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USING DISCOUNTING WITHIN A FRAMEWORK OF CONTEXTUAL BEHAVIORAL SCIENCE FOR THE EVALUATION OF THE USE OF EXTRA-CREDIT IN HIGHER EDUCATION POLICIES AND DECISION MAKING

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SCIENCE FOR THE EVALUATION OF THE USE OF EXTRA-CREDIT IN HIGHER
EDUCATION POLICIES AND DECISION MAKING

by

Timothy Justin Wiseman

B.A., Southern Illinois University, 2016

A Research Paper
Submitted in Partial Fulfillment of the Requirements for the
Master of Science

Department of Psychology
in the Graduate School
Southern Illinois University Carbondale
May, 2020

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Approved by:

Dr. Darwin Shane Koch, Chair

Graduate School
Southern Illinois University Carbondale
November 7, 2019

AN ABSTRACT OF THE RESEARCH PAPER OF

Timothy Justin Wiseman, for the Master of Science degree in Behavior Analysis and Therapy, presented on November 7, 2019, at Southern Illinois University Carbondale.

TITLE: USING DISCOUNTING WITHIN A FRAMEWORK OF CONTEXTUAL BEHAVIORAL SCIENCE FOR THE EVALUATION OF THE USE OF EXTRA-CREDIT IN HIGHER EDUCATION POLICIES AND DECISION MAKING

MAJOR PROFESSOR: Dr. Darwin Shane Koch

Since the advent of behaviorism, our field has experienced numerous revolutions and subsequently, multiple paradigm shifts. Within this growth and development of a science of behavior was the development and synthesis of educational technologies embedded within a frame of radical behaviorism. With the change in tides and the growing influence of functional contextualism, this paper aims at highlighting the significance of evaluating educational policies and decision making, but more specifically, the use of discounting procedures within a framework of evolution and contextual behavioral science to evaluate the function of providing extra-credit opportunities from the perspective of both, the professor and the student, and the significance of it's influence in the learning and development of undergraduate and graduate students.

Keywords: Education, Extra-credit, discounting, evolution, contextual behavioral science.

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CHAPTER 1

INTRODUCTION

The appropriate use of facilitating learning and maximizing learner' potential, or educational technology, may maximize the potential of learners, in order to make the learner more skillful, promote creative behaviors and a wide diversity of interests about the surrounding world; and contribute to the development and strengthening of a culture that takes advantage of this technology in the design of cultural practices respecting the education of its members argued Skinner (1968). Historically, the science of behavior analysis has been used extensively in early development classroom settings and higher (Shepley & Grisham-Brown, 2018; Roll-Pettersson, Rosales, Keenan & Dillenburger, 2010). However, little has been done to improve the educational system in order to evaluate and assess the effectiveness and efficiency of delivering education built within the framework of behavioral science.

Since the birth of our science, the field has witnessed revolutions that resulted in a paradigm shift from methodological behaviorism (focused on a synthesis of observable behavior in terms of an S-R relation) to radical behaviorism (focused on the synthesis of public and private events) to contextual behavioral science (Hayes, 2004). Over the past decades and with the advent of contextual behavioral science, newer theories of language have been developed (Vilardaga, Levin & Muto, 2009), for example, which presuppose the idea that the field of behavioral science is undergoing another shift. With this change in tide, it suffices to say that, perhaps, it may be time to re-evaluate the current educational system in America (Rumph et al., 2007).

The progressive education system has been said to be ineffective and is to blame for continuing to train the nation's teachers which, in turn, continue to dis-serve American children (Rumph et al., 2007). They do this because they are not allowed to, or simply choose not to, use objective data to reassess their current teaching methods and make changes to improve student outcomes. To develop new theories of how to improve student performance in the classroom it is necessary to employ the scientific method in our search. The different steps of using the scientific method are quite simple; "The scientific method is to ask a question of nature, clarify the question, reduce it to manipulable variables where possible, and test the implications of the hypothesis" (Killeen, 2018).

