

W911NF-23-S-0010

SOURCES SOUGHT NOTICE

REQUEST FOR WHITE PAPERS

BAA TOPIC II A.2.b.ii:
MULTIFACETED DEVELOPMENT PATHWAYS FOR ORGANIZATIONAL AND STRATEGIC LEADERS

“Self-Development Decision-Making in Army Officers”

INTRODUCTION

Broad Agency Announcement (BAA) W911NF-23-S-0010 was publicized on FedBizOpps and [Grants.gov](https://www.grants.gov) on 01 May 2023. This Sources Sought Notice calls for White Paper submissions in reference to the BAA Topic II A.2.b.ii MULTIFACETED DEVELOPMENT PATHWAYS FOR ORGANIZATIONAL AND STRATEGIC LEADERS. The United States Army Research Institute for the Behavioral and Social Sciences (ARI) Broad Agency announcement W911NF-23-S-0010, issued under the provisions of paragraph 6.102(d)(2) of the Federal Acquisition Regulation, provides for the competitive selection of basic and applied research and that part of development not related to the development of a specific system or hardware procurement. A Proposal submitted in response to this BAA and selected for award is considered to be the result of full and open competition and in full compliance with the provisions of Public Law 98-369, “The Competition in Contracting Act of 1984,” and subsequent amendments. Funding of research and development (R&D) within ARI areas of interest will be determined by funding constraints and priorities set during each budget cycle. Any award related to the submission of a White Paper and subsequent Proposal requested by this Notice is subject to funds availability and priorities. ARI may choose not to select any new award due to unavailability of funds or other factors.

The sequence of steps leading to an award is:

- 1) Request for White Paper initiated by ARI through this Sources Sought Notice
- 2) Submission of a timely White Paper **no more than six pages in length (one page is the cover page)** to the POC for the U.S. Army Contracting Command, wilveria.a.sanders.civ@army.mil, and copy furnish (CC) the ARI Technical Point of Contact (TPOC), stefanie.s.stancato.civ@army.mil.
- 3) The ARI will provide written or telephonic feedback for whitepapers submitted and will provide a response with either “encouraged to submit a proposal” or “not encouraged to submit a proposal”. as per established criteria presented in Part III.
- 4) If the White Paper merits it, a request of a formal proposal initiated by ARI
- 5) Submission of a timely, formal proposal
- 6) Evaluation of the formal proposal as per established criteria presented in Part III
- 7) Award for selected proposal based on availability of funds or other factors

This sequence allows earliest determination of the potential for funding and minimizes the labor and cost associated with submission of a full proposal that has minimal probability of being selected for funding. Note that an interested Applicant **must** submit a White Paper electronically in order to be eligible to submit a formal proposal under this Notice. This Notice requires that a White Paper be submitted electronically no later than **1 September 2023, 5:00 PM Eastern Daylight Time**. See Part V, Deadlines, for additional details. BAA W911NF-23-S-0010 allows several potential instrument types (e.g.,

contract, grant, cooperative agreement) to result from a successful proposal. For this Notice, the intention of the Government is to award a contract.

THOSE SUBMITTING A WHITE PAPER/PROPOSAL ARE CAUTIONED THAT ONLY A GOVERNMENT CONTRACTING OR GRANTS OFFICER CAN OBLIGATE THE GOVERNMENT THROUGH AWARD OF A LEGAL INSTRUMENT INVOLVING EXPENDITURE OF GOVERNMENT FUNDS.

This Sources Sought Notice for a Requested White Paper consists of seven parts as follows:

- Part I: Research and Development Interests of the Requested White Paper
- Part II: Preparation and Submission
- Part III: Evaluation Criteria
- Part IV: Feedback
- Part V: Deadlines
- Part VI: Inquiries
- Part VII: References

ACC (APG) RTP Agency Point of Contact:

The POC for the US Army Contracting Command (Aberdeen Proving Ground) Research Triangle Park Division is: Ms. Wilveria Sanders, (919) 549-4328, wilveria.a.sanders.civ@army.mil.

