

**Examining the Relationship Between Purpose in Life and Intellectual Risk-Taking: A
Mediating Role for Academic Self-Concordance?**

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Abstract

We investigated if academic self-concordance mediates the relationship between purpose in life and intellectual risk-taking. Many students face great difficulty regarding their academic success during their university years, often resulting in general anxiety and fear of being judged, to the consequence of not actively participating in their classes. The final sample consisted of N = 193 first-year psychology students from the Rijksuniversiteit Groningen. A self-report questionnaire was used to measure the study variables. The quantitative data was analyzed using jamovi and the mediation analysis was conducted with medmod. The mediation pathway was not significant. However, a positive relationship between purpose in life and academic self-concordance was found. Purpose in life is found to be crucial for students' academic success, therefore educational institutions should focus on fostering this in their students.

Keywords: purpose in life, academic self-concordance, intellectual risk-taking, self-determination theory.

Examining the Relationship Between Purpose in Life and Intellectual Risk-Taking: A Mediating Role for Academic Self-Concordance?

University is a big change in the lives of adolescents as they are taking their next academic step. This change can often present challenges for students, such as dealing with anxiety (Pfund et al., 2020). In recent years anxiety levels in students in the Netherlands have been reported to range from 18% to 23% from 2020 to 2022 (Caring Universities, 2023). The drop out rate for first-year students in the Netherlands ranges between 3.8% and 11.2% (Inspectie van het Onderwijs, 2024). Individuals who drop-out of higher education are less likely to find employment and more likely to live in poverty (Christenson & Thurlow, 2004; Herbaut, 2020). Once at university, students' willingness to participate in class influences their academic success due to multiple factors, such as those who participate more actively tend to demonstrate better content knowledge, problem-solving (Murray & Lang, 1997), and critical thinking skills (Garside, 1996). Participation also helps to develop diverse social skills, namely increased confidence, emotional development, and understanding (Canpolat et al., 2015). Even though the benefits are bountiful, according to Nadile et al. (2021) half of students reported never asking questions during their college courses (47,7%), and around half (52,3%) reported merely asking one question during a entire course. A large number of students reported feeling anxiety while asking a question in class (72,3%) or feeling judged by others (62%), to the consequence of being completely discouraged from asking questions in class. These results align with the previously reported numbers of anxiety in Dutch students (Caring Universities, 2023). One factor that could contribute to minimizing this problem is purpose in life (PIL). However, it is still unclear how exactly purpose in life exerts its positive effects (Burrows, 2024). We suggest that academic self-concordance mediates the relationship between purpose in life and intellectual risk-taking (IRT).

Purpose in life is a central self-organizing life aim that reflects an individual's core values and identity. It provides overarching guidance in daily behavior and long-term goal achievement. Additionally, purpose in life promotes engagement in related life goals (Burrow & Hill, 2011; Kashdan & McKnight, 2009; McKnight & Kashan, 2009). According to Alderson et al. (2024), purpose in life can be seen as an important factor in the academic success of students. It was reported that students scoring higher levels in purpose in life have higher GPAs, an increased chance to graduate, and a decreased chance of dropping courses during their studies. Furthermore, purpose in life was shown to be linked to higher participation in college students (De Witz et al., 2009). Purpose in life has also been closely related to motivation due to its nature of acting as a motivational component (McKnight & Kashdan, 2009). Additionally, purpose in life has various positive effects, such as diminished stress reactivity, stronger physical health, and improved psychological well-being (Burrows, 2024). According to McKnight and Kashdan (2009), purpose in life and goals are differing constructs, purpose in life represents a goal management system which is the driving force behind one's higher-order goals. It is suggested that individuals will choose to pursue higher-order long-term goals if these are relevant to their purpose in life. These higher-order goals then subsequently produce their own sub-goals (McKnight & Kashdan, 2009; Lewis, 2020). To illustrate, imagine Lisa has a purpose in life to help and support animals. Lisa could then generate a higher-order goal related to her purpose in life, becoming a veterinary doctor. To achieve this goal, Lisa will have to create smaller lower-order goals, which vary in scope and size. Lisa could then generate the lower-order goals of applying to university, passing necessary exams, and studying multiple hours a day.