One controversial way of ensuring students obtain a passing grade in a given course is to provide the students with extra-credit opportunities. Extra-credit opportunities help students that are struggling with the course material for one reason or another. The reason the use of extra-credit is controversial is because many professors believe that students should be able to master the course material simply by being engaged with the material throughout the semester and that fellow faculty at the college may believe that offering the extra-credit is in effect "weakening or destroying standards" (Norcross, Horrocks, & Stevenson, 1989). However, it has also been shown that the use of extra-credit can have a positive impact on student learning and can be used to motivate students (Miller, 2006). Extra-credit can also be viewed as reward power the instructor holds over his students simply because the instructor is the deciding factor on whether to offer the extra-credit points. When students see that the instructor is able to affect their grade by offering extra-credit, they are more likely to follow the instructor's direction for the course. That is, if the students desire to receive these points and complete the work (Shrodt, Whitt & Turman, 2007). Another reason the use of extra-credit can be viewed as controversial is that the

students that need the extra points the most, simply do not take advantage of the opportunity, and instead students which are the “higher achieving” members of the class do (Harrison, Meister, & LeFevre, 2011). On the other hand, students generally enjoy obtaining good grades, but do not so readily enjoy having their “academic performance rigorously assessed” (VanMaaren, Jaquett, & Williams, 2016). This helps to explain why a professor that provides extra-credit opportunities throughout a semester is also providing the context in which students can gain protection from a loss of points (Wilson, 2002).

Having said that, it then becomes important for us to shift away from a radical perspective of a technology of teaching and combine the scientific theory of evolution with contextual behavioral science and advance our knowledge and application of behavioral science in the field of education. To do this, one must attempt to address the changes needed in our educational practices by first synthesizing Tinbergen’s four questions of evolution, that is, the function, history, mechanism, and development of our educational system (Wilson, 2019). Doing this would then allow us to adapt that framework within the field of contextual behavioral science to evaluate and develop better technologies for teaching, and more importantly, to evaluate and develop better systems and policies that govern the delivery of our education. For example; one way of evaluating decision making has been the use of probability and delay discounting techniques, where an individual’s probability of engaging in risky and impulsive (respectively) behaviors have been measured.

CHAPTER 2

DISCOUNTING

Discounting has been described as a process an individual engages in when they are given a choice between delayed or uncertain outcome. It has been shown that many individuals which discount, tend to discount the face value of the choice because of the expected time to receipt, or the likelihood of occurrence in the future (Green & Myerson, 2004).). The process of delay-discounting is a way of discovering what events an individual' finds rewarding at any given time when they are faced with options that vary between a smaller reward that is available sooner and a larger reward which is available at a later time (Green & Myerson, 2004). Delay discounting has been defined as “the depreciation of the value of a reward related to the time that it takes to be released” (Matta, Goncalves, & Bizarro, 2012). Delay discounting questionnaires at the collegiate level have mainly focused on consequences related to pathological gambling (Dixon, Marley & Jacobs, 2003; Dixon, Jacobs & Sanders, 2006; Dixon, Buono & Belisle, 2016), but others have focused on addiction (Saville, Gisbert, Kopp & Telesco, 2010). The many aspects of daily life that require an individual to display self-controlled behaviors make increasing rational/self-controlled choices a major focus of behavior analysis (Brigham, 1980).

Viewing decision making with regards to extra-credit as an opportunity to discount between two options by making a rational/impulsive choice; for example, “going out with friends instead of studying for the exam because I can just make up the points with extra-credit,” makes it easy to fit into a behavioral economic framework. Thus, using principles of behavioral economics to study the use of extra-credit may be beneficial in the evaluation and development of a more robust educational system in order to aid the growth and development of both the students and professors alike, and to provide the evidence needed for making more functional

educational decisions. One reason it is important to study the use of extra-credit throughout one's collegiate career is to ensure the student obtains the base knowledge for their chosen major. If a student simply passes each class because of the extra-credit opportunities provided, they may need to re-evaluate their major and entertain other possibilities. Looking at this from another perspective, many professors feel that if they offer extra-credit so that students can improve their grade in the course, this is an unethical use of extra-credit (Faud & Jones, 2012). In order to make the use of extra-credit an ethical practice in their study, Faud and Jones (2012) made a fraction of the extra-credit point earned available to add to the amount earned on the next graded item in the course.

