The Effect of Income Inequality on Individual Ideation-based Creativity via Self-Regulation

by

Kevin Morris

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University of Manitoba
Winnipeg

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ABSTRACT

The purpose of this research is to examine the impact of income inequality on individual creativity. Specifically, it is hypothesized that an individual's creative performance (via a remote associatives test) is affected negatively in a high income inequality condition. Theoretical research suggests that the mechanism that enables this is self-regulation. As such self-regulation is measured as a mediator in this relationship. Two online-panel experiments were designed and conducted to test these relationships. The results did not show significant results for the mediation relationship. Self-regulation does have a positive relationship with creative performance, and income inequality shows a negative relationship with creativity in some conditions, however there is no relationship between income inequality and self-regulation. This research develops the theoretical background for the relationship between income inequality, self-regulation, and creativity. It also provides some lessons-learned from an experimental mediation design with an independent variable that has multiple categorical variables.

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Chapter 1

I. Introduction

- **Income Inequality is rising**
- **High income inequality has been shown to have negative effects on society**
- **Relatively little research has been done on the effect of income inequality on creativity**
- **Creativity is a mechanism of innovation**
- **Layout of paper**

It has been widely reported amongst the media and in social science circles as of late that economic inequality is rising within and across nations.[1] This increasing economic inequality has been shown to be correlated with a multitude of negative societal outcomes/indicators, including poor health, crime, corruption, pollution, and other variables that prevent a healthy society.[2] Relatively less research has been done in the administrative sciences. Worker creativity, and by extension innovation, is what leads to organizational innovation, and companies that cultivate that creativity are more likely to gain competitive advantage over their competitors. In order for that cultivation to occur, a multitude of factors need to align correctly. A significant amount of management research is devoted to the goal of identifying these factors, and finding the optimum mix/level of inputs to maximize creativity, and further, innovation. An under-studied and controversial[3] input factor in innovation/creativity management research is how the difference in pay in society affects the creative performance of workers. Because income inequality has a variety of societal effects, it also might mean that certain types of creativity will be affected differently than other types. The purpose of the following research is determine if there is an effect of income inequality on creativity, and how creativity is affected by different levels of income inequality. I look at this relationship via the lens of self-regulation theory, which suggests that as humans we have a limited availability of cognitive resources. These cognitive resources can be depleted by

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[1]   United Nations Trade and Development Report 2012, Conference Board of Canada, 2013
[2]   Wilkinson, Pikket, 2011
[3]   Controversial mainly due to the cultural sensitivity to discussing wages.

stressful situations, such as inequality. This will be discussed further in the theory development section.

II. Scope of Research

- **Outline of paper structure**

This paper will be organized as follows; a literature review that will focus on income inequality, self-regulation theory, and creativity. The focus of the literature review will be on previous empirical and theoretical research on the relationship between income inequality and self-regulation theory and creativity. This will be followed by a section describing the logic behind the research hypotheses, based on the research in the literature review section. Next is a description of the studies that will be conducted.

The scope of this research is limited by the availability of resources and some liberties are taken to achieve a reliable and accurate study. The studies are focussed on specific geographies and subject groups. The studies are based on online panel sample pools. The hope is that this research will open up avenues for further research with other respondents, to allow the relationship to be argued with a more generalizable sample. However, because the manipulations in this experiment are targeted to a specific cultural group (that of the Anglo-North American culture) it is likely that the contextual manipulations (the description of inequality) will only have a strong effect to those who understand the cultural importance of the descriptions, and not those in other countries who might not be aware of the differences.

Study 1 examines income inequality at the environmental level and the interactions this has on an individual's cognitive ability to be creative.

Study 2 examines income inequality not only at the environmental level, but also introduces economic level of the individual in the environment. The goal is to determine if there is a relationship between an individual's income inequality and the individual's cognitive

resources available to be creative.

A discussion of the results of the studies follows the reporting of results, as well as an analysis of any limitations and how future research could contribute.

Chapter 2 – Literature Review

I. Income Inequality

- **Defining Income Inequality**
- **Other types of inequality (education, ethnic, gender, etc.)**
- **Poverty and Income Inequality**
- **How low income inequality balances out other inequalities.**
- **Wealth inequality vs. income inequality.**

The concept of income inequality is interrelated with multiple other constructs in the social sciences. Income inequality is usually mentioned in the context of wage disparity, socio-economic inequality, and wealth gaps. Income inequality's general concept is that there is a difference in the amount of money some people in society receive compared to others. Throughout history, the distribution of economic resources within societies has fluctuated between equitable and highly unequal societies. Resource distribution was famously studied by Karl Marx, who made an argument for the redistribution of capital ownership in order to better serve the population. Others argued for the creation of a welfare-state, in which the very poor would be provided sufficient resources to survive, in order to prevent revolt.

