its loading is higher for the achievement-based maturity I will include it with them. This factor analysis again highlights two distinct forms of maturity. With this in mind, two composite maturity measures were again calculated: *Character-based maturity* and *Achievement-based maturity*.

Table 25.

Factor Analysis of Maturity Measures (Study 4)

	Factor		Uniqueness
	1	2	
Mature		0.748	0.441
Wise		0.654	0.555
Accomplished	0.858		0.274
Close to Goals	0.842		0.336
Responsible		0.732	0.484
Dependable		0.493	0.741
Confident	0.808		0.326
Ready for Life	0.537	0.307	0.468

Note. 'Minimum residual' extraction method was used in combination with an 'oblimin' rotation

With these first set of variables (see Table 26 for descriptives), I looked at the zero-order correlations between them. Mostly in support of my first hypothesis (see Table 28), the more goals were blocked (on average and the top goal), the less positive affect and more negative affect participants tended to feel. Missing routine activities also predicted more negative affect, but there was no significant relationship with positive affect. Everyday routines being affected did not seem to relate directly with either positive or negative affect.

In partial support of my second hypothesis, the more goals were blocked (on average and the top goal), the less achievement-based maturity participants tended to report. Contrary to my hypothesis, the level of routines being affected and missing everyday activities did not seem to predict feelings of achievement-based maturity. In contrast to the pattern with achievement-

based maturity, character-based maturity did not seem affected by goals being blocked and unexpectedly there was even a significant positive relationship with missing activities.

Lastly, in partial replication of results from Study 2, the two subjective age variables correlated positively with character-based maturity but not with achievement-based maturity (Table 27). While both types of maturity correlated positively with subjective age in Study 2, the non-significant correlation with achievement-based maturity may indicate that the current situation is different. More specifically, with the lockdowns and other restrictions, feeling more achievement-based maturity may not be as possible and therefore the link with it and subjective age may be altered.

Table 26.
Descriptives (Study 4)

	Positive Affect	Negative Affect	Daily Routines Affected	Miss Activities	Average Goals Blocked	Top Goal Blocked	Subjective Age (Years, before winsorizing)	Subjective Age (Scale)	Character-based Maturity	Achievement-based Maturity
Mean	2.8	2.7	3.8	4.1	2.9	4.3	2.4	3.0	4.5	3.6
Median	2.8	2.7	4.0	4.0	3.0	4.0	0.0	3.0	4.5	3.8
Standard deviation	0.6	0.7	0.9	1.0	0.8	0.9	9.0	1.0	1.0	1.2
Minimum	1.3	1.1	1	1	1.0	1	-23	1	1.0	1.0
Maximum	4.5	4.8	5	5	5.0	5	72	5	7.0	7.0

Table 27.
Zero-order Correlations between Subjective Age and Maturity (Study 4)

	Subjective Age (Years)	Subjective Age (Scale)	Character-based Maturity
Subjective Age (Scale)	0.18**	—	
Character-based Maturity	0.16*	0.19**	—
Achievement-based Maturity	-0.07	0.09	0.43***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 28.
Additional Zero-order Correlations (Study 4)

	Positive Affect	Negative Affect	Daily Routines Affected	Miss Activities	Average Goals Blocked	Top Goal Blocked
Negative Affect	-0.48***	—				
Daily Routines Affected	0.00	0.06	—			
Miss Activities	-0.05	0.18**	0.31***	—		
Average Goals Blocked	-0.24***	0.45***	0.23***	0.42***	—	
Top Goal Blocked	-0.20**	0.35***	0.29***	0.41***	0.72***	—
Subjective Age (Years)	-0.11	0.17**	0.01	0.03	0.04	0.12
Subjective Age (Scale)	0.01	0.06	-0.06	-0.07	0.02	0.01
Character-based Maturity	0.12	-0.02	0.11	0.45*	-0.02	0.01
Achievement-based Maturity	0.45***	-0.33***	-0.02	-0.11	-0.34***	-0.29***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Parallel and Factor Analysis of Construals of the COVID-19 Pandemic Experience

To determine the appropriate number of factors to extract from my list of construals of the COVID-19 pandemic experience, I first ran a parallel analysis. Results from this analysis showed that for my 91 construal measures and $N=251$, five factors were appropriate for my dataset (Horn, 1965; Patil, Singh, Mishra, & Donavan, 2017; Revelle, 2019). Further analysis showed that all five factors were orthogonal to each other (pre-rotation none of the components were correlated greater than .50 with each other) and so for the factor analysis a five-factor, Principal Components, solution was specified with 25 iterations and a Varimax rotation¹⁴.

On the following pages are the five factors, the construals that loaded under each one, and their factor loadings. I created an average score for each factor, only excluding items if their factor loadings were below .400 or if an item did not to me seem conceptually or thematically consistent with the rest of the items.

¹⁴ For a more statistically valid factor analysis with 91 items, a much larger sample is recommended as it would help more accurately classify low-coefficient items (Thompson, 2004). The intention of this study, however, was not to create a valid and robust scale, but rather get a sense of the general ways students were construing the pandemic and how this relates to maturity.

I labeled the first factor “**Overreaction**” as most items seem to carry the theme of participants feeling like there has been too extreme of a response to the pandemic (keeping in mind this study was run in June and August of 2020). Reading each item and subjectively evaluating it for its fit with the theme of overreaction, I think all items fit the theme well except for items 19 and 20. Because of this, I will not include these two items in the average score. Item 17, which cross-loads with Factor 3, seems like it plausibly goes with either factor, but I will keep it with Factor 1 since it has a higher loading.

Table 29.
Factor 1: Overreaction Loadings

Item Text	Factor Loading	Alternate Loading
1. The government’s tracking of those infected and their close contacts is infringing on our privacy	0.776	
2. I really don’t see what the big fuss is about	0.772	
3. What’s the point of preventing this one disaster if it just causes other things like the economy to crash?	0.768	
4. People who are wearing masks just look foolish to me	0.764	
5. I fear the damage our overreaction to the virus would have more than the virus itself	0.759	
6. The re-opening of businesses and public spaces is moving too slowly	0.745	
7. Any actions I personally take to limit the spread of the virus doesn’t really matter in the grand scheme of things	0.742	
8. People are smart and don’t need to be babied by the government and health officials	0.740	
9. I am very angry that people like me have had to sacrifice so much needlessly	0.735	
10. We can just take sensible precautions and be fine, but the precautions right now are overly cautious	0.726	
11. Our rights to privacy are at risk because of the measures to track the spread of the virus	0.713	
12. I cannot keep up with all the changes to the rules and restrictions related to the pandemic	0.698	
13. We will look back on this years from now and be embarrassed about how scared and cautious we were	0.689	
14. People are overreacting to the pandemic	0.681	
15. I can sympathize with those who have been protesting against the shutdowns	0.596	
16. Because I don’t trust that other people are doing their fair share, I am finding it hard to maintain my motivation to make sacrifices	0.585	
17. I feel like I am just reacting to the situation and am always one step behind	0.500	0.431 F3
18. I can understand why people choose to disobey physical distancing rules	0.485	
19. This crisis has inspired me to consider a new career path	0.415	
20. The job market will never recover in my lifetime	0.411	
21. Nobody really knows how to handle this pandemic, not even the government, we are all just making it up as we go along	< 0.400	
22. When the government or health officials put out recommendations, I seek to understand those recommendations to the best of my ability	< 0.400	
23. It surprises me that our government was so unprepared for this crisis	< 0.400	

For items with loadings above .400 and excluding items 19 and 20, $\alpha = .946$

I labeled the second factor “**Self-Transcendence**” as most of the items that loaded on this factor seem to carry the theme of focusing on collective considerations rather than the self during the pandemic and a sense of bonding with one’s community through the shared sacrifice. Face validity wise, I would agree with most of these classifications except item 19 which I will leave out of the average score for this factor. There are also items 11, 16, and 18 which cross-load with factor 4. I think they can plausibly fit in either factor but I will keep them here since the loadings are higher.

Table 30.
Factor 2: Self-Transcendence Loadings

Item Text	Factor Loading	Alternate Loading
1. Our society will come out of this crisis stronger and more resilient	0.802	
2. Looking back on this situation, members of my generation will be proud of the sacrifices that we made to stop the spread of COVID-19	0.782	
3. We will come out this learning that we can trust and rely on others	0.744	
4. We will come out of this and feel closer as a community	0.729	
5. Coming out of this pandemic will teach us to have a more sustainable and environmentally friendly lifestyles	0.704	
6. The collective sacrifices I and many others are making make me feel like I belong to a very caring community	0.671	
7. Future generations will admire my generation for the sacrifices we made to stop the spread of COVID-19	0.627	
8. This is our generation defining moment and I want to be able to look back and be proud about how I contributed	0.609	
9. I have been pleasantly surprised by how people have risen to the occasion to do what needs to be done to help contain the virus	0.592	
10. In the face of this crisis, people are becoming kinder and more compassionate towards each other	0.588	
11. I am learning to be less selfish	0.542	.496 F4
12. This crisis may help our society to reduce our excess consumption	0.538	
13. I am learning that instead of asking what my country can do for me, I need to ask what I can do for my country	0.532	
14. I trust that the government and health officials are acting in our best interests	0.518	
15. Our society is learning to better appreciate healthcare workers	0.489	
16. I have learned to give greater consideration to how my actions affect other people’s well-being	0.466	.438 F4
17. We are learning a lot about structural problems in our society that will help us to rebuild as a stronger, more equitable community	0.453	
18. This crisis has taught me to accept that there are some things I cannot control	0.416	.408 F4
19. When things get better, I will pursue the goals I have had to temporarily put aside with renewed determination and focus	0.413	
20. I try to live in the present moment, focus on here and now	< 0.400	
21. This situation is teaching me the need to rely on others to accomplish a common goal	< 0.400	
22. The sacrifices I am making are helping save lives	< 0.400	

For items with loadings above .400 and excluding item 19, $\alpha = .922$

I labeled the third factor “**Helpless**” as most of the items that loaded on this factor carry a common theme of feeling powerless, demotivated, and uncertain about the future. Face validity wise, I think all of these items fit very well in this factor.

Table 31.
Factor 3: Helpless Loadings

Item Text	Factor Loading	Alternate Loading
1. I am lacking the motivation to pursue my goals	0.679	
2. My motivation levels and productivity have been severely affected, but I have tried to make the best of it	0.643	
3. I feel I haven't been productive enough during the pandemic	0.623	
4. I feel like the pandemic has taken away some of my chances for success	0.611	
5. I am concerned that many of the businesses and public events that have shut down will be lost forever	0.571	
6. The longer this goes on, the more hopeless I feel	0.566	
7. My day to day is difficult enough, I don't want to even think about the future	0.52	
8. I think I will regret not using time at home more effectively	0.512	
9. Some of my important plans got canceled and I am not sure I will be able to make them happen in the future	0.509	
10. Planning too far ahead is pointless as no one knows how this will turn out	0.507	
11. It is pointless to think how the future might turn out, especially since the present is so uncertain	0.488	
12. Others seem to be adjusting to the situation better or faster than I am	0.479	
13. Students who have to stay with their families during the pandemic probably feel like they are children again	0.475	
14. The current travel restrictions make me feel trapped	0.469	
15. The hard work most of us are doing seems hopeless as all it takes is a minority to ruin it for everyone	0.464	
16. When this is all over, I will look back and feel bad about all the time that was wasted	0.453	
17. I feel like I am not doing a good job handling my financial situation during this crisis	0.436	
18. The prolonged social distancing is making me feel less close to other people	0.410	
19. Whatever solutions or cures we come up with should not be worse than the disease itself	< 0.400	

For items with loadings above .400, $\alpha = .877$

I labeled the fourth factor “**Personal Growth**” as the items that loaded on this factor carry the theme of things personally gained since the start of the pandemic and lockdown. This included picking up new hobbies or skills, as well as growth related to introspection and self-reflection. In terms of face validity, I would agree with the placement of all these items.