As eluded to earlier, gaining protection from a loss of points in a given course is a beneficial attribute of extra-credit opportunities in the student's view, but the use of extra-credit in this way encourages behaviors which are negligent to a student's long-term success in their profession. Another reason the use of extra-credit is controversial is that the higher-achieving students in a class are the individuals that tend to take advantage of the extra-credit opportunities, whereas the lower-achieving students in the course, those that stand to benefit most from the extra work seem to let these opportunities remain unachieved. There are several different reasons a student may not take advantage of extra-credit opportunities: the work is too challenging; job, social, or family obligations; or they simply procrastinate doing the work until it is too late (Lei, 2013). Which context is the most advantageous for promoting higher learning; one in which there are extra-credit opportunities or one in which there aren't?

CHAPTER 3

BEHAVIORAL ECONOMICS

Behavioral economics is a sub-discipline of behavioral science and is used to understand decision making behavior. One area of concern behavioral economics sheds light onto is that of choice and decision-making behavior of individuals, or as a group. An impetus of behavioral economics is attempting to understand the reasons an individual makes an irrational, versus a rational choice (MacKillop et al., 2011). Specific areas of study using behavioral economic procedures are alcohol-dependent individuals (Myerson, Green, Berk-Clark, & Gruzza, 2015), drug-dependent individuals (Meja-Cruz et al., 2016), pathological gamblers (Dixon, Jacobs, & Sanders, 2006) and individuals with a history of making poor financial choices (DeHart, Friedel, Lown, & Odum, 2016). Given the increasing number of individuals being diagnosed with mental health disorders and the added impetus of diversifying the applications of behavior analysis in areas other than autism-spectrum disorders, behavior analysts have an ethical obligation to provide/educate their clients with, among other things, the most-effective treatment procedures supported by science (Behavior Analyst Certification Board, 2014).

A pervasive phenomenon displayed by both humans and nonhumans in decision making is their discounting of the rewards in question (Myerson, Green, & Warusawitharana, 2001). A common course of action to discover an individual's preference for a smaller immediate reward versus a larger delayed reward is to expose the individual to a series of hypothetical monetary rewards (Madden & Johnson, 2010), to verify any discounting behavior in question.

Three common models used to describe the delay discounting process are an exponential model (Frederick, Loewenstein & O'Donoghue, 2002), a hyperbolic model (Mazur, 1987), and finally a hyperboloid model (Green, Myerson & Calvert (2010). The main assumption of an

exponential model of discounting is that the discounting function remains constant throughout all the available choices. The exponential discounting function is as follows: $v_p = Ve^{-kD}$. “In equation 1, v_p is the present (discounted) value of a reward with an objective (undiscounted) value of amount V , delivered following delay D . The degree to which delayed rewards are discounted is given by the parameter k .” (Madden, Bickel & Jacobs, 1999). Mazur (1987) established the equation to measure the degree of hyperbolic discounting an individual displays: $V = A / (1 + kD)$. To define this equation: V represents the subjective value, or the point at which the delayed reward is equally valuable to the immediate reward to an individual, the symbolic representation of the hypothetical amount of money is marked by variable A , k is an empirically derived free parameter that describes sensitivity to change in delay, and D is the total length of the delay. The third model, a hyperboloid one, is one that describes how a preference for a given reward decreases as a function of the delay until its receipt. The hyperboloid model: $V = I / (1 + kD)^s$. To define: “ V is the value of an outcome when it is delivered after a delay (D), expressed as a proportion of its value when it is delivered immediately: the parameter k reflects how steeply the outcome is discounted; and the parameter s reflects the nonlinear scaling of time and amount” (Woolverton, Freeman, Myerson & Green, 2011).