Since 2003, six major North American universities have set up research groups or departments to study the effects of inequality[4], while the Academy of Management held a recent professional development workshop on economic inequality, with income inequality as one of the main subjects of focus.

Income inequality is used today to distinguish the difference in the amount of money people make in relation to others. It has multiple levels of measurement including household vs. individual, within workplace (horizontal/vertical), within region, national vs. international, as

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[4] see: http://beif.net/home.php or: http://inequality.org/organizations/ for a list

well as many others.

A commonly used comparison for income inequality is household income, in which the annual income of everyone living in a single home is compared to other households. This measure is used more frequently in statistical measurement instead of individual income inequality because of differences in how families make and share money. For example, a family could have one income generator while the other family members are students, stay-at-home parents, etc. Instead of comparing their individual incomes against others, the assumption is that the income for the household is shared amongst those living in the household. Individual income inequality conversely refers to how much a single person makes compared to others. It is used most often by individuals to compare their income with others, often in the workplace.[5]

Regional income inequality is another major phenomenon that has strong effects. A 'region' can range from a neighbourhood, to international groupings of countries. Often research on regional income inequality is done using comparisons of the ratio of income inequality within one country to the ratio of income inequality of another[6].

There are several other factors to economic inequality that are not encapsulated by income inequality. Many of these other inequalities are very much interrelated to income inequality. One could consider a multitude of indirect interacting variables such as access to education,

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[5] Within the workplace there are several types of income inequality, most often studied are that of vertical and horizontal income inequality. Vertical income inequality is the difference between groups of employees at different hierarchical levels within the organization, usually the difference between base level employees (lowest wage) and the executive management (highest wage). There is also horizontal income inequality, which is the difference of wages between employees within the same employment level. An example of this would be the difference in wages that a group of salespeople receive (possibly because of sales commissions, seniority, or merit, etc.). There is also income inequality comparisons made horizontally for wages between workers of the same profession between organizations. This is usually used to set market payment rates for employment of a specific profession.

[6] Piketty, 2014

opportunity cost, geographic advantage, and many other facets of life that are not necessarily equal for everyone. These differences contribute to disparities, or inequalities, between people. However, one advantage of money is the ability for it to balance out these other inequalities. Money can be used to increase ones access to education, decrease travel time over geographic distances, or minimize lost opportunity cost, etc. It also has been shown to increase feelings of self sufficiency.[7] For example, lower income inequality would lead to less gender inequality, because those in traditional gender roles would be able to spend their way out of them.[8] Inequality in direct relation to the amount of money (and by extent, power) some people have over others in an economy, is an effective tangible measure of these other inequalities.[9]

Income inequality is interrelated with poverty, though they are not one in the same.[10] Shamus Khan eloquently stated the relationship between income inequality and poverty;

> "Poverty and inequality are inextricably linked. That's because poverty is not a personal attribute such as hair colour or height, but a relationship between poor people and the society in which they live. The experiences and behaviours of the affluent — the wages they take home, the bonuses they receive, the price they pay for basic goods, the amount of taxes they pay, and the political policies they support — all help constitute what it means to be poor."[11]

By this he means that poverty, (specifically relative poverty), is a dynamic construct in relation to the consumption patterns and of the population's ability to purchase goods in a

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[7] Vohs et al. 2006

[8] Heisig 2011

[9] At least this is the case in the modern world. In previous societies money may have been less important than honour, or land ownership, or other factors that do not have as much influence in a market economy.

[10] Poverty and absolute poverty are also related but different concepts. Absolute poverty describes a situation in which humans are struggling to meet basic human needs such as access to food, water, and shelter.

[11] http://america.aljazeera.com/opinions/2014/2/the-marriage-of-povertyandinequality.html

country/society. As income inequality increases, relative poverty increases due to rising economic growth but stagnant real wages.[12] Put another way, economic growth results in increased income, but income inequality distributes this growth unevenly. Those on the low-end of the income distribution have less relative income than they did before, resulting in less resources to purchase goods, leading them to be impoverished in relation to higher income individuals in that society.