Table 32.

Factor 4: Personal Growth Loadings

Item Text	Factor Loading	Alternate Loading
1. I have learned a lot about myself	0.648	
2. I have been able to try out some new skills that I always wanted to do	0.642	
3. During the pandemic, I have actually been able to pick up some new, positive habits	0.638	
4. I have been reflecting deeply about how I can best pursue my goals	0.613	
5. I have been able to pursue goals I otherwise wouldn't have had time for	0.586	
6. I am learning to be less attached to material things	0.576	
7. I am learning to tolerate uncertainty in my life	0.552	
8. I am choosing to focus on what I can control rather than what I can't control	0.507	
9. I have been able to help others like friends and family cope with the situation	0.487	
10. I feel closer to other people because of the similar losses we are experiencing	0.474	
11. I am communicating more regularly with distant relatives and friends	0.450	
12. Because of the various pandemic restrictions, I have actually been able to drop some of my bad habits	0.404	
13. It is important to look for different or creative methods to achieve my goals, ones I haven't tried before	< 0.400	

For items with loadings above .400, $\alpha = .856$

I labeled the fifth and last factor “**Less Threat**” as the items that loaded on this factor seem to indicate that the pandemic has not actually been so detrimental to the participant or they have seemingly adjusted to them rather effectively already. Admittedly, this was the toughest factor to label as the items also contain silver linings and benefits, albeit they are less thematically coherent relative to the Self-Transcendence and Personal Growth items. Face validity wise, the only items I would disagree with are items 9 and 11 so I am excluding them from the factor. Item 10 I think can work in either factor 2 or this one but I will keep it here since the loading is higher.

Table 33.

Factor 5: Less Threat Loadings

Item Text	Factor Loading	Alternate Loading
1. Ultimately, I think I was able to adjust to the new normal rather effectively	0.626	
2. I feel somewhat grateful to have this break from the outside world and stay at home instead	0.611	
3. I have actually been a little grateful for the pandemic as it has allowed me to rest and recharge	0.574	
4. I suspect that many people are not doing their share of the sacrifices that are needed to limit the outbreak	0.562	
5. The disruption of normal routines has actually been a bit of a blessing in disguise for me personally	0.551	
6. Though I have had to give up some things, I know it is for the greater good	0.454	-0.400 F1
7. The setbacks I am currently experiencing will not be held against me because people will realize they happened during a global crisis	0.436	
8. Because we are all in the same boat, my situation is not so bad	0.429	
9. I hope that we, as a society, can be more responsible in how we respond to the pandemic	0.424	-0.414 F1
10. It is important to temporarily put aside some goals while this pandemic is ongoing	0.411	0.407 F2
11. The thought that other people might not be doing their fair share of the sacrifices makes me angry	0.406	
12. I am surprised that there has not been much social disorder like looting, crime, and rioting because of the pandemic	< 0.400	
13. Any gaps or setbacks on things like my resume or transcript will be understood to be because of the pandemic and thus not be held against me	< 0.400	
14. The setbacks I am experiencing will not be taken as a personal failure because everyone is falling behind to some extent	< 0.400	

For items with loadings above .400, $\alpha = .813$

Table 34.
Descriptives for Factors

	Overreaction	Self- Transcendence	Helpless	Personal Growth	Less Threat
Mean	1.7	3.0	2.8	2.8	3.1
Median	1.4	3.1	2.8	2.8	3.1
Standard deviation	0.7	0.7	0.7	0.7	0.7
Minimum	1.0	1.1	1.0	1.2	1.4
Maximum	4.5	5.0	4.5	5.0	5.0 ¹⁵

Looking at how the five factors sorted out, they are actually quite close to my a priori groupings. I was originally imagining the major themes of silver linings from the lockdown; common fate; our sacrifices are for a noble cause; this is an overreaction; and I feel powerless – and these more or less lined up with Personal Growth; Less Threat; Self-Transcendence; Overreaction; and Helpless, respectively. In terms of differentiation by personal vs. other oriented construals I was a priori suspecting I would see, this was somewhat supported as the Personal Growth and Less Threat factors are mostly filled with personal-oriented construals, however, the other factors seem to have a mix of both. Likewise, the Personal Growth factor seemed particularly present-oriented while the other factors seem to have a mix of both present and future-oriented views. Subjectively evaluating the content of each factor, I would say that the Overreaction and Helpless factors are both “negative” construals, while the Self-Transcendence, Personal Growth, and Less Threat factors are all “positive” construals. Table 35 displays the zero-order correlations of these factors with the other aforementioned variables collected in this study.

¹⁵ I checked that the participants who maxed out on these factors were not just putting max scores on everything and none of these participants were the same person. Given that the construals were presented in a semi-random fashion, I did not exclude any of these participants.

Table 35.

Zero-order Correlations between Factors and Other Variables

	F1.	F2.	F3.	F4.	F5.
	Overreaction	Self- Transcendence	Helpless	Personal Growth	Less Threat
F1. Overreaction					
F2. Self-Transcendence	0.18**				
F3. Helpless	0.50***	0.17**			
F4. Personal Growth	0.27***	0.60***	0.00		
F5. Less Threat	0.06	0.53***	-0.02	0.55***	
Positive Affect	0.06	0.30***	-0.33***	0.45***	0.34***
Negative Affect	0.16*	0.06	0.54***	-0.04	-0.05
Daily Routines Affected	-0.12	0.13*	0.12	0.12	0.10
Missing Activities	0.05	0.26***	0.32***	0.08	-0.03
Average Goals Blocked	0.33***	0.17**	0.62***	0.09	-0.06
Top Goal Blocked	0.12	0.19**	0.50***	0.07	-0.02
Subjective Age (Year)	0.01	0.04	0.07	0.00	-0.08
Subjective Age (Scale)	0.06	0.09	0.01	0.07	0.06
Character-based Maturity	0.00	0.35***	-0.08	0.36***	0.24***
Achievement-based Maturity	0.07	0.28***	-0.47***	0.49***	0.38***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

The Overreaction and Helpless factors both correlated with negative affect such that the more a participant endorsed these construals, the more negative affect they reported feeling since the beginning of the pandemic. Similarly, the more Helpless a participant felt, the less positive affect they tended to feel. This supports my subjective evaluation of these factors as negative construals and views of the pandemic. In contrast, the more a participant had focused on Self-Transcendent themes, felt Personal Growth, or Less Threat, the more positive affect they reported. This supports my evaluation that these factors represent positive construals and views.

Next, looking at how these factors correlate with maturity and subjective age, in partial support of my hypothesis that more negative construals and views of the pandemic would be associated with feeling less mature, higher endorsement of the Helpless factor was associated with feeling less growth in maturity compared to before the pandemic. Specifically, Helplessness significantly negatively correlated with feelings of achievement-based maturity relative to before

the pandemic, while feelings of character-based maturity were unrelated to Helplessness. These feelings of a lack of accomplishment are supported by the high correlation between endorsement of the Helpless factor and missing activities and feeling like goals have been blocked.

Surprisingly, and counter to my predictions, feeling like we are overreacting to the pandemic was not significantly negatively associated with either type of maturity. I also hypothesized that either a non-significant or significant negative relationship with the negative construal factors and subjective age would emerge. In support of my hypothesis, the former emerged, that is, negatively construing the pandemic did not predict any consistent pattern for subjective age.

In support of my hypothesis, the more “positive” construals were associated with a feeling of enhanced maturity, both in terms of character-based and achievement-based maturity. Counter to my hypotheses, subjective age was not directly associated with these positive construals and this is despite subjective age being positively associated with the character-based maturity. Interestingly, the Self-Transcendence factor was correlated positively with routines being affected, missing activities, and goals being blocked and delayed, something not seen in the other two positive factors (though it is trending with the Personal Growth factor too).

Discussion

In this study, I examined an on-going hardship in the pandemic to see its impact on affect and maturity. The more a participant’s goals had been blocked because of the pandemic, the less positive affect and more negative affect they tended to report. Missing activities such as shopping or eating at restaurants also correlated with more negative affect. These findings are not so surprising. The more a participant’s everyday life and goals were disrupted, the worse affect they felt.

At the same time, the more goals were blocked, the less achievement-based maturity participants tended to report feeling. Character-based maturity, however, seemed unaffected. These results may speak to the strength of character-based maturity over achievement-based maturity as a compensatory mechanism. In situations like a pandemic where many career, academic, and social goals are blocked, it may be hard to obtain objective progress on goals and thus the part of maturity that is tied to achievements suffers, however, character growth still seems possible. As with Study 2, there was also a significant positive relationship between subjective age and maturity, but only character-based maturity. Again, I suspect this may be because achievement-based maturity was tough to feel during the pandemic.

Unexpectedly, there was a positive relationship between missing activities, like shopping and eating at restaurants, and character-based maturity. Speculating why this may be, perhaps missing these activities could be experienced as nostalgia. Previous theory and research indicates that nostalgia functions to promote a sense of personal identity continuity extending from one's past to one's present, and into one's future (Sedikides et al., 2015) and thus may contribute to perceiving gains in character-based maturity traits such as wisdom. I included an item asking participants how "nostalgic" they were feeling and I found that self-reported nostalgic feelings were correlated significantly with self-ratings of character-based maturity, $r = .24, p < .01$. Perhaps something about the bittersweet nature of missing activities is linked to feeling more character-based maturity.

Another notable contribution of this study was the examination of different construals of the pandemic and their relation to perceived hardships such as blocked goals as well as self-perceptions of maturity. Five different themes emerged, the first being a feeling that we are overreacting towards the pandemic (Overreaction). The second theme were focus on collective

considerations and not just oneself during the pandemic (Self-Transcendence). The third theme were feelings of hopelessness and uncertainty about the current and future consequences of the pandemic and lockdowns (Helpless). The fourth theme were feelings of personal gains and introspection that were able to happen (Personal Growth). Lastly, the fifth theme were feelings that the pandemic perhaps was not as bad as expected and that adjustments were made relatively easily (Less Threat).

Agreement with themes of Overreaction and feeling Helpless was associated with feeling more negative affect since the beginning of the pandemic, and in the case of feeling Helpless, less positive affect too. In addition, feeling Helpless connected with having high levels of goal blockage and feeling less achievement-based maturity. The other three themes (Self-Transcendence, Personal Growth, and Less Threat) were associated with greater feelings of both types of maturity (character-based and achievement-based maturity) as well as feeling more positive affect. Interestingly, those who focused on Self-Transcendence themes also tended to report that routines, everyday activities, and goals were more disrupted (Personal Growth was trending in the same direction).