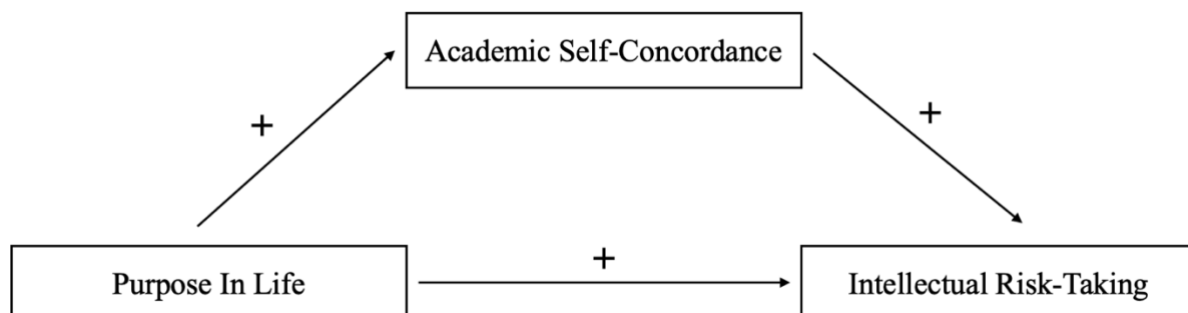
Purpose in life is crucial for selecting and organizing goals (Lewis, 2020). This provides a guiding framework for an individual's day-to-day life, ranging from large-scale decisions to small ones (Lewis, 2020) by guiding the use of limited resources like an internal

compass (McKnight & Kashdan, 2009). Those who align themselves with their purpose in life gain a self-organizing life aim, which provides meaning and direction (McKnight & Kashdan, 2009). Lewis (2020) suggests that the more a goal aligns with one's purpose the more it will direct goal pursuits, especially self-concordant goals. Those pursuing goals that are self-concordant with their own pleasure and self-esteem tend to score the highest on subjective well-being (Ehrlich, 2019). These self-concordant goals are important to one's well-being and academic success in numerous ways such as psychological health, cognitive flexibility, or depth of processing (Grolnick & Ryan 1987; Kasser & Ryan, 1993; McKnight & Kashdan, 2009). Those pursuing goals that are self-concordant with their own pleasure and self-esteem tend to score the highest on subjective well-being (Ehrlich, 2019). Individuals high in self-concordance tend to have higher subjective well-being across various cultures, showing the importance of aligning your goals with your values and beliefs (Sheldon, 2004).

According to the Self-determination theory (SDT), goals can differ in the extent of whether they are autonomous (or self-determined) or controlled (Deci & Ryan, 2000). Autonomy can be understood as a sense of initiative and ownership in a person's actions. It is elicited by personal interest and values while being diminished by external control, whether punishment or reward (Ryan & Deci, 2020). While autonomous goals are characterized by a sense of internal initiative and ownership which is elicited by one's interest and value, controlled goals are often driven by external sources like rewards or punishment (Deci & Ryan, 2000; Ryan & Deci, 2020). Self-concordant goals are seen as more autonomous than controlled (Ehrlich, 2019; Sheldon, 2004; Sheldon et al., 2022). Self-concordant goals refer to an individual's goals that align with their authentic values and beliefs, while also reflecting their passions and interests (Sheldon, 2002; Sheldon, 2004). For goal-directed behavior to be self-determined it is essential that the goal selection is autonomous (Deci & Ryan, 2000). Similarly to self-concordance, intellectual risk-taking has been related to autonomy

and creativity (Beghetto et al., 2020; Dachner et al., 2017; Tan et al., 2023). Intellectual risk-taking can be defined as how willing an individual is to engage in behaviors that would put them at risk of making mistakes or possibly failing (Beghetto, 2008; Beghetto et al., 2021). An example of showing intellectual risk-taking could be by sharing an uncertain idea in class, engaging in a discussion, or refining one's thinking despite the risk of being wrong (Streitmatter, 1997). Autonomy has been related to more displays of intellectual risk-taking, specifically in the classroom (Dachner et al., 2017). This autonomy enhances students' perceived choice during learning, which in turn enhances their intellectual risk-taking (Dachner et al., 2017; Reeve et al., 2003; Stroet et al., 2013; Tan et al., 2022).