ARI Agency Point of Contact:

The ARI POC for technical matters for this white paper topic is: Dr. Stefanie Stancato, (913) 702-5269, stefanie.s.stancato.civ@army.mil.

I. RESEARCH AND DEVELOPMENT INTERESTS OF THE REQUESTED WHITE PAPER:

The United States Army Research Institute for the Behavioral and Social Sciences is the Army's lead agency for the conduct of research, development, and analyses for Army readiness and performance via research advances and applications of the behavioral and social sciences that address personnel, organization, training, and leader development issues. ARI contracts with educational institutions, non-profit organizations, and private industry for research and development (R&D) in different areas, including the areas specifically identified in Section II - B W911NF-23-S-0010. Efforts funded under this White Paper request will only include Applied Research and/or Advanced Technology Development.

Applied Research provides a systematic expansion and application of knowledge to design and develop useful strategies, techniques, methods, tests, or measures that provide the means to meet a recognized and specific Army need. Applied Research precedes system specific technology investigations or development, but it should have a high potential to transition into the Advanced Technology Development (ATD) Program.

The ARI ATD Program includes the development of technologies, components, or prototypes that can be tested in field experiments and/or simulated environments. Projects in this category have a direct relevance to identified military needs. These projects should demonstrate the general military utility or cost reduction potential of technology in the areas of personnel selection, assignment, and retention;

training strategies and techniques; leader education and development; performance measurement; and team and inter-organizational mission effectiveness. These projects should be focused on a more direct operational benefit and if successful, the technology should be available for transition.

WHITE PAPER TOPIC: Self-Development Decision-Making in Army Officers

Field Manual (FM) 6-22 recognizes the importance of officers' self-development, emphasizing that Army leaders need to "set time aside for self-development" (Department of the Army, 2022). However, competing professional demands can disrupt officers' intentions to engage in self-development. When professional demands are high, officers may subjectively devalue the outcomes associated with self-development, and therefore choose to refrain from engaging in self-development altogether. The Army requires research-informed courses of action to support the design of self-development interventions and tools that are tailored to officers' motivations, learning needs, and time constraints to maximize their engagement in professional self-development. This research will provide the Army with an improved capability to tailor self-development interventions and tools to the individual officer to maximize their engagement in professional self-development. Specifically, this research would create guidance and recommended courses of action (in the form of a handbook/job aid) to enable the Army Coaching Program, Army schoolhouses, operational unit training managers, and instructional designers: (a) to incorporate knowledge of how and under what conditions Army officers value and engage in self-development opportunities across a career lifecycle, (b) to structure, frame, and design self-development opportunities to increase more beneficial outcomes associated with engaging in these opportunities, and (c) to leverage officers' time perspective with regard to how they perceive the value of self-development opportunities with different implied (or explicit) time horizons for application to their job tasks.

Self-development is a critical component of officers' competency growth, contributing to individual differences in development across the career lifecycle. While standardized education processes, such as professional military education, establish a baseline of required knowledge, skills, and behaviors for Army officers, self-development is driven by individual agency, interests, and decisions, and is a key contributor to variation in competency profiles between officers. This research will apply behavioral economic principles to develop guidance and recommended courses of action to support the design of self-development interventions for Army officers. For instance, research has looked at discounting rates with a variety of desired outcomes, both monetary and non-monetary, and how the subjective value of rewards increases or decrease over time (Green et al 2013; Odum, et al 2020; Madden & Johnson, 2010; Raineri & Rachlin, 1993). Furthermore, research has shown that non-monetary rewards are discounted at a steeper rate (i.e., they lose their subjective value faster across comparable delays) than with monetary rewards. Engaging in self-development may result in several outcomes, both monetary and non-monetary, such as promotion potential (with its increased pay, autonomy, prestige) or career prospects outside of military service. However, if officers do not value these opportunities, they are unlikely to invest in them. A behavioral economic approach to the design of self-development opportunities may enable the Army Coaching Program, schoolhouses, operational unit training managers, and instructional designers to leverage individual leaders' self-development decision-making processes to improve and tailor self-development training programs to fit the Army's intent for career-long, progressive, and sequential leader development.