It is particularly useful to compare and contrast the patterns that emerged with the Helpless factor with those that emerged for the Self-Transcendence factor. Both of these factors were associated with negative affect and blocked goals during the pandemic. However, while the Helpless construal was associated with significantly lower achievement-based maturity, the Self-Transcendence construal was significantly associated with both higher achievement-based and character-based maturity. From these results it appears that viewing the hardships of an event like the pandemic through a lens of Self-Transcendence allows people to feel more maturity and positive affect even when acknowledging personal setbacks and challenges. By comparison,

although the Less Threat construal was also associated with both types of maturity it was not significantly associated with routine changes or blocked goals. So, although agreeing with this factor's items correlated positively with maturity and affect, it may be because participants are not actually that negatively affected by the pandemic (or have already adjusted) and are able to carry on more or less normally. Feelings of positivity related to the Less Threat factor thus may be a result of making downward comparisons to those who are actually more adversely impacted by the pandemic, rather than feelings of growth since the beginning of the pandemic. Examining this phenomenon may a fruitful avenue for future study as well as examining demographic characteristics of the participants who most agreed with the Less Threat factor. Also, higher socio-economic status or greater perceived social support, which may have been higher in this student sample compared to the general population, likely allow for greater buffering from threat during the pandemic.

Recalling results from Study 1 in which participants nominated traits, skills, and characteristics they thought mature and immature people their age embodied, one key difference between mature and immature people was that being mature seemed to be more about prosociality and a communal orientation. It is perhaps then that the maturity boon we see when one has feelings of Self-Transcendence comes from feeling more connected to others and being able to transcend the self for the greater good. Indeed, this would align with scholars who argue that healthy human development involves similar self-transcendence (Erikson & Erikson, 1998; Maslow, 1970) Likewise, feeling Personal Growth may be akin to traits and skills having to do with maintaining effective goal pursuit, another major theme nominated by participants in Study 1 and one the participants in that study deemed equally important as a marker of mature and immature people. An ability or tendency to switch or find new goals when your current ones are

blocked may be an example of a person who able to maintain effective goal pursuit despite difficult circumstances. The Personal Growth factor also had themes of introspection and self-reflection in it, similar to themes of decentering and growth in wisdom, also a trait associated with maturity in Studies 1, 2, and 3.

These construals have relevant connections to variables in the coping literature. Indeed, I named some of the factors in reference to coping behaviours and styles. For example, the Helpless factor is similar to the experience of “learned helplessness”. Someone experiencing learned helplessness feels they have little to no control over their environment which can cause worse well-being and depressive symptoms (Abramson, Seligman, & Teasdale, 1978). The Self-Transcendence and Less Threat factors carry features of the common coping behaviour of “positive reappraisal” Positive reappraisal occurs when one searches for positives in negative situations, which can lead to outcomes such as better mood and perceived health (Sears, Stanton, & Danoff-Burg, 2003). The Overreaction factor has a touch of denial in it (e.g., “I don’t see what the big fuss is about”), another type of defense mechanism people may employ when faced with difficulties (Cramer, 1998). The Personal Growth factor partially carries the idea of problem-focused coping and how re-prioritizing or switching goals can be a method to deal with challenges (Baker & Berenbaum, 2007). Indeed, the pandemic is a situation that has spared no one in its negative effects and so taking the perspective of the coping literature with regards to how we construe and deal with the pandemic can be a fruitful avenue for future study.

This research (Study 4) was conducted relatively early in the pandemic. As such, a question is whether the same factors would emerge today. Or perhaps a slightly different question, what new items or themes might be pertinent to inquire about? I believe the Overreaction factor is still relevant today, but slightly differently. Whereas initial feelings of

overreaction may have been more about doubting how serious COVID-19 was, it seems to have expanded heavily into conspiracy theories (e.g., it is a government hoax, Bill Gates is trying to mind control people) (Gogarty & Hagle, 2020). While I am sure many of these “theories” are exaggerated or sarcastic, they nevertheless have a sustained presence in the news and especially social media. Relatedly, people being fed up with shutdowns is another theme becoming more and more prominent, as indicated in the trucker protest episode which shut down Ottawa for several weeks, and it is something not captured well in my factors. To be fair, variants of COVID-19 like the Omicron variant seem less deadly but, at the same time, the rising sickness and death tolls should make an undeniable case for continuing precaution. I wonder then if some sort of “Selfish” or “Not My Problem” factor would emerge today that captures some people’s desire to re-open everything despite the continuing danger. Willful defiance of the rules seems to also be a thing. People have been forging documents and lying to get around restrictions. They have also been violating mask mandates to the point of getting blacklisted from flights. So, while I had the Self-Transcendence factor, I wonder whether strong oppositional feeling exists today in which people are strongly opposed to the collective good in favour of their own benefits.

Speaking more about Self-Transcendence, I believe a greater appreciation for professions like healthcare has emerged. At the same time, however, the longer the pandemic goes on, the more drained and depleted healthcare workers have become, and this has led to many leaving the field. Similarly, the job market has been hit extremely hard and unemployment is high. Part of this is likely linked to closing of businesses and shutdowns, but also seemingly because the pandemic has led some to re-assess the risk-to-reward ratio of their jobs. Working from home, while initially causing extreme inconveniences, has become accepted by many as normal or even

preferred. All this to say that the pandemic has changed the way people think about jobs and work culture.

Noticeably absent in my items were ones inquiring about the supportive nature of family. I also was perhaps optimistic or suppressing negative thoughts in that I did not mention loved ones getting sick or passing away. In as much as these hardships influence affect and maturity, as my previous studies showed, I do not capture these effects in my current items and factors. The development, proven effectiveness, and taking (or not taking) of vaccines was something not covered in this study as the vaccines were not ready yet. How the adopters and deniers view each other may be an interesting conceptualization of maturity. For example, is it mature to defer to the knowledge of experts or does doing so mean you are not “doing your own research” and are thus immature? Is it simply going to be a case of my side is mature and your side is immature? These are all interesting questions that could be explored in future studies.

One limitation of the current study is that it is correlational and thus the connection between taking positive construals, higher affect, and self-perceived maturity cannot be assumed to be causal. In the next study, I will be using an experimental design to try and establish causation. I will have participants reflect on the themes of Self-Transcendence and Personal Growth to see if this reflection causes a subsequent improvement in indicators of maturity including subjective age and character-based and achievement-based maturity.

Study 5: Experimental Intervention to Facilitate Self-Perceived Maturity

Study 4's findings indicated that young adults perceived themselves as having higher character-based and achievement-based maturity and positive feelings to the extent that they endorsed themes of Self-Transcendence and personal growth during the pandemic, despite experiencing blocked goals and other life disruptions. This raises the question of whether guiding young adults to focus on these themes might help to enhance their self-perceptions of maturity and well-being. The previous study's results were only correlational and so this study will use an experimental design so that causal relations can be assessed.

Getting participants to reflect on societal and personal benefits may aid in positive feelings and benefits to maturity because it reorients participants towards the gains in the otherwise very negative situation. Indeed, the COVID-19 pandemic is a situation where there are a lot of negatives, which is why it was not surprising that many participants reported blocked goals and other personal disruptions and endorsed the Helpless factor in Study 4. That being said, there may be positives that can be gleaned and those who have the ability or tendency to think of those positives may feel more mature. This ability or tendency to see positive aspects in a context that is otherwise highly negative may be similar to "wisdom" as studied in Study 1 and 2, that is, the ability to step back from a strongly negative situation and put things in a broader perspective (Kross & Grossmann, 2012). Compared to someone who is stuck seeing only the negatives, those who are able to extend beyond the negative and see some positives may feel that they have a more mature perspective. By nudging participants to take such a wider perspective, it may be possible to elicit this boost in self-perceived maturity.

Another possible mechanism at play is that getting people to talk about societal or personal benefits may trigger some of the lay theories about maturity observed in Study 1.

Specifically, mature people were thought to be those who carried pro-social traits and motivations and had traits affiliated with effective goal pursuit. So, by being asked to think about how the pandemic may be bringing people together or allowed for personal growth, a person may report benefits such as feeling more mature and a higher subjective age.

Additionally, the approach in this study tries to learn lessons from the experimental manipulations that were not effective in boosting self-perceived maturity in Study 2. In Study 2's individual studies, I tried to promote feelings of maturity in young adults by asking participants to think about difficult situations they had to navigate and how they overcame them. In some cases, I asked about successfully anticipating and handling future challenges, in others I asked them to recall how they coped with challenges that had already passed, and I even asked about challenges that happened to others and what participants learned from hearing about them. In all these cases, inconsistent or null results emerged compared to control conditions with respect to effects on maturity. Study 5 differs, however, in at least three ways that potentially will yield more promising results.

Firstly, the challenging event that participants will be asked to think about in this study will be standardized, that is, everyone will be thinking about the on-going COVID-19 pandemic. In my previous studies, participants were allowed to nominate any personal challenge they were comfortable discussing. By keeping the challenge constant, this will mean less variation in what participants are thinking and writing about. In addition, at the time this study was conducted (October and November of 2020), the future was still very uncertain with regards to the pandemic. Thus, the severity of this challenge is arguably on the higher side, and this could not necessarily be said about self-nominated challenges in my previous studies where there was again, a high degree of variation between subjects. In effect, it may have been that my past

studies did not show my hypothesized results because there was too much variation in the types and severity of the challenges that were self-nominated.

Secondly, and closely related to the first difference, since everyone is experiencing the pandemic, there may be a common understanding of its significance and severity, akin to an experience of shared reality (Hardin & Higgins, 1996). Contrast this to the self-nominated challenges where participants may have been discussing problems exclusive to only themselves. While I do not doubt that those experiences were significant to the participant, it is simultaneously possible that participants felt that, in the grand scheme of things, their problem was overall not that important or that someone else may not find it to be serious. The pandemic has a lot of similarities to other major conflicts such as World War II, where whole populations face similar challenges of rationing, curfews, and the loss of life. Research shows that similar major crises like the Vietnam War and 9/11 seem to stick in people's minds as collective, generation-defining memories (Schuman & Corning, 2017) so, it could be that this common understanding and sense of historical significance of the pandemic creates a situation especially conducive to perceptions of growth leading to maturity, not present in my previous experimental studies.

The third way this study differs is with the lessons learned and benefits gained from the challenge. Participants in the previous studies were instructed to extract their own lessons from their experiences. It may be that the lessons participants extracted were not conducive of greater self-perceived maturity. In this study, participants will be asked to specifically think about benefits with regards to Self-Transcendence and Personal Growth. By restricting the benefits to these two themes which showed correlational evidence of being linked to maturity in Study 4, this may allow for my hypothesized effects to emerge.

Method and Measures

Participants were recruited from the University of Waterloo's participant pool and this study took place in late October and early November of 2020. In total 155 participants were recruited but five participants were excluded because they were above age 30 bringing the final analyzed sample to 150 participants¹⁶: $M(SD)_{age} = 19.87(1.64)$ years; 24.0% Man/Transman, 72.7% Woman/Transwoman, 0.7% Prefer another term or prefer not to answer, 2.7% no data.