To conclude, purpose in life could be an answer to the issues many students face regarding their academic success (Alderson et al., 2024). Participation in class has proven to have many benefits (Canpolat et al., 2015; Garside, 1996; Murray & Lang, 1997), but many students report being held back from this by their anxiety about speaking up or being judged (Nadile et al., 2021). By helping individuals form clear and overarching goals, a sense of purpose can promote motivation and direction. These goals are typically self-concordant, meaning they align with a person's values and interests (Sheldon, 2004). Self-concordant goals have been related to greater autonomy and creativity (Ehrlich, 2019; Guo et al., 2024; Hon, 2011; Sheldon, 2004; Sheldon et al., 2022), much like intellectual risk-taking (Beghetto et al., 2020; Dachner et al., 2017; Tan et al., 2023). With this in mind, the study aims to examine whether academic self-concordance mediates the relationship between purpose in life and intellectual risk-taking.

Figure 1*Proposed mediation model*

Methods

Participants

Of the 222 students from the University of Groningen who participated in the study, 22 responses were excluded from the analysis due to not completing the questionnaire and seven were excluded because participants were not psychology students taking the Academic Skills course. The final sample consisted of 193 participants, including 134 women, 52 men, two participants who identified as another gender, three who preferred not to disclose their gender, and two who did not fill out this category. Participants ranged in age from 17 to 35 years ($M = 19.8$, $SD = 1.95$). The majority of participants were from the Netherlands, totaling 126 individuals, followed by 18 participants from Germany and 49 from other countries.

Measures

Purpose in Life

Purpose in life was operationalized using a four-item subscale developed by Hill and colleagues (2016). Examples of items are “There is a direction in my life” and “My life is guided by a set of clear commitments”. Items were rated on a 5-point Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores on the subscale indicated a stronger sense of purpose in life. Previous research using this scale found a Cronbach’s alpha of 0.84 (Hill et al., 2016). In this study, the internal reliability was high ($\alpha = .92$).

Academic Self-Concordance

To measure academic self-concordance participants were asked to report three academic goals and rate the extent to which they pursued each of them for external, introjected, identified, or intrinsic reasons, respectively. The items were based on Sheldon and Elliot’s (1999) goal self-concordance model with each item measuring a different type of motivation. For example, the item measuring external motivation read “Because somebody

else wants you to, or because you will get something if you do” while the intrinsic motivation item read “Because of the fun and enjoyment which the goal will provide you - the primary reason is simply your interest in the experience itself”. Items were rated on a 7-point Likert-type scale, ranging from (1) not at all for this reason to (7) completely for this reason. In analysis, external and introjected motivation items were combined to represent non-concordance while identified and intrinsic motivation items together made up concordance. Previous measures of this scale have found Cronbach’s alpha to be $\alpha = .65$ for non-concordant motivation and $\alpha = .69$ for self-concordant motivation (Zhang & Fu, 2025). Similarly, in this study, Cronbach’s alpha for non-concordant goal-pursuit was $\alpha = 0.73$. For concordant goal pursuit, Cronbach’s alpha was $\alpha = 0.70$.

Intellectual Risk-Taking

The intellectual risk-taking subscale from Beghetto (2008) was used to operationalize intellectual risk-taking. The subscale consisted of 5 items, (e.g., “In class, I share my ideas even if I am not sure they are correct”). Items are rated on a 5-point Likert-type scale ranging from 1 (Definitely not) to 5 (Definitely yes). In the current study, Cronbach’s alpha for intellectual risk-taking was 0.79.

Procedure

The study was first approved by the Ethical Committee for Psychology at the University of Groningen, fulfilling the criteria of the fast-track submission procedure. The survey was an online self-report questionnaire conducted using the Qualtrics platform. It was available to first-year psychology students through the Sona System, which links undergraduate students to either research students or researchers as a way of obtaining participants. In exchange for participation, students received SONA credits, which are a part of a university course. Before participating in the study, participants were informed about the

study's topic, expected questions, and estimated duration, and then provided their informed consent.

The questionnaire contained demographic information (i.e., gender, nationality, and age), as well as measures of purpose in life, academic self-concordance, academic satisfaction, positive affect, intellectual risk-taking, and harmonious passion.

Statistical Analysis

For higher confidence in our results, we followed both the rationale of Baron & Kenny (1986) and Hayes (2013). Two analyses were performed to test that academic self-concordance mediates the relationship between purpose in life and intellectual risk-taking. We conducted two separate mediation analyses, the first being Baron & Kenny's (1986) mediation analysis. Additionally, a second mediation analysis was performed, a bootstrap analysis (Hayes, 2013). Using both methods allows for cross-validation of our results. Possible findings under both analyses increase confidence in the findings (Rucker et al., 2011).