CHAPTER 4

THE ROLE OF CONTEXT

The mitigating factor in many decisions of choice is the context (the interrelated conditions in which something exists or occurs) that influences an individual's decision making at any given moment. In this regard, it can be said that an individual may be impulsive, where impulsivity is defined in the behavior analytic field as the allocation of time or responding to alternatives with sooner, smaller reinforcement in lieu of alternatives with larger, later reinforcement or the subjective devaluation of temporally distant consequences (Gunnarsson, Whiting & Sims, 2018). The converse of an impulsive choice, a "self-controlled" choice, is defined as the choice made when responding produces delayed larger reinforcers at the expense of immediate smaller reinforcers (Vollmer, Borrero, Lalli & Daniel, 1999). But what drives one to display impulsive or self-controlled choices? In the behavior analytic field this drive has been termed motivating operation. A motivating operation has been described as "an environmental event that first establishes (or abolishes) the reinforcing or punishing effect of another event and second, evokes (or abates) behaviors related with that event" (Fagerstrom, Foxall, Arntzen, 2013).

In other fields, such as psychology and neuroscience, delay discounting has also been described as the cognitive process which allows an individual to compare values between the immediate and delayed consumption of a determined commodity (Matta, Goncalves & Bizzaro, 2012); where the subjective value, defined as the amount when an immediate, certain reward is judged to be equal in value to a delayed or probabilistic reward (Myerson, Green, & Warusawitharana, 2001) of any commodity, task, or event for example, increases or decreases

based on the delay to its receipt (Reynolds & Schiffbauer, 2004). Also, the subjective value of a commodity diminishes according to the delay in its release (Matta, 2012).

As humans, much of our everyday life depends on what reinforces or punishes our behaviors at a particular point in time; the present. However, patterns of behavior that hold importance in the everyday life of an individual may indeed develop over time from simpler, individual acts that have been reinforced in the past (Rachlin, 2004). That being said, the fact that an individual act has been reinforced in the past does not mean that the said behavior was “honorable”; lying to one’s parents about their homework being done so that they can go outside to play and receive an extra dessert after dinner. As Rachlin (2004) has pointed out, patterns of behavior are replaced at a quicker speed than the individual acts that comprise the pattern; ie. as the individual ages they begin to lie about their actions at work in order to get a raise in their wages. With this in mind one can easily ascertain the role that context and consequences play when increasing self-control could be beneficial to many aspects of daily life; study or go out with friends, eat an entire chocolate cake versus one slice, drugs and alcohol or remain sober, save money or spend frivolously.

An interesting technique to decrease impulsive decision making exhibited by undergraduate students was to expose them to scenes of the natural environment for 10 seconds prior to a titrating amount discounting procedure, and five photographs of the natural environment between each delay block. Berry et. al. (2014) used three conditions- natural, i.e. photographs of forests; built, i.e. photographs of buildings; or geometric (control), i.e. photographs of triangles- to show a reduced amount of impulsive decision-making behavior in a pool of 185 students (Berry, Sweeney, Morath, Odum & Jordan, 2014). Seated at a computer, each condition began the experiment by going through practice trials in which they were

presented with the hypothetical monetary outcomes and procedure. The display on the screen read, “Would you rather have [amount] now or [amount] in [delay]?” Participants then viewed 25 photographs for 10 seconds that were specific to their randomly assigned natural, built, or geometric condition. The experiment then consisted of the delay discounting task of hypothetical monetary outcomes, interspersed with delay blocks in which the participant again viewed 5 condition specific photographs. As previously mentioned, experimenters used a titrating amount for participants to choose from in the experimental trials. Each trial began with the participant selecting from an immediate amount (\$50) or a delayed amount (\$100). Depending on the participants’ choice, the immediate amount offered would then increase or decrease for the next trial; if the immediate amount (\$50) was selected in trial 1, only \$25 would be available immediately in trial 2. If the participant again chose the immediate option (\$25) for trial 2, only \$12.50 would be the immediate amount for trial 3. The same procedure was in effect if the delayed amount was selected; the immediate amount would increase from \$50 in trial 1, to \$75 in trial 2. Exposure to this procedure showed less impulsive decision making by individuals in the natural condition, whereas individuals in the built and geometric (control) conditions did not show any reduction throughout the procedure (Berry et. al., 2014). The results of this study were that impulsive decision making in humans can be decreased by having the individual view photographs of the natural environment (Berry et al., 2014).