An ideal white paper will:

1) Focus on the range of behavioral economic principles by building a framework for how Army leaders perceive the value of self-development opportunities in relation to time.

2) Develop assessment/diagnostic tools to measure key decision-making processes in relation to self-development outcomes among Army leaders.

3) Produce a handbook/job aid that provides guidance and recommended courses of action to leverage behavioral economic principles in the timing and design of self-development opportunities.

Key products of this research should include a knowledge product and scientific report presenting evidence from evaluating temporal discounting rates concerning how Army officers make choices surrounding self-development courses and guidance on how the Army can improve the process by which leaders' complete self-development opportunities. This research should result in three focal products:

1) Empirical evidence of behavioral economic decision-making behaviors by different groups of Army leaders in relation to different self-development options.

2) Science-based recommendations for interventions to influence decision-making mindsets and better frame messaging about self-development options.

3) An assessment tool measuring individual officers' discounting curve(s) and the factors driving their valuation of self-development choices, which will inform tailored development tools that overcome those barriers.

This research should provide the Army with an understanding of how Soldiers subjectively value self-development opportunities and apply behavioral economic principles to identify recommended courses of action to enable the Army to improve the timing and design of self-development opportunities for Army leaders. Furthermore, this research should enhance and support the Army's efforts to manage talent across the officer life cycle and provide the Army with models and tools that will support the self-development of officers. The research will address a line of effort intended to explore the impact of individual agency in competency development. This line of effort broadly concerns limiting and/or enhancing factors that affect the growth of leaders' competencies based on their individual goals, motivations, priorities, preferences, and orientation toward development.

Army leaders choose the areas in which they would like to develop based on their professional and personal goals, and then also choose when to engage in these developmental opportunities. Two related initiatives within the Army should inform the research project. First, Project Athena (Center for Army Leadership) is a self-development tool that was designed for Army leaders to inform and motivate them to engage in both personal and professional development. The Project Athena tool has a variety of assessment batteries which are strategically selected to complement the skills being developed by each individual officer. This research could support the ability to tailor the menu of resources available through Project Athena. Second, the forthcoming cohort of certified Army coaches in the Army Coaching Program could benefit from possessing new Army-focused tools for understanding and assessing the factors that are influencing how Soldiers make decisions surrounding personal and professional self-development. The Army Coaching Program will provide Soldiers with certified professional coaching for a specific period of time to assist with developing, and improving their knowledge, skills, and abilities as they relate to the Soldiers own developmental goals. The proposed research would support the goals of

these programs to improve Soldiers' self-awareness and development in support of the mission of the Army.

Research in the field of operant behavioral economics may also be informative to study how Soldiers make decisions when there are competing demands for their time, resources, and attention. This field is a subfield of behavior analysis that integrates behavioral psychology with micro-economics and measures decision-making under constraints (e.g., responding to changes in prices, competing contingencies). The measures and models of this field have been highly successful at predicting future choice behaviors across a myriad of contextual situations (e.g., health, financial, social). For example, delay discounting is a behavioral phenomenon where the subjective value of a reward/outcome decreases as the delay to receiving that outcome increases (Mazur, 1987). Conversely, probability discounting is a behavioral phenomenon where the subjective value of a reward decreases as the probability of receiving the reward also decreases. Previous research has shown that non-monetary rewards are discounted at a steeper rate (i.e., they lose their subjective value faster across comparable delays) than with monetary outcomes. Holt and colleagues (2014) have shown that participants will discount delayed food at higher rates than delayed money (i.e., food loses its value faster over time than money) (Holt et al, 2014).