Following Baron & Kenny's rationale, two models were assessed. A reduced model that only regresses purpose in life on intellectual risk-taking and a full model that regresses both purpose in life and academic self-concordance on intellectual risk-taking. A partial mediation is present if the R^2 -change between the reduced and the full model is significant and purpose in life stays significant even after adding academic self-concordance. However, a full mediation is present if the R^2 -change is significant while purpose in life is no longer significant in the full model.

Furthermore, following the guidelines provided by Hayes (2013) and Selker (2017), we did a bootstrapping procedure with 5,000 resamples. This model corresponds to Model 4 in Hayes's (2013) framework and was used to assess whether purpose in life affects intellectual risk-taking through academic self-concordance. Mediation was evaluated by

analyzing both the effect size and the statistical significance of the direct and indirect effects.

A full-mediation is present if only the indirect effect is significant, while a partial-mediation is present if both direct and indirect effects are significant. The models were estimated using the statistical software jamovi (Version 2.6.26) along with the medmod extension (Selker, 2017). Therefore our predictor is purpose in life, mediated by academic self-concordance, and the outcome variable is intellectual risk-taking.

Results

To assess potential outliers a visual inspection of boxplots for each variable was performed (see Figure A1-A3, Appendix A). While both purpose in life and academic self-concordance had no outliers, the boxplot for intellectual risk-taking highlighted two outliers due to them being more than three standard deviations from the mean (Iacobucci et al., 2024). Since the outliers are not due to malfunction of a measurement device or error during data input they cannot be deemed erroneous values and therefore must remain part of the statistical analysis (Karch, 2023). The assumptions were tested in accordance with Ernst & Albers (2017) with no serious violations. Normality was assessed through the visual inspection of Q-Q plots (see Figure A4-A6, Appendix A). Visual checks are recommended over formal tests as they are more informative and less affected by sample size (Ernst & Albers, 2017). The visual inspection of the Q-Q plots showed no deviation, indicating that they are approximately normal. Furthermore, the assumption of linearity and homoscedasticity were assessed using residual plots (see Figure A7-A9, Appendix A). The visual inspection of the residuals seems randomly spread around zero, indicating that these assumptions are met (Ernst & Albers, 2017). To test the assumption of multicollinearity between the predictors, we calculated the Variance Inflation Factors (VIFs). We noted no relevant multicollinearity between the variables since our VIFs are under five ($PIL = 1.13$; $SC = 1.13$). Lastly, the assumption of independence of error was assessed via the Durbin-Watson test, which showed no significant results, suggesting that the assumption is not violated ($DW = 2.14$, $p = .358$).

Descriptives and Correlational Analysis

Table 1 presents descriptives and correlations such as Pearson's r , mean, and standard deviation of our study variables.

Table 1*Means, Standard Deviations, and Pearson Correlations Among Study Variables*

	PIL	ASC	IRT
PIL	-		
ASC	.339**	-	
IRT	.182**	.150*	-
Mean	3.48	2.71	3.32
SD	0.79	3.23	0.75

Note. PIL: Purpose in Life; ASC: Academic Self-Concordance; IRT: Intellectual Risk-Taking.

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

Baron and Kenny (1986) Mediation

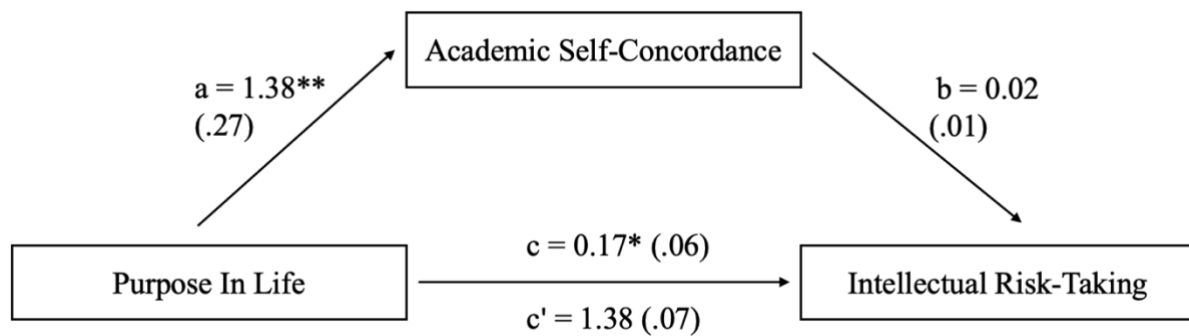
A mediation analysis was performed following Baron and Kenny's (1986) methods to examine if academic self-concordance mediates the relationship between purpose in life and intellectual risk-taking (see Figure 2). Firstly, purpose in life significantly predicted intellectual risk-taking ($b = .170$, $SE = .066$, 95% CI [0.038, 0.301], $p = .011$), indicating a positive association between purpose in life and intellectual risk-taking. Secondly, purpose in life also significantly predicted academic self-concordance ($b = 1.38$, $SE = 0.277$, 95% CI [0.835, 1.928], $p < .001$), suggesting that greater purpose in life was associated with higher academic self-concordance.