All participants started by filling out the same measures of daily routines affected, missing activities, and goals blocked as described in Study 4. Participants were then randomly assigned to either the reflection-first (intervention) condition or the reflection-last (control) condition. The reflection-first participants received a prompt and instructions as follows:

In a previous version of this study, many of your fellow students expressed frustration about the pandemic and how their routines and goals have been disrupted.

Despite this, many students also said that the following statements described them very well:

- 1) Our society will come out of this crisis stronger and more resilient;
- 2) Looking back on this situation, members of my generation will be proud of the sacrifices that we made to stop the spread of COVID-19;
- 3) During quarantine, I have been able to try out some new skills that I always wanted to do;

¹⁶ Post-hoc sensitivity analysis indicated that for $N = 150$, 2 groups, $\alpha = .05$, and power $(1 - \beta) = .80$, effect sizes of $d = .23$ are reasonably detectable (Faul et al., 2007; Faul et al., 2009).

4) I have learned a lot about myself during this crisis

Reading these statements, please think then briefly write about how one or more (or something similar) may apply to your experiences over the pandemic.

For example, despite your normal goals and routines being blocked, maybe you have been able to pick up some new positive habits. Or maybe even though you have had to make personal sacrifices, you are proud to do so if it means contributing to the greater good.

Reflection-first participants were then given a text box to provide their response and asked to work on this task for at least three minutes before they were allowed to advance. When these participants finished responding, they then answered the dependent variable questions about positive and negative affect, subjective age, and maturity, the same as described in Study 4. The reflection-last condition participants completed these components in reverse order, that is, they responded to the dependent variable questions first then did the reflection task.

Hypotheses

I hypothesize that reflection-first participants will report more positive affect, less negative affect and greater felt maturity. I also partially expect them to report an older subjective age, but since this relationship was not directly observed in the previous study, it is possible there will also be no direct connection in this study. These results will be in contrast to the reflection-last condition in which participants are reporting on the dependent measures first, then reflecting. As such, their affect, maturity, and subjective age responses will represent their baseline feelings which will offer a comparison point against the reflection-first group whose responses come after reflecting.

Analyses

As a test of random assignment to condition, condition-level means for routines affected, missing activities, average goals blocked, max goals blocked, and participant age were tested for differences in One-Way ANOVAs. Random assignment was deemed successful as no significant differences between condition on these variables were found (all $ps > .250$).

Next, I tested differences in subjective age, both in years and the scale version of the question. I winsorized subjective age difference in years scores to account for outliers, including 2 participants who provided outrageous answers saying they felt over 10,000 years old. I initially excluded these two participants in order to calculate a more sensible standard deviation value then I set any participant more than 3 standard deviations away from the mean at 3 standard deviations (including the 2 extreme participants). Contrary to my hypothesis, results from the One-Way ANOVA showed no significant difference between condition on subjective age difference in years: Reflection-first ($M = 4.9$ years, $SD = 10.1$) vs. reflection-last ($M = 5.1$ years, $SD = 9.7$); $F(1,148) = 0.01, p = .906$). In support of my hypothesis, when subjective age difference is asked on a scale [e.g., 1-5 scale: (*Right now*) *I feel much younger* to *I feel much older*] a significant difference emerges. On average, participants in the reflection-first condition report feeling older than participants in the reflection-last condition ($M = 3.5, SD = 0.9$ vs. $M = 3.2, SD = 1.1$; $F(1,148) = 4.14, p = .044, d = 0.33$).

As in the previous study, I created composite maturity measures representing character-based and achievement-based maturity. I then ran One-Way ANOVAs on these maturity variables testing for between condition effects. Contrary to my hypotheses, no significant differences emerged on character-based maturity: Reflection-first ($M = 4.6, SD = 1.0$) vs. reflection-last ($M = 4.6, SD = 1.0$), $F(1,147) = 0.27, p = .604$) or on achievement-based maturity:

Reflection-first ($M = 3.7$ $SD = 1.4$) vs. reflection-last ($M = 3.7$ $SD = 1.3$; $F(1,146) = 0.01$, $p = .892$). Surprised at these results, I examined the zero-order correlations between subjective age and the composite maturity variables. As in Study 4, both subjective age measures correlated positively with character-based maturity, but not with achievement-based maturity (Table 36).

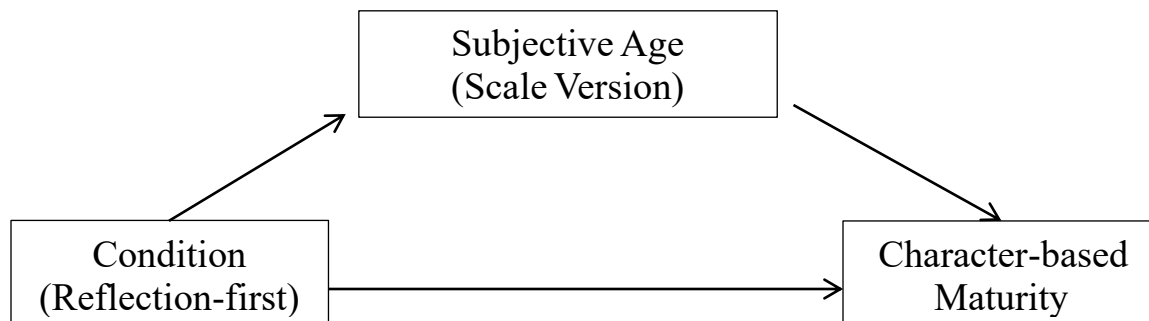
Table 36.
Zero-order correlations between Subjective Age and Maturity (Study 5)

	Subjective Age (Years)	Subjective Age (Scale)
Subjective Age (Scale)	.53***	
Character-based Maturity	.29***	.38***
Achievement-based Maturity	-.05	.06

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Since condition seemed to predict the subjective age scale version and subjective age was associated with maturity, I ran mediational analysis with condition (reflection-first) predicting character-based maturity, mediated by subjective age scale version (see Figure 2). Results support a marginally significant mediational effect, that is, being in the reflection-first condition predicted feeling older, which in turn predicted feeling more character-based maturity (AB path effect = 0.126, $p = 0.10$). Using subjective age in years version as the mediator instead did not result in a supported mediation model, nor did having achievement-based maturity as the final dependent variable.

Figure 2.
Mediation Model Predicting Character-based Maturity



Finally, I ran reliability analyses on the positive and negative affect scales and both were found to be highly reliable, $\alpha = .86$ and $\alpha = .87$, respectively. “Nostalgic” was removed from the positive affect scale, however, as doing so raised reliability to $\alpha = .89$. Using a One-Way ANOVA, I tested for differences in positive and negative affect scores between conditions. Contrary to my hypotheses, positive affect did not differ between the reflection-first ($M = 2.3$, $SD = 0.8$) and the reflection-last ($M = 2.4$, $SD = 0.8$) conditions; $F(1,148) = 1.1$, $p = .295$). Likewise, negative affect did not differ between the reflection-first ($M = 2.6$, $SD = 0.9$) and the reflection-last ($M = 2.6$, $SD = 0.9$) conditions; $F(1,148) = 0.3$, $p = .609$).

Discussion

In this study, participants were asked to reflect on how the pandemic, despite its difficulties, had enhanced their sense of self-transcendence or led to personal growth. Half of the participants did this reflecting first then filled out the dependent measures, while the other half filled out the dependent measures first, then did the reflecting. The results produced mixed support for my hypotheses. Consistent with my hypothesis, reflecting first on these themes (before answering the dependent measures) led to an older subjective age when it was measured on a subjective scale relative to reflecting last. Contrary to my hypotheses, however, reflecting first did not lead to more positive affect, less negative affect, or more felt maturity, all of which showed no difference compared to the reflecting-last condition. That being said, an older subjective age marginally mediated more character-based maturity.

This indirect effect was not necessarily expected. In Study 4 there was a direct correlation between Self-Transcendence and Personal Growth and character-based maturity. There was not a direct correlation, however, between endorsing these themes and an older subjective age, as there

was in the present study. It is not clear why the studies differed in which of these indicators of subjective maturity – trait ratings vs. subjective age – related to the positive coping themes. Given though that an older subjective age correlates directly with higher trait ratings of maturity across all of my studies, I am not too concerned about there not always being the same direct relationships. Also, for a relatively simple and short intervention in which participants were only asked to spend a minimum of three minutes reflecting, the fact that some of my hypothesized results emerge, albeit indirectly and marginally, is at least encouraging. This intervention speaks to potential gains in self-perceived maturity that young adults may experience by reflecting on their pride in their society’s collective response to the pandemic or the opportunities for personal growth in this otherwise negative experience.

One key thing to note about the reflection task is that it did not just involve exclusively focusing on positive interpretations with regards to Self-Transcendence and Personal Gains. The initial tasks in the study, regardless of condition, had participants rate the degree to which their routines had been affected, how much they missed normal activities, and how much their goals had been blocked. In addition, the reflection instructions specifically acknowledged that many people feel frustrated because of the pandemic but also that many were able to find some positives in the situation. In essence, this study allows participants to share their own struggles and acknowledges that others are indeed feeling challenges as well.

This is important to point out in light of other research on the topic of effective support giving. Marigold and colleagues (2014) and other researchers (Jansen, Kwok, Campos-Ordoñez, Bain, Bergseiker, and Scholer, in progress) have explored the types of responses people seem to prefer after they disclose distressing experiences. Consistently, a preference for “negative validation” seems to emerge, that is, participants feel that responses that verify the distressed

individual's feelings and interpretations of events are helpful for making people feel better. My study utilizes this insight. Participants are able to initially express how their goals and routines have been affected from the pandemic. Then, in the intervention condition, participants immediately have their feelings validated when the prompt informs them that other participants in a previous version of the study have also reported feeling stressed out in similar ways. In the control condition, however, participants do not receive this validation yet, and instead go on to first fill out the dependent measures. So, perhaps the validation built into the reflection task is a key component that allows for greater felt maturity to emerge.

Alternatively and additionally, the reflection task then allows participants to express positive interpretations of aspects of the pandemic, nudging towards thinking about feelings of self-transcendence and personal growth. So, it could be a combination of both being validated and being nudged towards thinking about positives despite those negatives. Future research could test what role if any the negative validation played in boosting participants' subjective age by varying whether this validation is included as a component in the reflection task.

Another thing to note about this reflection task is its guided, but still open nature. I nudged participants with examples of ways they may have benefitted that were based on the findings from Study 4, but I still left it up to them to decide what particular examples they wanted to write about. This allowed for personal expression and relevance in responses, rather than me specifically and more directly telling them what to think or feel. In educational contexts, personal relevance and interest in what is being taught are robust predictors of engagement, liking, performance, and persistence in classrooms (Hidi & Renninger, 2006; Hulleman & Harackiewicz, 2009). Likewise, the saying-is-believing paradigm in which participants are

encouraged to connect a core message to their own lives increases internalization and impact of the message (Aronson, E., 1999; Aronson, J. et al., 1999).