For example, with nearly 50% of the college population suffering with procrastination for completing their assignments outside of the classroom, many different individuals would benefit greatly from increasing their self-controlled choices (Munoz-Olano & Hurtado-Parrado, 2017). Investigators/scholars have said that procrastination, or the pervasive tendency to choose the smaller sooner reward (impulsivity), can be measured by the hyperbolic function of delay

discounting (Ainslie, 2008). Ainslie (2008) defines procrastination as a temporary preference for a smaller but more immediate reward at the expense of a larger delayed reward, which may be described or measured as impulsiveness.

Procrastination has also been shown to be a factor in the decision to complete extra-credit opportunities outside of the classroom for students that are most in need of the points to ensure a passing grade (Lei, 2013). Other students may do less than their best work on assignments throughout the semester but then depend on extra-credit points to obtain a passing grade for the course (Lei, 2013). It could be said that these students don't exhibit self-controlled choices because they are not putting in the time necessary to get a passing grade in the course without the bonus of extra-credit. While it is true that other reasons exist for needing extra-credit points to pass a given course, such as grades aren't high enough or the student lacks interest in the subject (Lei, 2013), an impulsive choice to procrastinate doing required coursework in order to go out with friends to a bar is one that a college student should be able to refrain from making.

Friedel, DeHart, Madden and Odum (2014) found that other populations of people that are also prone to making impulsive decision-making behavior were cigarette smokers and this quality has been shown to generalize to other areas of their lives. Friedel et al. (2014) were able to show that smokers discount money, food, and entertainment more steeply than their non-smoking counterparts. Their finding is important because it shows that the discounting of future outcomes expands to other areas of one's life than the particular question posed in the delay discounting questionnaire given. Attempts to increase the occurrence of self-controlled decision making have taken place, as in increasing financial education of college students. The very nature of how students discount extra-credit points in relation to how well they are performing in a given course in the college setting is a topic that deserves further study.

It has been said by researchers that manipulations to the immediate environment of an individual can, and does, improve upon currently exhibited impulsiveness by that individual (Weatherly & Dixon, 2011). An example of an improvement in a delay discounting task that proved to be context dependent is from a study done in 2006. In this study by Dixon, Jacobs, and Sanders (2006), 20 pathological gamblers were selected from an off-track betting facility. Each of these individuals was first verbally given the South Oaks Gambling Scale (SOGS), in which a score of 4 or higher represents a probable pathological gambler; all 20 scored a 4 or higher. Half of the participants were verbally given a delay discounting questionnaire in the gambling context, and the remaining participants were scheduled to receive the questionnaire in a non-gambling context within a few days. Next, the participants were given the same delay discounting questionnaire in the opposite context. There are multiple measures one can use to index a person's discounting of future events, such as the hyperbolic or exponential delay, but a theoretically neutral measure is to use the area under the indifference curve (AUC). Using the AUC, 16 of the 20 participants showed greater discounting of future gains while tested in the gambling context, as opposed to the non-gambling context (Dixon, Jacobs & Sanders, 2006).

CHAPTER 5

A THEORETICAL EXERCISE IN THE APPLICATION OF DISCOUNTING

Having said that, it's important for us to determine the mechanism and function of the decision making that ultimately results in the delivery and receipt of extra-credit. Also, having established that the context of our environment influences our decision making behavior, as does the history and development of both the behaving individuals and the educational system, one recommendation for evaluating the effectiveness and efficiency of our current educational practices and decision making is by using a modified version of the above described discounting procedure to determine how students and professors alike, make decisions about extra-credit opportunities.

For example, this can be done by recruiting college students between an age range of 19 to 45 years. A portion of them would live in an on-campus residence, while some of the participants would likely live off-campus in a private residence.