Lastly, a multiple regression analysis was conducted to examine whether academic self-concordance predicted intellectual risk-taking when controlling for purpose in life. Our analysis revealed that neither academic self-concordance ($b = .023$, $SE = .017$, 95% CI [-0.011, 0.057], $p = .189$) nor purpose in life ($b = .138$, $SE = .071$, 95% CI [-0.001, 0.277], $p = .052$) were significant predictors to intellectual risk-taking. While purpose in life was positively associated with both academic self-concordance and intellectual risk-taking,

academic self-concordance did not significantly predict intellectual risk-taking when controlling for purpose in life. Therefore these results show that the meditation pathway is not supported according to Baron and Kenny's criteria.

Figure 2

Significant and non-significant pathways with estimates and standard errors



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

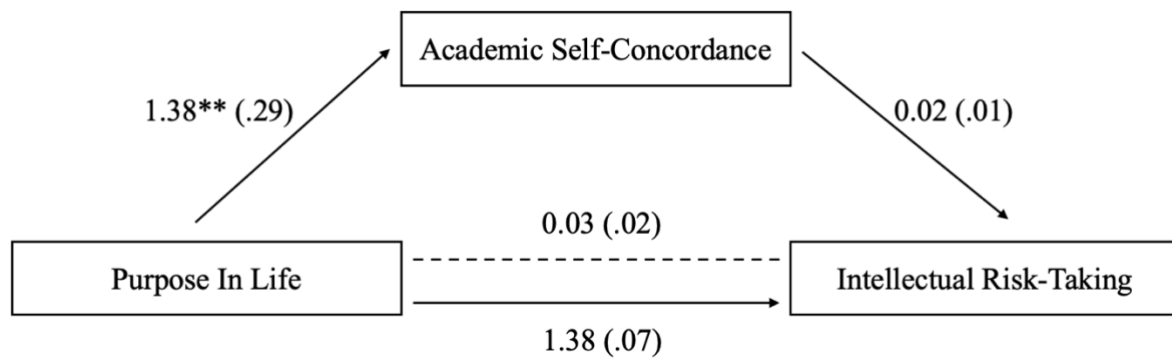
Bootstrapped Meditation

A bootstrapped mediation analysis was conducted to further test if academic self-concordance mediates the relationship between purpose in life and intellectual risk-taking. The analysis was performed with 5000 samples and 95% confidence intervals. The indirect effect of purpose in life on intellectual risk-taking was not statistically significant ($b = .031$, $SE = .026$, 95% $CI [-0.019, 0.086]$, $p = .227$). This confidence interval includes zero, which suggests that academic self-concordance did not significantly mediate the association between purpose in life and intellectual risk-taking. The direct effect of purpose in life on intellectual risk-taking, while controlling for academic self-concordance, was not found to be significant ($b = .138$, $SE = .073$, 95% $CI [-0.005, 0.283]$, $p = .059$). Although the p-value approached being significant, the confidence interval includes zero, indicating that the effect is not statistically significant. The total effect of purpose in life on intellectual risk taking was statistically significant ($b = .170$, $SE = .071$, 95% $CI [0.030, 0.309]$, $p = .017$). Furthermore, a significant relationship

between purpose in life and academic self-concordance was found ($b = 1.381$, $SE = .292$, 95% $CI [-0.809, 1.936]$, $p = < .001$). Altogether, these results suggest that purpose in life and intellectual risk-taking are not mediated by academic self-concordance.