Income inequality is only one aspect of measuring economic inequality within a population. The amount of money a person has could be measured by their wealth, and not their income. Wealth is the market value of everything owned by an individual minus their liabilities.[13] Income is the amount of money they make within a period of time (usually measured by annual income). This is not the same as wealth, in that one could have a large amount of wealth, but a low annual income. This person might have a higher quality of life than a person with a higher income, but less wealth. For example, a nurse whom saves money and has built a large store of equity might be much better off than a higher paid doctor with a gambling problem whom loses all their money at the casino. Unfortunately for researchers of economic inequality, most countries do not record the wealth of individuals or households. Lippman et al. advocate for using wealth inequality as a more useful social predictor variable, but they concede that due to a lack of accurate data regarding wealth inequality, it is more practical to use income inequality data instead.[14] This lack of wealth inequality data is due to the way governments collect taxes. For example, in the United States there is no requirement that a person state their wealth or net-worth when they are reporting their taxes, only the income they have made that year from their work or wealth.[15]

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[12]   Danziger, 2007
[13]   Piketty, 2014
[14]   Lippmann et al. 2005
[15]   It would not be accurate to predict wealth from the income they made off their wealth, because the

The data available is increasing however; researcher Edward N. Wolff has been conducting analysis of the Federal Reserve Board's Survey of Consumer Finances to build a longitudinal data set of wealth disparities in the United States[16]. Statistics Canada collects survey data that gives a stratified sample of Canadian household wealth. Thomas Pikkety has also collected wealth data across nations. His data shows that wealth distribution in societies he has measured has always been significantly more unequal than income.[17] However, in countries with less advanced taxation institutions this data is generally not available. Income, which is recorded in virtually all countries to determine tax-owed, is the data most easily available to measure economic inequality (although this leaves economic inequality as an imperfect measure.)

Sources of national income inequality data

Many organizations around the world collect data on Income inequality. One good source of this data is from the Standardized World Income Inequality Database.[18] This database takes the United Nation's World Income Inequality Database and compares it to other inequality indicators from other institutions in order to come to what the researchers feel is more representative of actual income inequality for the use of comparing countries.[19] The data itself is comprised of Gini Indices of multiple countries. The Gini coefficient is a measure of statistical dispersion of incomes in a population. It is derived from the share of income that members of the population have. A Gini coefficient of 1 (the maximum) indicates that a society is completely unequal (ie. one person controls all the wealth.) A Gini of 0 would indicate that a society is completely equal (ie. every person has the same income).

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capital could be inactive (ie. Just held in a bank account not collecting any interest).
[16]   Wolff, 2010
[17] Piketty, 2014
[18]   Solt, 2014
[19]   ibid

Inequality current trends

Since the late 1980's income inequality has decreased worldwide due to income increases of large populations of very poor countries (ex. India, China, Brazil, etc.) This has resulted in global income inequality decreasing slightly in the past 20 years, from a gini of .722 (out of 1 being the most unequal) to .705, a 1.5% drop.[20] At the same time, inequality has increased within many developed countries. The United States for example, has the same level of income inequality as it did just before the great depression in the early 1930's.[21] From 1967 to 2009, the top 20% of earners in the U.S. increased their share of total income from 44% to 50%.[22] In other words, some developing countries have increased the standard of living for many of their citizens, raising their income, while in wealthy countries we are seeing a trend towards an increase in the difference between the rich and the poor. In the western world this rising income inequality has led to an increase in domestic protest movements over social justice issues, such as Occupy Wall Street in 2012.

Income inequality effects on behaviour

Research suggests that income inequality affects humans positively and negatively. From Robert Frank's perspective on economic behaviour, income inequality in a society will result in something referred to as expenditure cascades[23]. As humans are communal by nature, social-relational comparisons are made between those in a person's reference group. Consumerism is a norm in western society (particularly the United States), with people buying non-essential goods without financial restraint in consideration of their economic situation.[24] When someone with a high income spends on a visible item that affects their

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[20] Lanker, Branko, 2013
[21] Piketty, 2014
[22] Chernomas, Hudson, 2013
[23] Frank, 2010
[24] Schor, 1999

standard of living, economic rational suggests that the behaviour of those in that person's reference group will also spend to maintain the same standard of living. This is despite the next person making less money than the person with the top income. If income inequality is high, the subsequent people with lower income will incur more debt in order to achieve the same standard of living as the person with the highest income. Essentially the savings rate of the neighbourhoods' population cascades downwards, due to social prestige.[25] The result is a change in behaviour as income inequality increases, with people taking on higher levels of debt in order to maintain a certain standard of living (for social comparison purposes.)[26] as well as increased financial distress, longer work hours, and risker occupations, etc. Higher stress leads to negative health outcomes and leaves people pre-occupied with money as opposed to work.

Income inequality can also create feelings of inequity, which results in lower trust.[27] Socio-economic status differences have been shown to increase feelings of personal control when socio-economic status is high, and decrease when socio-economic status is low.