In such a situation, the investigator would be interested in discovering if the subject's observed discounting behavior would be affected by their immediate surroundings or if the contextual differences of the student/teacher role would be evident. The different contexts being referred to are the different life situations, different behavioral histories, demographics, economic status, student loans, and degree standing.

This proposed experiment would examine the delay discounting of hypothetical money and hypothetical extra-credit points. The setting in which the participant would complete the delay discounting questionnaire is also of importance because of one of the research questions; would changing the setting environment have an impact on how students discount hypothetical money or hypothetical extra-credit points? Or would the contextual differences of life situations

and behavioral streams, demographics, economic status, loans, and major/degree standing dictate the observed discounting rate? The different settings to be used in this study could be an empty, quiet classroom versus a crowded restaurant or bar. Individuals bring both a learning history and the personal context of the semester with them when they are completing the delay discounting questionnaires. The context of most concern in this study is the different life situations and behavioral histories/streams, demographics, economic status, loans, class and major/degree standing, and if would these factors interact with the individuals' discounting behavior. A more focused research question is, why was extra-credit introduced and is it still functional in achieving those goals? To shed some light onto this subject, two delay discounting questionnaires could be used.

The first questionnaire would include a hypothetical work task (HWT) which contained 13 different work requirements and would be identical to Henley et al. (2016). For this HWT the ultimate payout would be \$10 U.S. currency (hypothetically). In the first part of the Henley et al. (2016) study, students/participants, primarily female (80%) were given a vignette.

Vignette

You have been hired to pass out flyers to college students walking to class.

- You will earn \$10.
- The flyers must be distributed in 1 hour.
- Due to payroll processing time, you will receive \$10 *at the end of the hour*. (Henley et al. 2016)

The participants were then given a delay discounting questionnaire in which they were asked to indicate the likelihood they would hand out a specified number of flyers. They were instructed to use a value between 0-100 to make this indication.

0 = you will *not* pass the flyers.

100 = you will *definitely* pass out the flyers.

Please answer all the items honestly, thoughtfully, and to the best of your understanding as if you were actually in the situation. (Henley et al., 2016)

The HWT should be to pass out flyers on a college campus, which is a common task that each student should have some familiarity with. “For each work requirement, participants were asked, “How likely are you to pass out **XX** flyers?” with the value of “**XX**” being each of the following work requirements (presented in order): 1, 50, 100, 150, 200, 250, 375, 500, 600, 800, 1,000, 1300, and 1500. Participants entered a numerical value ranging from 0 to 100 to indicate the likelihood they would complete the given work requirement.

The second questionnaire also contained an HWT, but instead of being paid \$10 to pass out the required number of flyers, participants would receive 2 (or 10?) points of extra-credit in their class. As in the Henley et al. (2016) study, participants would then be given a vignette, but this time it would involve extra-credit.

Vignette

You are going to school for a degree in public relations with the goal of being a marketing communicator that helps launch new products for a reputable business corporation. An instructor has offered students in his classes 2 points of extra-credit for handing out a minimum number of flyers inviting students to attend the next job fair at the University.

- You have been given the opportunity to pass out a minimum number of flyers inviting students to the next job fair.
- You will earn 2 points of extra-credit for doing so in a course you are enrolled in.
- The flyers have to be distributed in 1 hour.

- Due to data recording methods/measures you must remain on campus and wait until the end of the hour to verify your participation.

In the following questions you will be asked to indicate how likely you are to pass out the required number of flyers. Use a value between 0 and 100 to indicate the likelihood that you will pass out the flyers.

0 = you will not pass out the flyers.

100 = you will definitely pass out the flyers.

Please answer all of the items honestly, thoughtfully, and to the best of your understanding as if you were in the situation. Thank you!

These measures (or variations of) allow us to at least determine how student and/or professors make decisions, specifically how they discount the provision and receipt of extra-credit, and whether they are impulsive or self-controlled. Thus, discounting methodologies used to assess these behaviors provide us with the evidence needed to support our decision making, especially if we are to use contextual behavioral science and evolutionary theory to guide our decision making.