Figure 3

Hayes mediation model with estimates and standard errors



Note: The dotted line indicates the indirect effect

$^{**} p < .01$

Discussion

This study was performed to investigate some of the difficulties students face in their academic careers, with a specific focus on in-class participation. We predicted that academic self-concordance would mediate the relationship between purpose in life and intellectual risk-taking. Our analysis did not support this mediation pathway. The significant findings revealed from our analysis conform with previous research, purpose in life and academic self-concordance have been positively related to each other, showing that those with a higher purpose in life tend to generate more academic self-concordant goals (Lewis 2020; McKnight & Kashdan, 2009). There was also a significant relationship found between purpose in life and intellectual risk-taking. Furthermore, academic self-concordance was not significantly related to intellectual risk-taking even though both variables are related to creativity and autonomy (Beghetto et al., 2020; Dachner et al., 2017; Ehrlich, 2019; Guo et al., 2024; Hon, 2011; Sheldon, 2004; Sheldon et al., 2022; Tan et al., 2023)

The first pathway, namely the relationship of purpose in life and academic self-concordance, was significant. According to McKnight & Kashdan (2009), purpose in life represents a goal management system in which individuals will choose to pursue goals that align with their purpose in life, which in turn will direct their goal pursuits (Lewis, 2020). Self-concordant goals are goals that align with one's own pleasure and self-esteem (Ehrlich, 2019), explaining the positive association found between the variables. Future research should look into the variable of purpose in life in an academic context. In our study, we only asked the participants if they had a purpose in life, but we did not ask them to specify the content of their purpose in life, and if it even related to them being at university. We suggest that a future qualitative study should be performed, to gain insight into the specific purpose in life that individuals have, and to how far this relates to their current academic journey.

The second pathway, namely the relationship between academic self-concordance and intellectual risk-taking, was not significant. It is important to highlight that there is a risk involved in intellectual risk-taking. When students participate in class, they have to overcome the feelings of anxiety and fear of judgment by peers (Nadile et al., 2021). Therefore a potential reason for our results could be that the self-concordant goals were simply not strong enough to overcome the threshold of these risks faced by students. As a consequence, intellectual risk-taking is not displayed. Since academic self-concordance was not able to significantly mediate the relationship between PIL and IRT, there might be another mediator present. A potential mediator could be progress, referring to the psychological experience of movement toward a goal, which involves goal-directed action (Vazeou-Nieuwenhuis et al., 2017). Since progress entails an actual action, this may be a more fitting mediator in the investigated relationship.

Practical and Theoretical Implications

Practically, there are many benefits to developing one's purpose in life and academic self-concordance. Most importantly academic success (Alderson et al., 2024; Beghetto, 2008; De Witz et al., 2009; Tan et al., 2023) and general well-being (Burrows, 2024). Educational institutions should offer tools to students to foster their purpose in life and to help them generate their academic self-concordant goals. One example of how these educational institutions could foster these skills would be by adding a class at the beginning of each study that explains all the different jobs one could achieve through the studies and also shows the students which path they must take to end up there, including the steps after and next to the university. This way students could get a better grasp on the development of their higher-order long-term goals, and the associated lower-order goals. Furthermore, there was a correlation between purpose in life and intellectual risk-taking, indicating a connection

between these variables. Therefore additional research is needed to investigate this relationship further.

Limitations

The study was cross-sectional, meaning no inferences about a causal relationship can be made (Taris et al., 2021), a preferred research design would have been a longitudinal research, as this measures multiple points in time which establishes a sequence of events and allows one to follow change over time in an individual (Caruana et al., 2015). The questionnaire was only filled out by first-year psychology students from the University of Groningen, this indicates we can not assume the results are generalizable to other universities in the Netherlands and other countries. Furthermore, our study was a quantitative one, meaning we used closed questions in our research. A qualitative study, which uses open questions, would lead to a more comprehensive overview of the researched variables.

Conclusion

To summarize, this study did not support our hypothesis that academic self-concordance mediates the relationship between purpose in life and intellectual risk-taking. However, purpose in life is still an important construct. Purpose in life acts as an internal goal manager and has been related to intellectual risk-taking. Educational institutions should promote purpose in life in students, as it has been related to many academic benefits.