Higher income inequality has also been shown to affect the psychosocial attributes of people living in societies with it. A study that compared personality attributes with the level of income inequality in U.S. States, found that high inequality states had people with significantly lower levels of agreeableness, even when controlling for demographic differences.[28] This could be attributed to increased competitive behaviour, from more defined social status.

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[25]   Frank, Levine, and Dijk 2005
[26]   Christen and Morgan 2005
[27]   Neville, 2012
[28]   de Vries, Gosling, and Potter 2011

Income inequality and cognitive action

Income inequality embedded for longer periods of time has been shown to result in lower cognitive functioning.[29] Interestingly, individuals with the highest income in societies with high income inequality were reported to more likely have a common mental disorder than wealthy individuals in societies where income inequality was low.[30]

Research by Mani et al. (2013) found that people who are experiencing different levels of income are more likely to have lower cognitive resources available to them.[31] Their experiment compared U.S. respondents with different income levels. Respondents were primed with a neutral financial situation (your car has broken down and needs $X to be fixed) in order to induce thoughts about their personal finances. Then they were asked them to perform 2 cognitive tasks (Raven Matrices and a spatial compatibility task). Those with low income were more likely to perform poorly on the cognitive task after being primed with the financial situation than those with high income.[32] To generalize this to a natural setting, they conducted a quasi-experiment with Indian sugarcane farmers. Controlling for external variables (such as stress related to farming), they found that farmers were more likely to have lower cognitive performance before harvest, when they did not have money (were poor), than when they had received compensation for their harvest (were rich).[33] Although more directly to the effects of poverty than income inequality, the research still shows that differences in income within the same individual can have cognitive effects.

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[29] Lynch, Kaplan, and Shema 1997
[30] Weich, Lewis, and Jenkins 2001
[31] Note that while the focus of Mani et al. 2013 is on poverty, he uses time-based income differentials, ie. changes in individual income over a period of time, to measure cognitive resources. This is interesting because of it is measuring income inequality within individuals. The way Mani measures their study subject is synonymous with measuring income inequality; "We computed effective income by dividing household income by the square root of household size (25) and defined "rich" and "poor" through a median split on this variable (26)." As stated earlier, poverty is a repercussion of income inequality.
[32] Mani et al. 2013
[33] Mani et al. 2013

The theoretical evidence presented suggests that income inequality, and its effects on situational variables that are related it, have an interaction with the cognitive ability of humans. The studies suggest that while those who have a high socio-economic status may be better off, income inequality in society may still have an effect on them, as well as a much stronger negative effect on the poor.

Income inequality and self-regulation theory

One mechanism that income inequality could affect cognitive ability by is self-regulation. Through socio-economic status, inequality been shown to increase feelings of personal control (will-power) when socio-economic status is high, and decrease when socio-economic status is low. The researchers Christie and Barling found that low feelings of personal control resulted in increased work stress, resulting in declining health.[34] This increased stress and decreased personal control amongst those who are poor in a high income inequality situation could have a negative effect on the person's ability to control their emotions, and deplete their ability to think clearly.

Much research on income inequality's interaction with self-regulation is focussed on the effects of the social phenomenon on early childhood development. Evans and Rosenbaum (2008) found, when controlling for parental investment in childhood development, that income has a significant effect on the development of self-regulation in children. Chronic stress is symptomatic of those who are poor in high inequality societies, (due to social status comparisons, as opposed to countries where all individuals are poor).[35] It has been shown to

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[34] Christie and Barling 2009

[35] A good topic of exploration would be to compare happiness indices of countries were the majority of people have been poor for generations, and compare it to western countries where income inequality is increasing.

damage the pre-frontal cortex.[36] This part of the brain is linked to self-regulatory behaviour. The poor in high income inequality societies also have a decreased ability for children to practice self-control. This is due to riskier environmental situations associated with low income households.[37]

Income inequality and creativity/innovation

Empirical research investigating the effect of income inequality on creativity in the workplace could not be found. Some theoretical arguments have been put forward, though not directly referring to these two constructs. Harrison and Klein (2007) suggested that disparity may cause conformity and suppression of creativity.[38] Employees in organizations with high wage dispersion may feel low social status, and less valued by the organization if they are paid less compared to others. This would decrease motivation to contribute to workplace innovations. Further, significant differences in wage could create feelings of social injustice or inequity. Psychological contract breaches in the workplace have been shown to decrease innovation related behaviours.[39] Ng et al. (2010) found that sustained psychological contract breaches create a persistent negative attitude in the workplace, leading to less innovation-related behaviour, specifically the suggestion of new ideas. An example of a psychological contract breach would be an employee perception of inequality between wages, or feelings of inequity. This psychological distress could affect self-regulation and cognitive ability to be creative.