Previous research on discounting has also looked at timing as a relevant factor influencing choice and has shown that people with limited time horizons (i.e., those focused on immediate rather than distal events in the future) have steeper discounting rates than those who are more future oriented in their thinking (Daugherty & Brase, 2010; Rung et al., 2019; Teuscher & Mitchell, 2011). Additionally, Bidwell and colleagues (2003) evaluated delay discounting rates on retirement age, where they found that steeper discounting rates were associated with younger preferred retirement ages, suggesting that delay discounting also predicts retirement age. However, delay discounting rates have not been specifically examined in relation to choices made in pursuit of personal growth opportunities, such as personal and professional development. Engaging in self-development may result in several outcomes, both monetary and non-monetary, such as promotion potential with increased autonomy, pay, prestige, personal growth, satisfying curiosity or career ambition, or to enhance career prospects inside or outside of military service. However, if Army leaders are discounting the value of these outcomes, then they are less likely to invest time and effort in personal and professional development activities.

The purpose of this research is to provide the Army with a better understanding of how Army leaders subjectively value self-development opportunities and will apply operant behavioral economic principles to identify recommended courses of action to enable the Army to enhance the timing and design of self-development opportunities and messages for Army leaders. Application of this technique may improve the utilization of self-development opportunities, addressing a critical driver of competency change across the leader life cycle. Furthermore, this research should enhance and support the Army's efforts to manage talent across the leader lifecycle, providing the Army with guidance and tools to enhance the design of interventions to support the self-development of officers, senior NCOs, and warrant officers. Technical proposals to accomplish this research should include the following objectives:

A good white paper will demonstrate the offeror's expertise in the following areas:

- 1) Operant behavioral economics and delay, probability, and effort discounting research

- 2) The economic side of behavioral economics including prospect theory, loss aversion, and nudges.
- 3) Self-development, learning sciences, assessment design/psychometrics, etc.
- 4) Army Subject Matter Experts, preferably with relevant experience as field-grade Army officers.
- 5) A principal investigator who possesses a Ph.D. in either behavioral psychology or experimental psychology. Substitutions may be acceptable based on relevant research background.

ARI is also open to alternative ideas that will creatively accomplish the objectives of this planned research in accordance with BAA Topic II A.2.b.ii MULTIFACETED DEVELOPMENT PATHWAYS FOR ORGANIZATIONAL AND STRATEGIC LEADERS, and that the Army will consider timely and valuable.

The award will be approximately a 24-month period of performance (Base, 12 months, not to exceed \$250,000; Option 1, 12 months, not to exceed \$250,000) with a total budget not to exceed \$500,000.

The Army Contracting Command- Aberdeen Proving Ground, RTP Division has the authority to award a variety of instruments, to include contracts, grants, and cooperative agreements. The ACC (APG) RTP Division reserves the right to use the type of instrument most appropriate for the effort proposed (contract, cooperative, or grant).

II. PREPARATION AND SUBMISSION OF A WHITE PAPER:

Preparation of White Paper

A White Paper should focus on describing details of the proposed research for both the base and if applicable, option (s) approach, including how it is innovative and how it could substantially advance the state of the science. Army relevance and potential impact should also be described, as well as an estimate of total cost for both the base and option approach. White Papers should present the effort in sufficient detail to allow evaluation of the concept's technical merit and its potential contributions to the Army mission.

A White Paper must be limited to six (6) pages (page one is the cover page) and an addendum in which the Applicant must include a biographical sketch (up to 300 words per individual) of all key personnel (i.e., Principal Investigators and Co-Principal Investigators) who will perform the research, highlighting their qualifications and experience as discussed below. All files and forms must be compiled into a single PDF file or MS Word document before submitting. Reviewers will be advised that they are only to review the cover page and up to five pages plus the addendum. Any pages submitted in excess of the six (6) page limit will not be reviewed or evaluated.

TECHNICAL INFORMATION FOR A WHITE PAPERS:

1. Technical Approach: A detailed discussion of the effort's scientific research objectives, approach, relationship to similar research, level of effort, and estimated total cost; include the nature and extent of the anticipated results, and if known, the manner in which the work will contribute to the accomplishment of the Army's mission related to this request and how this would be demonstrated.