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Appendix A

Figure A1

Boxplot of purpose in life

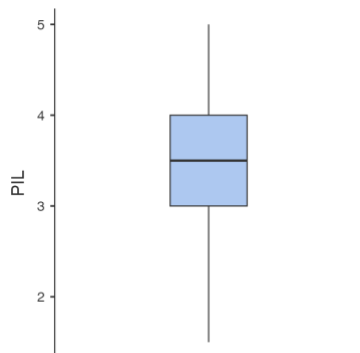


Figure A2

Boxplot of academic self-concordance

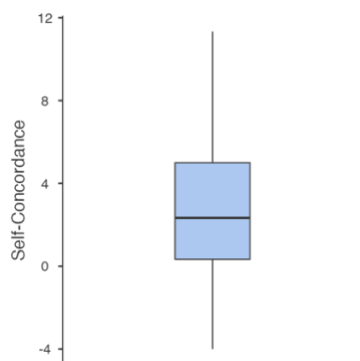


Figure A3

Boxplot of intellectual risk-taking

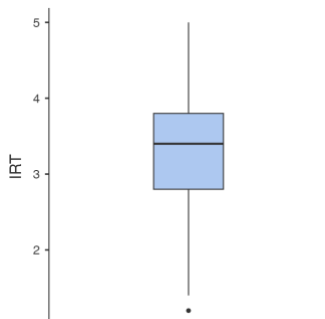
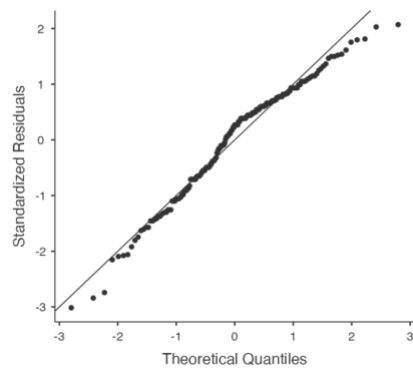
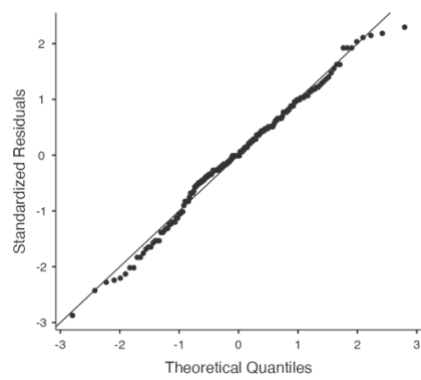


Figure A4

Normal Q-Q plot of intellectual risk-takingpe

**Figure A5**

Normal Q-Q Plot of purpose in life

**Figure A6**

Normal Q-Q plot of self-concordance

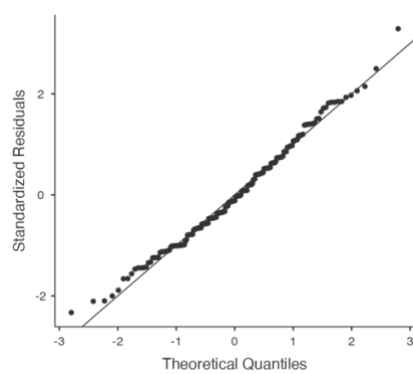
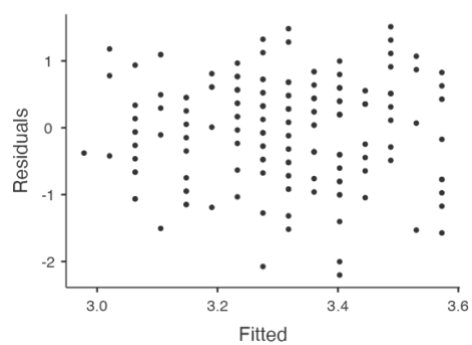
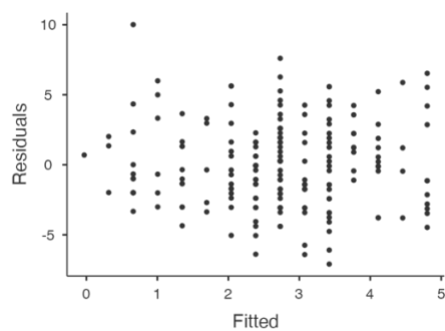


Figure A7

Residuals linear regression PIL on IRT

**Figure A8**

Residuals linear regression PIL on ASC

**Figure A9**

Residuals linear regression PIL and ASC on IRT