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[36]   Arnsten, 2009
[37]   Evans and Rosenbaum 2008
[38]   Harrison and Klein 2007
[39]   Ng, Feldman, and Lam 2010

II. Creativity

For this paper we use the definition of creativity as an output of an idea. "Creativity is the production of ideas, solutions, or products that are novel (i.e. original), and appropriate (i.e. useful), in a given situation" (Byron, Khazanchi, and Nazarian 2010). We can interpret the reference to products as more than just tangible consumer items, but also as creative outputs. While creativity can be defined even more broadly than this, the purpose of creativity in this paper is as a person's ability to generate new ideas, and so it will be referred to within this context.

Using the definition of creativity above, something creative is created when an individual develops a product (tangible or intangible) that is unique and helpful in solving a problem or developing something new. An example of this might be an employee discovering a quicker way of completing a bureaucratic task. Creativity as a construct in an organizational context may be displayed in multiple ways. The logical outcomes of creativity don't all solve a problem/create a product in the same way. Because of this diversity, there are many different types of creativity that organizational researchers explore.

Different theories on creativity and innovation argue very similar points but from different perspectives. Take Hulsheger and Davis for example. Hulsheger et al. posits that innovation is comprised of two stages, generation of ideas and implementation.[40] Creativity is the first stage of innovation, the creation of ideas.

> Innovation encompasses two stages: the generation of new ideas and their
> implementation (Amabile, 1996; West & Farr, 1990; Woodman, Sawyer, & Griffin, 1993).

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[40] Hülsheger, Anderson, and Salgado 2009

Creativity thus refers to the first stage of the innovation process—idea generation—and can therefore be seen as a sub process of innovation, which encompasses idea generation and implementation.[41]

In Hulsheger's conjecture, innovation includes the creative process, with the operationalization of a creative idea, the second stage, being innovation. Davis however, operationalizes creativity and innovation, both under creativity. What Hulsheger refers to as innovation, Davis communicates as creative performance or creative outcome;

"It is useful to distinguish creative outcomes from creative processes.… [defining] creative performance in terms of the creative outcome: ''Creativity means a person's capacity to produce new or original ideas, insights, restructuring, inventions, or artistic objects, which are accepted by experts as being of scientific, aesthetic, social, or technological value."[42]

There is similarity in the definitions by these academics, both suggesting that creative outcome and innovation are a second stage result of creativity. It is reasonable then to use creative outcome/performance as an interchangeable construct with innovation.

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[41]   Hülsheger, Anderson, and Salgado 2009
[42]   Davis 2009

Creative Process Inputs

Davis further discusses the complexity of the creative process in individuals, using previous theoretical work by Runco and Chand (1995) to suggest a two stage component to creativity.[43]

Table 1: Stages of Creativity

Primary Tier	Secondary tier
Controlling components	Contributing components
Problem-finding, ideation, evaluation	Knowledge, motivation

In the Primary Tier problem-finding refers to identifying that a problem exists, and also to defining that problem. The definition being an important aspect that allows for the appropriate framing. Berg has written on this via a different interpretation, the primal mark, meaning the way a problem is defined will determine the way it is solved.[44]

Ideation is a more visible part of the creative process, and consequently easier to measure. Davis suggests there are three skills involved; "Fluency (production of ideas), originality (uniqueness of ideas), and flexibility (variety of ideas)".[45] The production of ideas is what allows for creativity to take place, and good ideas are sorted by evaluation. Davis supports the theory that evaluation works in parallel to ideation. The individual goes through the creative process by selecting what ideas (from ideation) fit the problem well and also which offer a good solution.

The Secondary Tier posits that knowledge and motivation act as enablers for the primary components of creativity. Having the knowledge around the subject where creativity is

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[43] Davis 2009
[44] Berg 2014
[45] Davis 2009

occurring is necessary for easier problem identification, to think of ideas that haven't been thought of before, and to evaluate whether they are useful ideas. Motivation, whether intrinsic or extrinsic, is necessary for the individual to focus on the creative process.[46]

Other Creativity Types

There are also other ways of interpreting creativity that relate closely to innovation. Related more specifically to innovation and organizational science is radical and incremental creativity. Radical creativity is the creation of ideas that break the mould of regular heuristics and routines, while incremental creativity involves minor changers or improvements to processes that are new or unique (Madjar, Greenberg, and Chen 2011). Radical, or divergent, creativity is much different from the way something would normally be done. Incremental creativity conversely is the modification of a common process/product/idea in a small way that is unique. A venue of exploration that would be interesting to explore is whether high risk actions due to higher inequality would interact with a preference to radical or incremental activity. It is likely however that income inequality has a stronger effect on the ability for workers to be creative. This would need to be explored first to determine if there is a significant relationship.