2. Requests for Government Support: The type of support, if any that the Applicant requests of the Government (such as facilities, equipment, demonstration sites, test ranges, software, personnel or materials) shall be identified as Government Furnished Equipment (GFE), Government Furnished Information (GFI), Government Furnished Property (GFP), or Government Furnished Data (GFD). The Applicant shall indicate any Government coordination that may be required for obtaining equipment or facilities necessary to perform any simulations or exercises that would demonstrate the proposed capability.
3. The cost portion of the whitepaper shall contain a brief cost estimate including research hours, burden, material costs, travel, etc.
4. Key Personnel Biographical Information: As an addendum to the White Paper, the Applicant must include a biographical sketch (up to 300 words per individual) of all key personnel (i.e., Principal Investigators and Co-Principal Investigators) who will perform the research, highlighting their qualifications and experience.

RESTRICTIVE MARKINGS ON WHITE PAPERS:

1. The Applicant must identify any proprietary data the Applicant intends to be used only by the Government. The Applicant must also identify any technical data or computer software contained in the White Paper that is to be treated by the Government as limited rights or restricted rights respectively. In the absence of such identification, the Government will assume to have unlimited rights to all technical data or computer software presented in the White Paper. Records or data bearing a restrictive legend may be included in the White Paper, but must be clearly marked. It is the intent of the Army to treat all White Papers as procurement sensitive information before the award and to disclose their contents only to Government employees or designated support contractors for the purpose of procurement related activities only. Classified, sensitive, or critical information on technologies should not be included in a White Paper.
2. An Applicant is cautioned that portions of White Papers may be subject to release under terms of the Freedom of Information Act, 5 U.S.C. 552, as amended.

Submission of White Paper

White Papers must be submitted by e-mail to the POC for the U.S. Army Contracting Command, wilveria.a.sanders.civ@army.mil, and cc'd to the ARI Point of Contact (POC), stefanie.s.stancato.civ@army.mil, in electronic MS Word document format or PDF file format. **Cite "ARI BAA W911NF-23-S-0010, Self-Development Decision-Making in Army Officers" in the e-mail subject line.**

III. EVALUATION CRITERIA:

A White Papers and full Proposals received in response to this request will be evaluated by the ARI designated point of contact identified in this request using the following factors/criteria:

1. Scientific and Technical Merit- The overall scientific and/or technical merits of the proposed research.
2. Potential Contribution- The potential contributions to ARI's mission.
3. Qualifications/Capabilities- Proposed principal investigator and key personnel qualifications, capabilities, related experience, and techniques and also institutional resources and facilities.
4. Cost- Addresses the level of support requested. Will be considered for realism, affordability, and appropriateness, and may be grounds for rejection independent of evaluation on other factors

The request for a proposal will be made based on the overall evaluation of a White Paper using the four criteria listed above. The overall scientific and/or technical merit of the proposed approach will be weighted more strongly than all of the other non-cost factors combined. All evaluation factors/criteria other than cost, when combined, are significantly more important than cost or price. A request for proposal may not necessarily be made to the lowest proposed price. During the evaluation of White Papers, ARI's POC for technical matters may request a telecon with an Applicant, but telecons are not guaranteed nor required for competition and award purposes. ARI's POC for technical matters reserves the right to evaluate a White Paper and request a proposal without discussions. The Applicant's initial submission should contain the Applicant's best terms from a technical and price standpoint. Once a full proposal has been requested, all communications must go through the POC for the U.S. Army Contracting Command.

If the White Paper evaluation results in the request and submission of a full proposal, the proposal will be evaluated by a panel of scientific peers using the same factors/criteria as those listed above under Evaluation Criteria. A request for a full proposal does not guarantee an award. The decision to award will be based on feedback from the panel, considerations presented by ARI's POC for technical matters identified in this document, and other factors like budgetary constraints. ARI may choose not to select any award due to unavailability of funds or other factors.

IV. FEEDBACK:

Written or telephonic feedback will be provided to the Applicant regarding the White Paper's scientific merit and potential contributions to the ARI's mission. If the Government decides to request a full proposal, a written request will be sent to the Applicant. The Written Request will, at a minimum, invite a full proposal. The request may also include feedback intended to improve the proposal's potential for award.