To be clear, I am not advocating for “tricking” participants into feeling or thinking more positively about the pandemic. I am instead advocating for pointing out that positives might exist and that others have reported so. Should they agree, they can write about it with personal examples. I think this message is easy to forget especially in such a difficult time or when the media seems to exaggerate those who are defecting from cooperating with social norms. In my experience, we were more often hear about the anti-maskers, anti-vaxxers, and lockdown protestors then we did about the vast majority who were doing their best to follow the various health and government guidelines. From what is known about the availability bias, in which vivid examples are remembered more easily and this ease of remembrance leads to thinking these examples are much more common (Tversky & Kahneman, 1973), this may cause a situation where people are more likely to focus on the bad parts of the pandemic. In this way, nudging people towards thinking about some of the positives of the pandemic may be helpful simply because it counteracts the availability bias towards the tendency to think about the negatives of the situation.

General Discussion

Summary of Key Findings

Becoming a mature adult is sometimes depicted as a process of building a résumé of conventional demographic markers of adulthood such as achieving financial security, marriage, and parenthood. One useful thing about this achievement-based definition of maturity is that it specifies clear, external criteria that can be reasonably objectively assessed in order to determine a person's progress towards maturity. A key drawback of this achievement-focused definition, however, is that the attainability of these goals is becoming increasingly elusive to most young adults in post-industrial societies. Not to mention, opportunities to attain financial and relational security have never been equally available to all individuals and groups. Thus, setting a standard for maturity that is practically out of reach for many or most young adults does not seem like a good foundation for psychological adjustment and well-being. Fortunately, another perspective defines mature adulthood differently, characterizing it as a set of internal character strengths that can be manifested in a variety of ways. This character-based definition of maturity broadens the possibilities for how young adults can demonstrate their maturity to themselves and others.

A key goal of my dissertation was to examine whether everyday people appear to endorse this character-based definition of mature adulthood. I pursued this question in Study 1 by assessing the contents of lay theories by eliciting perceivers' attributions about individuals who belong to the target category (mature individuals) versus those who do not belong (immature individuals). Many of the character traits that participants attributed to mature young adults matched the ways that personality tends to change in adulthood. Indeed, participants attributed higher levels of emotional stability, social dominance, agreeableness, conscientiousness, openness, honesty-humility, and altruism to mature young adults relative to immature young

adults which fits the patterns in longitudinal personality studies showing that these same traits tend to be higher in adults compared to adolescence (Costa Jr & McCrae, 2006; Roberts & Mroczek, 2008). Similarly, perceivers attributed higher levels of wise reasoning attributes to mature (vs. immature) young adults which fits research showing that wise reasoning tends to increase during adulthood in Western cultural contexts (Grossmann et al., 2012). These patterns suggest that lay perceivers' theories of mature adult character may be sensitive to the realities of how personality traits and cognitive capacities mature during adulthood. Furthermore, in open-ended descriptions of mature and immature individuals, participants typically characterized mature individuals as having traits related to effective goal pursuit, pro-sociality, and controlling of emotions and impulses. In contrast, immature targets were typically characterized by the opposite traits – ineffective goal pursuit traits, selfishness, and having poor control of emotions and impulses.

It is also noteworthy that Study 1 participants attributed more experience with personal adversity to mature (vs. immature) people. This is consistent with cultural narratives as well as social science theories which emphasize how suffering through adversity can build the character strengths that constitute maturity (Silva, 2012). Overall, these findings provide preliminary evidence that people may endorse the theory that maturity is linked to character strengths that emerge through enduring experiences of personal adversity.

In addition to documenting lay perceivers' attributions about the character strengths and formative experiences of mature (vs. immature) young adults, Study 1 also documented people's expectations about the distinctive phenomenology of maturity. Specifically, the results showed that lay perceivers attribute an older subjective age to mature (vs. immature) young adults. In other words, lay perceivers expect that immature young adults are more likely to say that they

feel younger than their actual age, whereas they expect mature young adults feel slightly older than their actual age. This is interesting because much of the existing research on subjective age, which focuses on middle-aged and older adults, tends to find that an older subjective age is a sign of less successful aging (Rubin & Berntsen, 2006). By contrast to these well-documented patterns with older adults, the results of Study 1 suggest that in young adulthood an older subjective age might be seen as a sign of successful maturation into adulthood. Exploring this potential adaptive meaning of older subjective age in young adulthood thus became an additional area of focus in my subsequent studies where I examine how subjective age in young adulthood relates to other indicators of self-perceived maturity and psychological adjustment.

Building off Study 1's findings on lay theories of maturity, Study 2 explored the implications for young adults' self-perceptions of maturity. Specifically, Study 2 mega-analyzed results from four studies in which participants reported their own self-ratings on various traits and experiences that were potentially relevant to maturity. Results showed that self-ratings of maturity correlated positively with self-ratings of subjective age, that is, those who felt more mature also tended to report an older subjective age. Furthermore, when participants rated themselves on other maturity-related descriptors, these ratings were likewise correlated with self-perceived maturity and subjective age. These descriptors sorted into two broad categories of maturity-related characteristics: a factor capturing character-based maturity (feeling mature; wise; and in Studies 4 and 5 also responsible and dependable) and a factor capturing achievement-based maturity (feeling accomplished; close to achieving one's goals; and in Studies 4 and 5 also feeling confident and ready for life's challenges). Study 2 also found that both types of maturity were associated with greater psychological well-being. Study 2 thus found that a character-based definition of maturity is relevant not just for judging maturity in other

young adults (Study 1) but also for judging one's own maturity. It is interesting that character-based traits and achievement-based traits emerged as distinct factors, which may indicate that individuals hold distinct definitions of maturity, one focused on internal character traits and the other focused on progress towards achieving conventional adult goals, which mirrors the distinct definitions that are found in broader cultural discourses on maturity (Mintz, 2015).

Building on the insights from the preceding studies, Study 3 used multi-cohort data to test whether the connections between various characteristics and experiences that were shown to be linked to lay theories of maturity are exclusive to young adults or apply to older adult groups as well. Study 3 found that subjective age appears to be experienced differently by younger (under 30) and older (30 and over) adults. For younger adults, subjective age was again found to be positively associated with experiencing adult roles as well as general hardships (e.g., financial difficulties, losing a close loved one), but this was not the case with older adults in which there was no association between subjective age and these background experiences. For both younger and older adults, a new predictor of subjective age was found, that is, health hardships, in which possessing chronic health conditions was predictive of feeling older for all age groups. Maturity was also examined by looking at a variable which captured participants' self-perceived wisdom gains over the last 10 years. For the younger adults, experiences of general hardships and health hardships predicted self-perceived wisdom gains, whereas for older adults these associations were not present. Furthermore, for young adults both subjective age and self-perceived wisdom gains were predictive of feeling worse well-being in the moment but feeling greater well-being (particularly greater autonomy) ten years later when they reached middle age. In other words, going through hardships did not feel great in the moment, but seemed to carry a delayed benefit, adapting them to transition more successfully into midlife.

Study 3 thus provided further evidence that people see maturity in young adulthood as a process of acquiring mature character strengths, such as gains in wisdom, by enduring challenging experiences. The fact that older subjective age and wisdom gains were linked with each other and with experiencing challenges for young adults but that these patterns did not emerge for middle-aged and older adults suggests that this lay theory of maturity is specifically relevant to the transition to adulthood, when attainment of maturity is still an active focus of concern and questioning, but not to later stages of adulthood when maturity is less of a going concern. Older subjective age thus appeared to carry positive meaning for young adults but not older adults because for young adults an older subjective age can be interpreted as a signal that one is maturing during a time of transition when one's maturity might be open to questioning.

The final two studies examined self-perceptions of maturity in the context of the COVID-19 pandemic. This was an interesting context to study self-perceived maturity because for many young adults the pandemic significantly blocked progress towards academic, career, and social goals. This provided a context to examine how young adults manage, pursue, and maintain a sense of maturity when conventional achievement-based means of demonstrating maturity are disrupted. I was particularly interested in how variation in young adults' construals of the pandemic might relate to their self-perceptions of maturity. Five distinct construals of the pandemic emerged, two negative construals: feeling that society is overreacting to the pandemic (Overreaction) and feeling hopeless about it (Helpless) and three positive construals: feeling pride in the collective response to the pandemic (Self-Transcendence), feeling like you have developed new skills and gained self-insights (Personal Growth), and feeling relatively unaffected or even relieved (Less Threat). The two negative construals were associated with more negative affect since the start of the pandemic, while the positive construals were

associated with more positive affect. Feeling Helpless was also associated with lower self-perceptions of achievement-based maturity. The positive construals were all associated with higher self-perceptions of both character-based and achievement-based maturity. Not surprisingly, the negative construals were generally linked with feeling like one's goals were blocked because of the pandemic, however, feelings of Self-Transcendence and Personal Growth were also associated with perceiving one's goals being blocked, while Less Threat was not. These findings indicate the power of the Self-Transcendence and Personal Growth construals to help participants maintain their perception that they are successfully maturing despite experiencing blocked progress towards conventional adult goals.

In Study 5, I tested the impact of these positive construals of blocked progress towards goals causally in an experimental design in which participants were asked to reflect on how even though their goals have been blocked during the pandemic they might be experiencing feelings in line with Self-Transcendence and Personal Growth. In this experimental condition, this reflecting happened near the beginning of the study before the dependent measures of maturity were filled out. In the control condition, this reflecting happened at the end of the study, after the maturity measures were filled out. Those in the experimental condition, relative to the control condition, reported an older subjective age which in turn marginally mediated feeling greater character-based maturity. Thus, this study offers up preliminary evidence that young adults can use positive reconstrual strategies to promote a sense of character-based maturity to compensate for situations where progress towards achieving conventional markers of adult success are blocked.

Implications

I set out to explore the concept of maturity as it pertains to young adults. In line with scholarly research and commentary (e.g., Brooks, 2015; Haidt & Lukianoff, 2018; Mintz, 2015;

Rose & Ogas, 2018) my work shows that lay definitions of maturity may take two distinct forms. The first is tied to perceiving success in pursuing objective, external markers of adult status, which I have called achievement-based maturity, and the second emphasizes subjective, internal traits associated with a mature personality or worldview, which I have called character-based maturity. This character-based maturity may be especially tied to lessons learned through adult roles and hardships, that is, through challenging situations that test the limits of our current abilities, we may build traits and qualities consistent with the lay definition of a mature young adult.

As previously discussed, this character-based conceptualization of maturity may be especially beneficial when real-world circumstances block off progress towards conventional markers of adult success. In the last 20 years there have been three “once in a lifetime” crises in 9/11, the housing market crash, and the pandemic. For young adults who would have been trying to enter the workforce, buy a house, or start a family during these times, it must (be) have been very hard to meet these goals despite their best efforts. Unfortunately, a person can do everything right and still not succeed at their goals and thus face frustration, shame, and stigma from others. What may be beneficial then is reminding oneself of forward progress in another way, that is, the mature character traits one is developing by facing these hardships.