As stated previously, income inequality has been shown to have a negative effect on cognitive action for a variety of reasons. The review of recent research on creativity also suggests that the creative process involves several factors that involve cognitive action for creativity to be effective (i.e. innovative). Since creativity can be affected negatively by cognitive dissonance, chronic stressors, such as high income inequality, could hamper the ability for workers to be creative.

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[46]   Davis 2009

III. Self-Regulation Theory

Income inequality, as a societal phenomenon, can result in multiple physical and tangible effects that would interact with a person's ability to be creative. For example, high crime rates associated with high income inequality may discourage a person's ability to think creatively when they have a fear of being mugged. The poverty associated with income inequality may result in individuals thinking more about acquiring basic necessities than focusing on creative thinking. Although these may be the case, from an exploratory and experimental perspective, choosing a broader construct to determine the effect of income inequality on creativity is more practical and useful to the current field of research. Self-regulation theory posits that humans have limited cognitive resources at any period of time, and that part of these resources are used to control, or regulate, one's self when interacting with external inputs. In other words, a person will spend some of their will power to control how they are acting when they are performing a task. An example of this would be people who are dieting. While dieters are engaging in an activity they are using some of their cognitive resources to control their desire to eat, even though they might not be hungry. Self-regulation theory suggests that spending cognitive resources on controlling one domain (such as emotions), or desire to act in a certain way (essentially will-power), depletes the availability of cognitive resources to perform other tasks.[47] From a functionalist perspective, this would suggest that the more one has to spend cognitive resources on controlling one's emotional or mental desires, the less they will be able to spend on performing a task optimally. A study by Vohs and Heatherton (2000) suggested this in relation to a study on self-regulatory failure. Respondents who performed a self-control task were less likely to exert self-control on subsequent tasks. Interestingly, while the self-control task was in regards to one domain of thought, the subsequent self-control task in another domain was

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[47]   Baumeister, 2014

affected.[48] Their study confirmed that when a person's cognitive resources are taxed in one domain (such as income inequality); it can result in decreased performance in another domain (such as creativity).

Current Research in Self-Regulation Theory

Recent studies on self-regulation theory have explored the idea of resource depletion further. Beaumeister refers to this as the 'strength model' of self-regulation.[49] He posits that the cybernetic process of self-regulation acts like a 'muscle', in which those who have experienced strained self-regulation are not completely exhausted of their ability to self-regulate, only that, like a muscle, the body will make it tired even when it isn't fully depleted. Baumeister suggests this is why people who have depleted self-regulation are still able to exert will-power under situations where there is motivation to.[50] This ties into research of the effect of income inequality on self-control for those who live in high unequal societies. While their cognitive ability to act is diminished, it is not eliminated, and there can be periods were these individuals, despite stress, can act with high self-regulation.

Self-Regulation and Creativity

Research specifically on how self-regulation interacts with creativity is sparse. However, creativity as an output of cognitive action would suggest that self-regulation interacts with a person's ability to be creative. Tice et al. suggest that the creative process, with its inherent requirement of divergent thinking, requires positive emotion (or mood) to be effective.[51] Positive emotion is seen to facilitate self-regulation,[52] and as such the relationship between creativity and self-regulation is likely interrelated. The process of self-regulation then, as a

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[48]   Vohs and Heatherton (2000)
[49]   Baumeister 2014
[50] Baumeister 2014
[51] Tice et al. 2007
[52] Tice et al. 2007

user of cognitive resources, would then have an effect on an individual's ability to be

creative.

Chapter 3: Conceptual Framework and Hypotheses

Income inequality, as a chronic stress inducer, may deplete a person's ability to self-regulate. As stated previously, income inequality has an effect of increasing stress on individuals through a variety of negative societal consequences, including depleted savings-rates causing financial duress, increased insecurity (physical and mental), higher risk taking, and feelings of inequity. Based on research that shows that financial stress brought front-of-mind will affect an individual's cognitive ability, we hypothesize that bringing income inequality, which is also a stressor, to a person's attention, will also affect an individual's cognitive ability.