V. DEADLINES:

Electronic versions of the White Paper must be received by the POC for the U.S. Army Contracting Command and the ARI POC, with e-mail subject line **"ARI BAA W911NF-23-S-0010, Self-Development Decision-Making in Army Officers"** by e-mail no later than **5:00 PM Eastern Daylight Time on 01 September 2023**. Any extension to the White Paper submission deadline will be posted to SAM.gov and Grants.gov an amendment to this Notice. Note that a timely White Paper received under this Notice will be evaluated and considered for proposal requests throughout the period beginning **2 August 2023**, and

ending **01 September 2023**. An extension of this timeline may be granted based on the number of White Papers submitted or other factors out of the control of the designated point of contact reviewing the White Papers. An Applicant will be notified by email if the White Paper evaluation timeline is extended beyond **01 September 2023**.

Please refer to the BAA, W911NF-23-S-0010 for instructions for the submission of a full Proposal.

An Applicant is responsible for submitting an electronic White Paper or full proposal so as to be received and accepted at the Government site indicated in this Notice no later than the date and time specified above. When sending electronic files, an Applicant shall account for potential delays in file transfer from the originator's computer to the Government website/computer server. An Applicant is encouraged to submit their response early (48 hours if possible) to avoid potential file transfer delays due to high demand or problems encountered in the course of submission.

An Applicant should receive confirmation of delivery at the Government site, not just successful relay from the Applicant's system. Acceptable evidence to establish the time of receipt at the Government site includes documentary and electronic evidence of receipt maintained by the Government site. All submissions shall be submitted before the deadline identified above in order to be considered – no exceptions.

If an emergency or unanticipated event interrupts normal Government processes so that a White Paper or full proposal cannot be received at the site designated for receipt by the date and time specified above, then the date and time specified for receipt will be deemed to be extended to the same day and time specified in this Notice on the first work day on which normal Government processes resume. An Applicant agrees to hold the terms of their White Paper and any subsequent proposal valid for 180 calendar days from the date of submission.

VI. INQUIRIES:

ACC (APG) RTP Agency Point of Contact (Contractual Questions)

The POC for the US Army Contracting Command (Aberdeen Proving Ground) Research Triangle Park Division is: Ms. Wilveria Sanders, (919) 549-4328, wilveria.a.sanders.civ@army.mil.

ARI Agency Point of Contact (Technical Questions)

The ARI POC for technical matters for this white paper topic is: [Dr. Stefanie Stancato](mailto:Dr.Stefanie.Stancato), (913) 702-5269, stefanie.s.stancato.civ@army.mil.

VII. REFERENCES:

Bidwell, L., MacKillop, J., Murphy, J.G., Grena, A., Swift, R.M., & McGeary, J.E. (2013). Biphasic effects of alcohol on delay and probability discounting. *Experimental and Clinical Psychopharmacology*, 21(3), 214-221. <https://doi.org/10.1037/a0032284>