Research in sports and educational psychology have studied a similar concept, that is, the advantages of focusing on *performance* and *execution* of skills rather than *outcomes*. A key reason being that outcomes are often less controllable than one’s effort (Ames, 1992; 1995; Valentini, Rudisill, & Goodway, 1999). For example, one can run the best race of their life, yet still come in second place because the winner simply ran an even better race. If one dwells on not coming first, they may subsequently experience negative affect, motivation problems, and

self-confidence problems since they failed their goal. If, however, they focus on how it was a personal best for them and on other more performance-related markers (e.g., I kept a good pace, I executed my breathing and running techniques as I practiced), then affect, motivation, and self-confidence may not suffer and, in fact, they may even be enhanced. Thinking about maturity in terms of performance rather than goals may likewise offer similar advantages. Goals such as owning a house, starting a family, or starting a career all have component traits associated with them. To achieve these goals, one likely needs to be responsible, hardworking, organized, caring, committed, etc. When one is frustrated about their progress on these goals, it may be beneficial to remember that they may be making progress on these traits. Rather than ruminating that one still does not own a house, one can instead take pride and comfort in their progress on becoming a more responsible and organized person, one who is continuously saving money, one who is being patient, etc.

The evidence that people endorse a theory that maturity is a set of internal character traits developed through facing adversity also dovetails with findings from narrative life-history research with young adults who were coping with the transition to adulthood in situations of economic uncertainty (Silva, 2012; 2013). That previous research found that young adults who were unable to achieve conventional external benchmarks of adult success grounded their sense of maturity in therapeutic narratives that emphasized the personal insights and character growth that they gained through their lived experiences coping through adversity and hardships. In these narratives, mature adulthood is “defined not in terms of traditional markers like financial independence, a career, or marriage, but rather in terms of psychic development: achieving sobriety, overcoming addiction, fighting a mental illness, or simply not becoming one’s parents” (Silva, 2013, p. 125).

To be clear, I am not saying that our lay theories of maturity should ignore achievements and progress towards conventional adult goals completely. Attainment of these goals can represent competency and signal that a person had the skills, knowledge, and traits needed to earn that achievement. However, if the definition of maturity is reduced to the attainment of these adult markers, such that progress towards these goals is considered necessary to “prove” one’s maturity, then it may become an oppressive definition, particularly for young adults from underprivileged backgrounds or for most young adults during times when these goals are blocked through no fault of their own (Silva, 2012). As a quick heuristic for assessing maturity, considering these conventional adult status markers can be useful. However, problems may arise if individual perceivers, or the broader culture, reify these conventional markers to be the essence of what maturity means, rather than also seeing maturity as a set of character strengths that could be built in the pursuit of adult status markers or in a wide variety of other ways that do not fit the conventional script of adult achievement.

When conventional adult status markers become the essential standard for proving one’s maturity, this can remove a lot of context, subtlety, and nuance that can speak to a person’s mature character. It may be helpful to consider analogies to other contexts where important qualities for evaluation seem to get displaced from consideration because they cannot be readily captured in objectively definable, quantifiable metrics. For example, in sports, tougher-to-quantify, character traits are often called “intangibles”. Such traits (e.g., leadership, teamwork, work ethic) are often utilized less in assessing athletic performance than the more easily quantifiable, on-the-field, performance metrics. Similarly, in the workplace and academia, more subjectively assessed attributes called “soft skills” are often given less weight when hiring decisions are made compared to the “hard skills” that are more easily labeled and listed on an

applicant's résumé. Many commentators have noted our modern culture's bias towards a "tyranny of metrics" (Muller, 2019), which redefines important domains of human lives by overly relying on criteria that can be readily standardized, objectified, and quantified while discarding richer "common sense" definitions that encompass more subjective qualities within these domains.

I believe that my research shows that people continue to define maturity in terms of subjective character traits in the face of some cultural pressures to define it in a more standardized way. My findings indicate that for young adults, the definition of maturity is not limited to whether one has achieved a stable career, purchased a home, and settled down with a spouse and children. Rather, maturity entails broader, more subjective questions concerning whether one acts responsibly, treats others respectfully, and responds in a calm and measured way to life's challenges. The persistence of this richer, character-based lay theory of maturity provides a potential resource for young people to continue to affirm their identities as mature adults even when circumstances beyond their control make their path towards conventional adult status markers precarious and uncertain.

Subjective Illusions about Maturity

Thinking of oneself as more mature, wiser, more responsible, and more dependable can (more easily) occur during an on-going hardship, possibly because it is less reliant on "objective" measures of progress. For example, feeling "more accomplished" or "closer to goals" likely requires you to make tangible, objective goal progress, whereas feeling "wiser" or "more mature" can be more open to personal interpretation. This reasoning is supported in work by which showed that more "ambiguous" terms can be more easily enhanced compared to more "unambiguous" terms (Dunning et al., 1989). For example, there is more room to interpret terms

like “disciplined” or “sensible” in a positive way than there are terms like “mathematical” or “well-read”. The latter tend to be defined by more clear-cut, objective indicators, whereas the previous are more open to interpretation where individuals can subjectively define the trait in self-serving ways that focus on the qualities they have and downplay the qualities they lack. Because of this relative subjectivity, this may lead to some concern that character-based maturity is too heavily self-serving or even simply a positive illusion and not based in any objective reality. I would present three arguments against this concern that self-perceptions of maturity are mere illusions.

Firstly, self-serving interpretations of traits have been shown to be less likely to occur when subjects are asked to compare themselves to peers (aka social comparisons) as opposed to temporal (self) comparisons. Wilson and Ross (2001) showed that when self-evaluation goals were primed (as opposed to self-enhancement goals) participants tended to choose to use more social comparisons and less temporal self comparisons (2001). This was presumably because participants believed that peer evaluation offered more of an objective marker of progress compared to a past self (Wilson & Ross, 2001). In this way, I suspect that participants’ ratings of their own maturity in Study 2 is relatively accurate and does not carry too much positive illusions as it was done in reference to a peer compared to a past self.

Secondly, work has shown that while people are apt to engage in “motivated reasoning”, that is, make favourable conscious and unconscious interpretations that serve their goals, there is a limit to this. This limit is based on a person’s ability to construct “reasonable justifications” for their interpretations, that is, there has to be (enough) evidence to support one’s interpretations and not (enough) evidence to counter them (Kunda, 1990; Lockwood, Jordan, & Kunda, 2002). Put simply, while there is “wobble room” in assessing one’s traits or abilities, there still needs to

be reasonable evidence or truth behind one's self-assessment. In this way, someone might be able to reasonably say they are "somewhat more responsible than peers", but it would be less reasonable and likely for that same person to say they are "a lot more responsible than peers" unless they have stronger examples and evidence to support that claim, even if it is only themselves they have to convince.

Thirdly, even if greater self-perceived maturity involves degrees of positive illusions, the process may still be adaptive and worth it anyways. Theory and research on positive illusions by Taylor and Brown (1988; 1994), has established that positive illusions are normal, as opposed to pathological, and that they lead to enhanced well-being and motivation, as opposed to dysfunction. For example, compared to pessimists, optimists are happier and have better physical health (Scheier & Carver, 1987; Taylor, Kemeny, Reed, Bower, & Gruenewald, 2000). They also try harder and persist longer on tasks, leading to more success (Brown & Marshall, 2001). As well, in other domains, such as romantic relationships, it is thought that ex-appraisal biases (i.e., derogating past romantic partners more harshly in retrospect compared to an earlier evaluation) assist in coping with breakups and improve relationships with one's current partner (Smyth, Peetz, & Capaldi, 2020). So, when the going gets tough, positive illusions in the form of confidence, optimism, and competence allow us to persevere and continue to challenge ourselves rather than surrender and be content with the status quo. Similarly, it may be that positive illusions about one's own maturity may allow young adults to cope more adaptively and confidently with the challenges they face in the precarious transition to adulthood.

Future directions

Future research could build on my dissertation studies to further explore how lay theories of maturity shape judgements of others' maturity as well as one's own self-perceptions. Study 1

documented that participants attribute a variety of character traits and skills to mature (vs. immature) young adults. While these findings provide valuable insights into the qualities people expect mature young adults to possess, they did not determine if these character attributes are sufficient or necessary. For example, for the write-in traits, participants seemed to associate maturity with traits related to effective goal pursuit, prosociality, and control of impulses and emotions. Do young adults need to possess all three of these groups of traits or is a deficiency in even one of them enough to deem someone as not yet mature? For instance, what if a young adult was quite competent at their job, cool under pressure, but also seemed to never be interested in getting to know their coworkers? What if a student was always friendly and considerate during group work, never seemed to get angry either, but in terms of getting their share of the work done was constantly missing deadlines? Or what if a young manager was known to get passive aggressive when stressed out, but otherwise was supportive of their team and got good results?

I could present such vignettes and profiles to participants and ask them to rate how mature they think the targets are, setting the midpoint of the scale at “neither mature nor immature”. My hypothesis would be that lacking in any of the three groups of traits will result in ratings that do not make it beyond the midpoint, however, possessing all three will result in ratings that do pass the midpoint towards mature (and away from immature). That is, I hypothesize possessing traits related to effective goal pursuit, prosociality, and control of impulses and emotions are all necessary but not alone sufficient to evaluate someone as mature. I could further ask participants to explain their ratings. For example, in the first example, perceivers may explain that they rated the person as immature because they seem too cold and distant. In the second example, perceivers may explain that they rated the person as immature

because they seem unreliable. With the third example, because their reactions to stress are too erratic and rude. Doing so may elucidate further insights beyond the scale ratings.

Future research could also build on the insights into self-perceptions of maturity that were developed in Studies 2 and 3 but use novel methodologies to provide further insights into the determinants and consequences of self-perceived maturity. An especially promising approach would involve using experience-sampling methods to track how self-perceptions of maturity fluctuate in relation to everyday experiences or circumstances. If indicators of self-perceived maturity are assessed multiple times for each individual across a variety of everyday situations, then this data could be used to assess between-person variability in mean levels of self-perceived maturity as well as within-person variability in self-perceived maturity across situations. This data could also be used to assess if some young adults have relatively stable levels of self-perceived maturity whereas others' self-perceptions of maturity are more situationally reactive. This approach builds on a method that has been used to examine between-person and within-person variability in personality expression. That previous research shows that, in parallel to between-person differences in the mean levels of personality traits across situations, there also exists substantial within-person variability in personality state scores and some of this within-person variability is reliably associated with particular types of situations that elicit certain types of personality expression (e.g., extraverted behaviour tends to be higher in situations where other people are present than when individuals are alone) (Fleeson, 2001).

I have started to explore the question of within-person variation in self-perceived maturity with an exploratory experience sampling study. In line with findings from Study 1, one variable I might expect to lead to short-term changes in self-perceived maturity is emotional control. Study 1 found that people associate maturity with expressions of emotional control such as calmness,

level-headedness, and lack of impulsivity. If people's self-perceptions of maturity are linked to feeling emotionally controlled then I would expect that participants would rate themselves as less mature and report a younger subjective age if they have just been in a situation where they lost their cool or acted impulsively compared to if they have just been in a situation where they behaved calmly and restrained their impulses. This methodology may also reveal novel situational determinants of self-perceived maturity that go beyond the scope of the factors that have been explored in the present studies. For example, people's self-perceptions of maturity may depend on social comparisons, such as whether they are relatively younger or older than others in their immediate surroundings. For example, a young adult in their mid-20s who is taking classes to finish a second bachelor's degree may feel relatively mature when they are on campus surrounded by fellow students who are a few years younger, but they may feel relatively less mature when they are in their workplace where most of their co-workers are middle-aged.