Because income inequality, interacting with numerous environmental factors, will cause stress for individuals, we argue that this construct will require individuals to use cognitive resources to self-regulate. Depleted self-regulation resources will decrease the individual's ability to devote cognitive resources on the creative process, thereby decreasing their ability to be creative.

Hypothesis Study 1a: An individual primed with a high inequality climate will have low individual creativity via increased use of self-regulation resources.

Hypothesis Study 1b: An individual primed with a low inequality climate will have high individual creativity via low use of self-regulation resources.

Further to this, research has shown that not only people on the low-income side of a high income inequality society are affected cognitively. Based on research by Weich, Lewis, and Jenkins (2001) that found that even the well-off were more likely to have mental health disorders in unequal societies than equal societies, we posit that high income inequality will

have a cognitive effect on individuals whether they are rich or poor (as the saying goes, "If one member suffers, all suffer together;"[53]) This hypotheses is strengthened further with the knowledge that high income inequality was likely to have an almost cultural effect, with individuals being less likely to have agreeable personalities in societies with high income inequality.[54] As such, we hypothesize that respondents who are in a high-income inequality condition will be less individually creative, even if they are the wealthy in that society. In order to compare, we also test this against a high-income, poor individual case, and a control, which is individuals in a neutral condition. The neutral condition is an equal society where the person has the median income-level.

Hypothesis Study 2a: Respondents that experience high-income inequality and are poor will be less individually creative via increased use of self-regulation resources.

Hypothesis Study 2b: Respondents that experience low-income inequality (and have middle income in that society) will be more individually creative via low use of self-regulation resources.

Hypothesis Study 2c: Respondents that experience high-income inequality and are rich will be less individually creative via increased use of self-regulation resources.
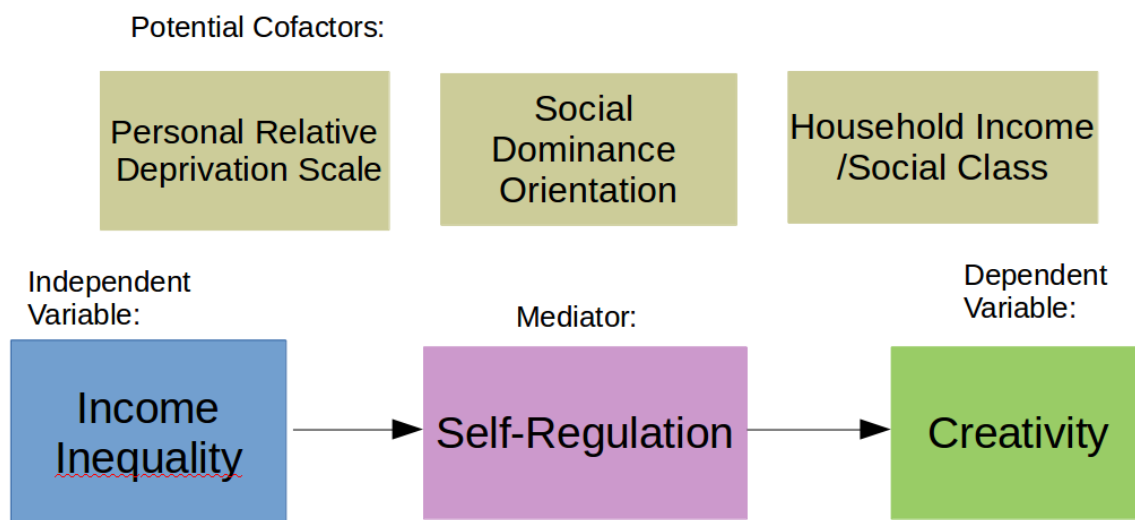
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[53] Corinthians 12:26;
[54] de Vries, Gosling, and Potter 2011

Chapter 4: Study 1 & Study 2 Outline

In study 1 and 2, the objective is to determine whether respondents primed with high income inequality will be less creative than those who are primed with a situation of low income inequality. Study 1 looks solely at an environment of income inequality, not specifying to the individual whether this person is rich or poor, only whether society is unequal or equal. Study 2 looks at the individuals place in an unequal or equal society.