CHAPTER 6

CONCLUSION

With the importance of maximizing the full potential of the next generation for learning, it is vital that we promote creative behaviors and ideology, while at the same time furthering and strengthening our culture. In our pursuit of these goals as a culture, and the science of Behavior Analysis, the relevance of staying apprised of the current paradigm shift from radical behaviorism to contextual behavioral science is also of high value. The proposed experiment can be a relatively easy manner of discovering the answer to the research question from above, why was extra-credit introduced and is it still functional in achieving those goals? Or, would the different life contexts between instructor and student be the deciding factor in their observed discounting behavior?

It is also useful to use evolutionary theories/practices to improve our decision-making behaviors within the American educational system. In today's world of increasing technological advancements, placing blame for behavior on the environment only, and neglecting any internal "cause" of a behavior seems to be like looking at only part of the available information. Including Tinbergen's (1963) questions of history, function, mechanism and development, into the radical behaviorist and/or a contextual behaviorist view would thus be the next logical step in the understanding of human behavior. For example, you wouldn't want to give your friend from China a bouquet of white flowers. You wouldn't want to present them with white flowers because, if you knew about the history of Chinese tradition, you would know that a majority of Chinese individuals associate white flowers with ghosts, or death. Another example, if a person in Germany is single at the age of 25, they are showered with cinnamon powder throughout the day, to "nudge" them into finding a mate (function). Answers to all four questions together

provide a richer and fuller view of the causes of behavior than a limited, environment only causation. In other words, the paradigm shift to a contextual behavioral science is just the natural evolution of behavior analysis in an ever-changing world of education, and more specifically, the policies and procedures that guide the decision making which shape the education of today, as well as using evidence generated from current practices to guide the evolution of our education for tomorrow.

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APPENDIX A

In the following questions you will be asked to indicate how likely you are to pass out the required number of flyers. You will earn \$10 for your service.

Use a value between 0 and 100 to indicate the likelihood that you will pass out the flyers.

0 = you will not pass out the flyers.

100 = you will definitely pass out the flyers.

- “You have been hired to pass out flyers to college students walking to class.
- “You can earn \$10.”
- “The flyers have to be distributed in 1 hour.”
- “Due to payroll processing time, you will receive the \$10 at the end of the hour.”

Please answer all of the items honestly, thoughtfully, and to the best of your understanding as if you were in the situation. Thank you!

How likely are you to pass out **XX** flyers?

1 flyer _____%

50 flyers _____%

100 flyers _____%

150 flyers _____%

200 flyers _____%

250 flyers _____%

375 flyers _____%

500 flyers _____%

600 flyers _____%

800 flyers _____%

1000 flyers _____%

1300 flyers _____%

1500 flyers _____%

APPENDIX B

You are going to school for a degree in public relations with the goal of being a marketing communicator that helps launch new products for SIUC. An instructor has offered students in his classes 2 points of extra-credit for handing out a minimum number of flyers inviting students to attend the next job fair at SIUC.

In the following questions you will be asked to indicate how likely you are to pass out the required number of flyers. Use a value between 0 and 100 to indicate the likelihood that you will pass out the flyers.

0 = you will not pass out the flyers.

100 = you will definitely pass out the flyers.

- You have been given the opportunity to pass out a minimum number of flyers.
- You will earn 2 points of extra-credit for doing so in a course you are enrolled in.
- The flyers have to be distributed in 1 hour.
- Due to data recording methods/measures you must **remain on campus and wait**

until the end of the hour to verify your participation.

Please answer all of the items honestly, thoughtfully, and to the best of your understanding as if you were in the situation. Thank you!

How likely are you to pass out **XX** flyers?

1 flyer _____%

50 flyers _____%

100 flyers _____%

150 flyers _____%

200 flyers _____%

250 flyers _____%

375 flyers _____%

500 flyers _____%

1000 flyers _____%

1300 flyers _____%

1500 flyers _____%

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Research Paper Title:

Using Discounting within a Framework of Contextual Behavioral Science for the
Evaluation of the Use of Extra-Credit in Higher Education Policies and Decision Making

Major Professor: Dr. Darwin Shane Koch