Another general direction for future research would involve building on insights from Studies 4 and 5 when young adults face situations where they face uncertainty or setbacks in their progress towards adult goals. In particular, I am interested in exploring how young adults' self-perceptions of maturity are affected when they encounter challenges or roles that too far exceed their current level of skill and thus make growth difficult. This interest is based on findings that emerged in Study 4 where I found that some participants adopted a Helpless construal in response to the COVID-19 pandemic, feeling overmatched by its difficulties. Endorsement of this Helpless construal was correlated with less achievement-based maturity. It may be interesting to explore whether other situations where individuals feel helpless and "in over their heads" may lead participants to perceive themselves as less mature.

One relevant situation where young adults may be vulnerable to experiencing self-perceived immaturity due to helplessness is the first year co-op experience of University of Waterloo students. Some of these co-op programs have their students go on their first co-op term as early as their second overall term of university, that is, they start university for the first time in September and are already interviewing in October for positions that start the following January. The amount of pressure this creates on students to find a job so soon, with little to no academic credentials or training under their belts may be intimidating for many students. If one fails to secure a job (or lands a less than satisfactory one), this may create a sense of embarrassment and inadequacy in a student and leave them feeling uncertain about their career preparedness. This could be especially harmful for marginalized students such as racial minorities, first-generation students, and women in STEM programs where it has been argued that such early setbacks can lead to a negative feedback cycle where setbacks lead to even more setbacks (Murphy et al., 2020; Walton, Logel, Peach, Spencer, & Zanna, 2015; Yeager et al., 2016). Furthermore, even if a student does succeed in landing a job, a sense of impostor syndrome may be present (Chrisman, Pieper, Clance, Holland, & Glickauf-Hughes, 1995), in which the student feels lucky to get the job, but harbours concerns if they really earned it. After all, up to this point, they had very little on their academic résumé.

I would sample actual co-op students and get their perceptions of how they are handling the challenges of their program. Specifically, do they feel they are meeting the challenges and demands, or do they feel overmatched and overwhelmed? I would follow them longitudinally and regularly track this perception as well self-perceived maturity. I would test two hypotheses. First, at any individual timepoint, a tendency to feel overmatched will predict lower levels of self-perceived maturity. Second, early experiences of feeling overmatched are going to have

persistent negative downstream effects on both future feelings of being overmatched and maturity, that is, early negative experiences can snowball into further negative experiences and be hard to recover from.

If my results are as hypothesized it would suggest that some co-op programs may benefit from being restructured to ensure that most students feel adequately prepared to enter the co-op work world. For example, it may be beneficial to schedule the first co-op work term in the students' second or third year so that they have a stronger skill set that allows them to begin co-op with more confidence. The idea is to create a slightly less challenging situation early on for students and allow them to build up to co-op rather than potentially being overmatched early in their careers and have growth stunted because of that.

Limitations

My samples for Studies 1, 2, 4, and 5 are all student samples and thus have possible generalizability concerns. While the age group is appropriate to study maturity in young adults, nevertheless it is still a specific subset of in terms of education, race, and socio-economic status. Study 3 is a wider sample, that is, a representative US sample, but is still limited on a factor such as culture. One result where this generalizability concern may emerge are Studies 2 and 3 where it was observed that being a student was not correlated significantly with maturity, though adult roles and hardships were. It could be that roles outside the norm for that population (under 30 age and students) are what triggers feelings of maturity while more common roles do not. It is possible then that, if one were from a relatively isolated community where working at a young age was the norm for your age group and peers, perhaps working would not lead to feelings of maturity. If this same person, however, were to attend college, perhaps then it would build a sense of maturity to the extent that it is a less common experience for people of their

background. My studies are not equipped to answer these questions but I would be open to doing so in future studies.

Different cultures may have different conceptualizations on what it means to be a mature adult. Some even have institutionalized rituals such as bar/bat mitzvahs, quinceañeras, and “Coming of Age Days” that mark one’s rite-of-passage from adolescence into adulthood. Research in modern Western social contexts finds that institutionalized definitions of adulthood such as reaching the age of majority to get a driver’s license, purchase alcohol, or vote in elections do not generally have much bearing on young adult’s definitions of maturity (Arnett, 1997). However, it is possible that institutionalized age-graded definitions of maturity may have more influence on lay definitions of maturity in cultural contexts in which these transitions include elaborated, deeply rooted rite-of-passage rituals that make the transition between age groups more salient and meaningful than just the acquisition of particular legal rights. Indeed, previous research shows that people tend to perceive change in the self and identity relative to culturally defined temporal landmarks such as birthdays (Peetz & Wilson, 2013). Building on this work it would be interesting to explore whether self-perceptions of maturity are affected by culturally salient rites of passage. One hypothesis would be that individuals will perceive their present self as more mature than their past self after they have gone through a rite-of-passage transition.

My studies focused on general theories of maturity and they were not designed specifically to examine gendered theories of maturity. However, there are reasons to believe people may have different assumptions about what maturity means for men versus women. For example, work on “precarious manhood” suggests that people believe manhood is something that needs to be earned and defended through actions, whereas womanhood is assumed simply

through reaching biological maturity (Vandello, Bosson, Cohen, Burnaford, & Weaver, 2008). This and other research (Cohen & Vandello, 2001) may suggest that for young men, a sense of maturity is something that is constantly contested through (lack of) deeds and (in)actions. This may lead us to hypothesize that there should be more variability in perceptions of young men's levels of maturity than young women's maturity. Several relevant gender stereotypes also exist with regards to career progression, family roles, and even the way men and women differ in personality (Ellemers, 2018; Heilman, 2012). These stereotypes may also influence people's lay beliefs about what a maturity typically should look like for men versus women and also shape men's and women's self-perceptions of maturity.

Future research could take the methods used in the present studies and adapt them to be able to test for gendered patterns in judgments of maturity. For example, Study 1 simply asked participants to think of a mature or immature person who was their age but did not specify that person's gender. Future studies could randomly assign participants to think of either a mature man, a mature woman, an immature man, or an immature woman. These ratings could then be compared to see if there are any significant interactions between target gender and target maturity on trait ratings that might suggest that perceivers use different qualities to distinguish mature men from immature men than they use to distinguish mature women from immature women.

My findings seemed to show that an older subjective age may have positive meaning in young adulthood as a subjective indicator of self-perceived maturity. This finding is intriguing because much of the research on subjective age shows that this variable has mostly negative connotations in middle-aged and older adults. I interpreted this as evidence that the positive value of subjective age as an indicator of maturity may be limited to the period when individuals

are transitioning into adulthood and they may still be preoccupied with proving their maturity. However, by midlife individuals may be less focused on affirming their maturity and more concerned about losing touch with their youthfulness. So, any positive meaning of older subjective age in affirming one's maturity would likely have faded by midlife when the phenomenology of feeling older takes on more exclusively negative connotations as an indicator of being "past one's prime".

While these possible interpretations are interesting my findings also reveal some of the challenges of using a phenomenological variable like subjective age to study self-perceptions of maturity. On the one hand, subjective age is valuable because it may be less vulnerable to self-enhancement response biases than asking a person more directly how mature they feel. But on the other hand, because of this indirectness subjective age measures may be impacted by other psychological states that are unrelated to self-perceived psychological maturity, such as how physically run down the person feels. My studies also showed some inconsistencies depending on how subjective age was inquired about. I assessed subjective age with two different measures. One measure asked participants to indicate what specific age, in years, they felt. The other measure asked participants to rate how much older or younger they felt relative to their actual age on a Likert-type scale that ranged from much younger to much older. When these two measures were used in the same study they tended to be positively correlated and they tended to track in the same way in relation to other measures. However, the rating scale measure was more consistent in producing significant associations with other measures of self-perceived maturity.

I suspect that this is due to greater noise in responses to the measure that involves an age estimate due to individual variability in how people map their subjective experience into an age estimate, that is, if one feels older or younger, how many years difference should they report?

Study 3 may reveal part of this answer. When I looked at the age participants reported feeling, there were disproportionate spikes at numbers that ended with 5 or 0 (e.g., 35, 40, 45, 50), indicating that many people may anchor to round numbers. This has the possibility to skew results as perhaps those that feel only slightly older or younger simply round to the nearest age ending in 5 or 0. At the same time, “exaggerating” answers may occur when someone feels very old or young. In everyday conversation, when someone remarks “I feel 100 years old” it is understood as hyperbole. Similarly, if someone makes a childish statement, someone may comment “What are you, 12?”. Again, this is contextually understood as a joke, but neither of these intentions are something that statistical tests consider. It can be controlled for somewhat, like I tried to do by winsorizing, still the actual sentiment of the participant may not be communicated well. Therefore, further work on creating a more psychometrically valid measure of subjective age may make this a more useful variable in research.

Furthermore, subjective age may be multidimensional in nature. For example, Kastenbaum and colleagues (1972) measured different potential facets of subjective age including the age a person felt, the age they think they looked, what age their hobbies and interests were most like, and what age they would choose or like to be. Nevertheless, these different measures are usually collapsed together into a single index as they often show high reliability, as in Montepare & Lachman (1989). Revisiting these potentially different dimensions of subjective age may be a fruitful line of research conceivably because they may differentially correlate with self-perceptions of maturity. For example, if one is chronologically 28, feels older like they are 30, but thinks they look 23, how mature may they feel? On the one hand, feeling older may predict greater feelings of maturity but thinking they look younger may lead to opposite feelings. Unpacking subjective age into distinct dimensions may thus reveal more

nuanced patterns and more accurate insights into how this phenomenological variable relates to self-perceived maturity in young adults.

Conclusion

Many young adults may be facing threats to their confidence about their ability to reach maturity. This may be especially problematic as one of the primary ways we define maturity is with regards to obtainment of traditional adult goals. This research provides initial evidence that an additional definition exists – one more tied to the development of “mature” character traits and skills. This additional conceptualization carries unique predictive power and patterns compared to the achievement-based definition and may be especially useful during times of struggle and hardship. Not only do such hardships (such as the COVID-19 pandemic) seem to create opportunities conducive of growth, but they may also hinder progress on traditional adult goals, necessitating the need for young adults to think about character growth in order to feel mature and a continued sense of progress in their lives. With continued study on this topic, we will be able to assist people in their transitions from adolescence to full adulthood, helping them stay motivated, confident, and optimistic no matter what life throws at them.

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Appendices

Appendix A.

HEXACO Personality Inventory

Honesty-Humility

Sincerity

- If they want something from a person they dislike, they will act very nicely toward that person in order to get it. (R)
- They wouldn't use flattery to get a raise or promotion at work, even if they thought it would succeed.
- If they want something from someone, they will laugh at that person's worst jokes. (R)
- They wouldn't pretend to like someone just to get that person to do favors for them.