- Daugherty, J.R., & Brase, G.L. (2010). Taking time to be healthy: Predicting health behaviors with delay discounting and time perspective. *Personality and Individual Differences*, 48(2), 202-207. <https://doi.org/10.1016/j.paid.2009.10.007>
- Department of the Army (2022, November). *FM 6-22 Developing Leaders*. Headquarters, U.S. Department of the Army. https://armypubs.army.mil/epubs/DR_pubs/DR_a/ARN36735-FM_6-22-000-WEB-1.pdf
- Green, L., Myerson, J., Oliveira, L., & Chang, S.E. (2013). Delay discounting of monetary rewards over a wide range of amounts. *Journal of the Experimental Analysis of Behavior*, 100(3), 269-281. <https://doi.org/10.1002/jeab.45>
- Holt, D., Newquist, M.H., Smits, R.R., & Tiry, A.M. (2014). Discounting of food, sex, and money. *Psychonomic Bulletin and Review*, 21, 794-802. <https://doi.org/10.3758/s13423-013-0557-2>
- Jarmolowicz, D.P., Reed, D.D., Francisco, A.J., Bruce, J.M., Lemley, S.M., & Bruce, A.S. (2018). Modeling effects of risk and social distance on vaccination choice. *Journal of the Experimental Analysis of Behavior*, 110(1), 39-53. <https://doi.org/10.1002/jeab.438>
- Johnson, M.W., Johnson, P.S., Herrman, E.S., & Sweeney, M.M. (2015). Delay and probability discounting of sexual and monetary outcomes in individuals with cocaine use disorders and matched controls. *PLOS One*. <https://doi.org/10.1371/journal.pone.0128641>
- Johnson, M.W., Herrman, E.S., Sweeney, M.M., LeCompte, R.S., & Johnson, P.S. (2017). Cocaine administration dose-dependently increases sexual desire and decreases condom likelihood: The role of delay and probability discounting in connecting cocaine with HIV. *Psychopharmacology*, 234(4), 559-612. <https://doi.org/10.1007/s00213-016-4493-5>
- Lawyer, S.R., & Mahoney, C.T. (2018). Delay discounting and probability discounting, but not response inhibition, are associated with sexual risk taking in adults. *Journal of Sex Research*, 55(7), 863-870. <https://doi.org/10.1080/00224499.2017.1350627>
- Madden, G.J., & Johnson, P.S. (2010). A delay discounting primer. In G.J. Madden & W.K. Bickel (Eds.), *Impulsivity: The behavioral and neurological science of discounting* (pp.11-37). American Psychological Association. <https://doi.org/10.1037/12069-001>
- Mazur, J.E. (1987). An adjusting procedure for studying delayed reinforcement. In *Quantitative Analysis of Behavior* (Vol.5, pp. 55-). Psychology Press.
- Odom, A.L., Becker, R.J., Haynes, J.M., Galizio, A., Frye, C.C., Downey, H., Friedel, J.E., & Perez, D.M. (2020). Delay discounting of different outcomes: Review and theory. *Journal of the Experimental Analysis of Behavior*, 113(3), 657-679. <https://doi.org/10.1002/jeab.589>
- Petry, N.M. (2001). Delay discounting of money and alcohol in actively using alcoholics, currently abstinent alcoholics, and controls. *Psychopharmacology*, 154(3), 243-250. <https://doi.org/10.1007/s002130000638>
- Petry, N.M. (2003). Discounting of money, health, and freedom in substance abusers and controls. *Drug and Alcohol Dependence*, 71(2), 133-141. [https://doi.org/10.1016/s0376-8716\(03\)00090-5](https://doi.org/10.1016/s0376-8716(03)00090-5)

- Raineri, A. & Rachlin, H. (1993). The effect of temporal constraints on the value of money and other commodities. *Journal of Behavioral Decision Making*, 6, 77-94.
<https://doi.org/10.1002/bdm.3960060202>
- Rung, J.M., Peck, S., Hinnenkamp, J.E., Preston, E., & Madden, G.J. (2019). Changing delay discounting and impulsive choice: Implications for addictions, prevention, and human health. *Perspectives on Behavior Science*, 42(3), 397-417. <https://doi.org/10.1007/s40614-019-00200-7>
- Strickland, J.C., Reed, D.D., Dayton, L., Johnson, M.W., Latkin, C., Schwartz, L.P., & Hursh, S.R. (2022). Behavioral economic methods predict future COVID-19 vaccination. *Journal of Translational Behavioral Medicine*, 12(10), 1004-1008. <https://doi.org/10.1093/tbm/ibac057>
- Sofis, M., Carillo, A., Jarmolowicz, D.P. (2016). Maintained physical activity induced changes in delay discounting. *Behavior Modification*, 41(4). <https://doi.org/1031177/0145445516685047>
- Teuscher, U., & Mitchell, S.H. (2011). Relation between time perspective and delay discounting: A literature review. *The Psychological Record*, 61, 613-632. <https://doi.org/10.1007/bf03395780>
- Vuchinic, R.E., & Simpson, C.A. (1998). Hyperbolic temporal discounting in social drinkers and problem drinkers. *Experimental and Clinical Psychopharmacology*, 6(3), 292-305.
<https://doi.org/10.1037/1064-1297.6.3.292>