Fairness

- If they knew that they could never get caught, they would be willing to steal a million dollars.
- They would be tempted to buy stolen property if they were financially tight. (R)
- They would never accept a bribe, even if it were very large.
- They would be tempted to use counterfeit money, if they were sure they could get away with it. (R)

Greed-Avoidance

- Having a lot of money is not especially important to them.
- They would like to live in a very expensive, high-class neighborhood. (R)
- They would like to be seen driving around in a very expensive car. (R)
- They would get a lot of pleasure from owning expensive luxury goods. (R)

Modesty

- They think that they are an ordinary person who is no better than others.
- They wouldn't want people to treat them as though they were superior to them.
- They think that they are entitled to more respect than the average person is. (R)
- They want people to know that they are an important person of high status. (R)

Emotionality

Fearfulness

- They would feel afraid if they had to travel in bad weather conditions.
- They don't mind doing jobs that involve dangerous work. (R)
- When it comes to physical danger, they are very fearful.
- Even in an emergency they wouldn't feel like panicking. (R)

Anxiety

- They worry about little things.
- They worry a lot less than most people do. (R)

- They rarely, if ever, have trouble sleeping due to stress or anxiety. (R)
- They get very anxious when waiting to hear about an important decision.

Dependence

- When they suffer from a painful experience, they need someone to make them feel comfortable.
- They can handle difficult situations without needing emotional support from anyone else. (R)
- Whenever they feel worried about something, they want to share their concern with another person.
- They rarely discuss their problems with other people. (R)

Sentimentality

- They feel like crying when they see other people crying.
- When someone they know well is unhappy, they can almost feel that person's pain themselves.
- They feel strong emotions when someone close to them is going away for a long time.
- They remain unemotional even in situations where most people get very sentimental. (R)

Extraversion

Social Self-Esteem

- They feel reasonably satisfied with themselves overall.
- They think that most people like some aspects of their personality.
- They feel that they are an unpopular person. (R)
- They sometimes feel that they are a worthless person. (R)

Social Boldness

- They rarely express their opinions in group meetings. (R)
- In social situations, they are usually the one who makes the first move.
- When they are in a group of people, they are often the one who speaks on behalf of the group.
- They tend to feel quite self-conscious when speaking in front of a group of people. (R)

Sociability

- They avoid making "small talk" with people. (R)
- They enjoy having lots of people around to talk with.
- They prefer jobs that involve active social interaction to those that involve working alone.
- The first thing that they always do in a new place is make friends.

Liveliness

- They are energetic nearly all the time.
- On most days, they feel cheerful and optimistic.
- People often tell them that they should try to cheer up.
- Most people are more upbeat and dynamic than they generally are. (R)

Agreeableness

Forgiveness

- They rarely hold a grudge, even against people who have badly wronged them.
- Their attitude toward people who have treated them badly is "forgive and forget".
- If someone has cheated them once, they will always feel suspicious of that person. (R)
- They find it hard to fully forgive someone who has done something mean to them. (R)

Gentleness

- People sometimes say that they are too critical of others. (R)
- They generally accept people's faults without complaining about them.
- They tend to be lenient in judging other people.
- Even when people make a lot of mistakes, they rarely say anything negative.

Flexibility

- People sometimes think that they are too stubborn. (R)
- They are usually quite flexible in their opinions when people disagree with them.
- When people tell them that they are wrong, their first reaction is to argue with them. (R)
- When they really think they are right, they find it hard to compromise with people.

Patience

- People think of them as someone who has a quick temper. (R)
- They rarely feel anger, even when people treat them quite badly.
- Most people tend to get angry more quickly than they do.
- They find it hard to keep their temper when people insult them. (R)

Conscientiousness

Organization

- They clean their office or home quite frequently.
- They plan ahead and organizes things, to avoid scrambling at the last minute.
- People often joke with them about the messiness of their room or desk. (R)
- When working, they sometimes have difficulties due to being disorganized. (R)

Diligence

- When working, they often set ambitious goals for themselves.
- They often push themselves very hard when trying to achieve a goal.
- Often when they set a goal, they end up quitting without having reached it. (R)
- They do only the minimum amount of work needed to get by. (R)

Perfectionism

- They often check their work over repeatedly to find any mistakes.
- When working on something, they don't pay much attention to small details. (R)
- They always try to be accurate in their work, even at the expense of time.
- People often call them perfectionists.

Prudence

- They make decisions based on the feeling of the moment rather than on careful thought. (R)
- They make a lot of mistakes because they don't think before they act. (R)
- They don't allow their impulses to govern their behavior.
- They prefer to do whatever comes to mind, rather than stick to a plan. (R)

Openness to Experience

Aesthetic Appreciation

- They would be quite bored by a visit to an art gallery.
- They wouldn't spend their time reading a book of poetry. (R)
- If they had the opportunity, they would like to attend a classical music concert.
- Sometimes they like to just watch the wind as it blows through the trees.

Inquisitiveness

- They are interested in learning about the history and politics of other countries.
- They enjoy looking at maps of different places.
- They would be very bored by a book about the history of science and technology. (R)
- They have never really enjoyed looking through an encyclopedia. (R)

Creativity

- They would like a job that requires following a routine rather than being creative. (R)
- They would enjoy creating a work of art, such as a novel, a song, or a painting.
- They have a good imagination.
- I don't think of them as artistic or creative types. (R)

Unconventionality

- They think that paying attention to radical ideas is a waste of time. (R)
- They like people who have unconventional views.
- I think of them as somewhat eccentric.
- They find it boring to discuss philosophy. (R)

Altruism

- They have sympathy for people who are less fortunate than they are.
- They try to give generously to those in need.
- It wouldn't bother them to harm someone they didn't like. (R)
- People see them as hard-hearted. (R)

1 to 5; Strongly disagree, disagree, neutral, agree, strongly agree

Appendix B.

Situated Wisdom Scale

Please continue to think, in general, about a particularly mature (an immature) person who is approximately the same age as you.

To what extent do you think they are likely to do each of the following in a situation of interpersonal conflict, such as a disagreement or misunderstanding?

1. Put themselves in the other person's shoes
2. Try to communicate with the other person what they might have in common
3. Make an effort to take the other person's perspective
4. Take time to get the other person's opinions on the matter before coming to a conclusion
5. Look for different solutions as the situation evolves
6. Consider alternative solutions as the situation evolves
7. Believe the situation can lead to a number of different outcomes
8. Think the situation can unfold in many different ways
9. Double-check whether their opinion on the situation may be incorrect
10. Double-check whether the other person's opinions may be correct
11. Look for any extraordinary circumstances before forming their opinion
12. Behave as if there may be some information to which they do not have access
13. Try their best to find a way to accommodate everyone
14. Though it may not be possible, search for a solution that can result in everyone being satisfied
15. Consider first whether a compromise is possible in resolving the situation
16. View it as very important that the situation is resolved
17. Try to anticipate how the conflict may be resolved
18. Wonder what they would be thinking if they were somebody else watching the situation
19. Try to see the conflict from the point of view of an uninvolved person
20. Ask themselves what other people might think or feel if they were watching the conflict
21. Think about whether an outside person may have a different opinion from theirs about the situation

1 to 5; Not at all, very little, somewhat, a lot, very much

Consider Other's Perspective: 1 to 4

Consider Complexity and Change: 5 to 8

Intellectual Humility: 9 to 12

Search for Compromise: 13 to 17

Take an Outsider Perspective: 18 to 21

Appendix C.

Ryff Psychological Well-being Scales

Personal Growth

1. I think it is important to have new experiences that challenge how you think about yourself and the world
2. For me, life has been a continuous process of learning, changing, and growth
3. I gave up trying to make big improvements or changes in my life a long time ago (R)
4. I am not interested in activities that will expand my horizons (R)
5. When I think about it, I haven't really improved much as a person over the years (R)
6. I have the sense that I have developed a lot as a person over time
7. I do not enjoy being in new situations that require me to change my old familiar ways of doing things (R)

Autonomy

1. I tend to be influenced by people with strong opinions (R)
2. I have confidence in my opinions, even if they are contrary to the general consensus
3. I judge myself by what I think is important, not by the values of what others think is important
4. I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people
5. My decisions are not usually influenced by what everyone else is doing
6. It's difficult for me to voice my own opinions on controversial matters (R)
7. I tend to worry about what other people think of me (R)

Purpose in Life

1. I live life one day at a time and don't really think about the future (R)
2. Some people wander aimlessly through life, but I am not one of them
3. I sometimes feel as if I've done all there is to do in life (R)
4. I have a sense of direction and purpose in life
5. I don't have a good sense of what it is I'm trying to accomplish in life (R)
6. My daily activities often seem trivial and unimportant to me (R)
7. I enjoy making plans for the future and working to make them a reality

Environmental Mastery

1. In general, I feel I am in charge of the situation in which I live.
2. The demands of everyday life often get me down. (R)
3. I do not fit very well with the people and the community around me. (R)
4. I am quite good at managing the many responsibilities of my daily life.
5. I often feel overwhelmed by my responsibilities. (R)
6. I have difficulty arranging my life in a way that is satisfying to me. (R)
7. I have been able to build a living environment and a lifestyle for myself that is much to my liking.

Positive Relations with Others

1. Most people see me as loving and affectionate.

2. Maintaining close relationships has been difficult and frustrating for me. (R)
3. I often feel lonely because I have few close friends with whom to share my concerns. (R)
4. I enjoy personal and mutual conversations with family members and friends.
5. People would describe me as a giving person, willing to share my time with others.
6. I have not experienced many warm and trusting relationships with others. (R)
7. I know that I can trust my friends, and they know they can trust me.

Self-Acceptance

1. When I look at the story of my life, I am pleased with how things have turned out.
2. In general, I feel confident and positive about myself.
3. I feel like many of the people I know have gotten more out of life than I have. (R)
4. I like most parts of my personality.
5. In many ways I feel disappointed about my achievements in life. (R)
6. My attitude about myself is probably not as positive as most people feel about themselves. (R)
7. When I compare myself to friends and acquaintances, it makes me feel good about who I am.

1 to 7 scale; Strongly disagree, Disagree, Somewhat disagree, Neither agree nor disagree, Somewhat agree, Agree, Strongly agree

Appendix D.
Health Hardships

In the past 12 months, have you experienced or been treated for any of the following?

1. Asthma, bronchitis, or emphysema
2. Tuberculosis
3. Other lung problems
4. Arthritis, rheumatism, or other bone or joint diseases
5. Sciatica, lumbago, or recurring backache
6. Persistent skin trouble (e.g., eczema)
7. Thyroid disease
8. Hay fever
9. Recurring stomach trouble, indigestion, or diarrhea
10. Urinary or bladder problems
11. Being constipated all or most of the time
12. Gall bladder trouble
13. Persistent foot trouble (e.g., bunions, ingrown toenails)
14. Trouble with varicose veins requiring medical treatment
15. AIDS or HIV infection
16. Lupus or other autoimmune disorders
17. Persistent trouble with your gums or mouth
18. Persistent trouble with your teeth
19. High blood pressure or hypertension
20. Anxiety, depression, or some other emotional disorder
21. Alcohol or drug problems
22. Migraine headaches
23. Chronic sleeping problems
24. Diabetes or high blood sugar
25. Multiple sclerosis, epilepsy, or other neurological disorders
26. Stroke
27. Ulcer
28. Hernia or rupture
29. Piles or hemorrhoids