Figure 1: Research Design Model

Potential Cofactors:

| Personal Relative Deprivation Scale | Social Dominance Orientation | Household Income /Social Class |

Independent Variable: Mediator: Dependent Variable:

| Income Inequality | → | Self-Regulation | → | Creativity |

I. Participants:

Study 1 participants were composed of online respondents gathered using Crowdflower online survey fielder. Crowdflower recruits individuals to participate in surveys and experiments for a small gratuity for their time. Respondents are from the USA, Canada, and the United Kingdom. 190 respondents participated in study 1, after removing outliers and respondents who did not complete the study correctly[55] there were 145 respondents (n=71

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[55] There are various reasons as to why some individuals were removed from the study; some were outliers,

for condition high inequality, n=74 for condition low inequality). It should be noted that all responses that were removed for various reasons (outliers, non-completion, manipulation check failure), have been recorded in the dataset, which is available upon request. Readers are encouraged to review this dataset and analysis and feedback is welcome. Participants were relatively evenly split between men (43%) and women (57%), had an average age of 40, with the majority of respondents employed full or part-time (64%). The majority of respondents have at least some university education or higher (77%). Compared to the Canadian national average, with 64% of adults having some sort of post-secondary education, the study sample is somewhat more educated.[56]

Table 2: Study 1 Descriptive Statistics

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation
What is your age in years? (number)	145	56.00	18.00	74.00	39.8000	13.47508
What gender do you identify by?	145	Man/ Woman	Man	Woman	1.57	.496
Please indicate your yearly average household income	144	12	<$15,001	>/=$150,000	N/A	3.547
Is English your first language?	145	Yes/No	Yes	No	N/A	.296
What is the highest level of education you have completed?	145	8 Options	Primary School	Doctoral	N/A	1.161
Valid N (listwise)	144					

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some did not attempt the test of creativity, others clearly had very little knowledge of English, others failed the manipulation test. A full list of those removed and the reason for their removal is provided upon request.

[56] Statistics Canada

Study 2 participants were composed of online respondents gathered using Crowdflower

online survey fielder. Respondents are from the USA, Canada, and the United Kingdom. 247

respondents participated in study 2, after removing outliers and respondents who did not

complete the study correctly there were 173 respondents (n=56 for condition high inequality,

rich individual, n=55 for condition low inequality, middle income, n=62 for condition high

inequality, poor individual). It should be noted that all responses that were removed for

various reasons (outliers, non-completion, manipulation check failure), have been recorded

in the dataset, which is available upon request. Please see Appendix 2 for reasons

respondents were removed. Participants were relatively evenly split between men (43%)

and women (57%), had an average age of 40, with the majority of respondents employed full

or part-time (70%). The majority of respondents have at least some university education or

higher (82%). Again, this is somewhat higher than the Canadian average of 64%.[57]

Table 3: Study 2 Descriptive Statistics

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation
What is your age in years? (number)	185	53.00	18.00	71.00	39.4595	11.99772
What gender do you identify by?	185	Man/ Woman	Man	Woman	1.56	.497
Please indicate your yearly average household income	185	12	<$15,001	>/=$150,000	N/A	3.664
Is English your first language?	185	Yes/No	Yes	No	N/A	.311
What is the highest level of education you have completed?	185	8 Options	Primary School	Doctoral	N/A	1.110
Valid N (listwise)	185					

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[57] Statistics Canada

II. Design and Procedure:

Study 1 used an online panel sample. Participants were randomly assigned either the condition where they receive text describing high income inequality, or text describing low income inequality. They begin by answering some general demographic questions. Then the experimental condition, the inequality text, was displayed for them to read. After this they were asked to respond to our self-regulation scale, and then perform the creative task (the random associates test). This was followed by the cofactor scales and the manipulation check.

Study 2 uses the same experiment process/design as Study 1, and respondents completed the experiment online. Participants were randomly assigned to one of three conditions; the condition where they receive text describing high income inequality and they are rich or poor, or the text describing low income inequality and they are at median-income. They begin by answering some general demographic questions. Then the experimental condition, the inequality text, was displayed for them to read. After this they were asked to respond to our self-regulation scale, and then perform the creative task (the random associates test). This was followed by the cofactor scales and the manipulation check.

Both studies were approved by the Joint Faculty Research Ethics Board and all participants agreed to the consent form before they started the study. Finally, participants were thanked and debriefed.

III. Measures:

Independent Variables

I use text based priming to induce memories associated with income inequality. Research on self-concept suggests that cognitive processes are unconsciously influenced resulting in modified behaviour when primed with a manipulation.[58] People are sometimes unwilling or unable to express their opinions when presented with an uncomfortable situation.[59] Research on implicit social cognition suggests that when primed with external stimuli, such as an advertisement, "attitudes can be automatically activated outside conscious awareness."[60] Priming individuals with negative or positive stimuli can result in external behavioural and attitudinal changes shortly after the respondent is primed.[61] Based on this research, I use text-based priming of income inequality as my independent variable.

Income Inequality – **Study 1** measures income inequality via priming the respondent with imagining inequality, using a text to describe the respondent in a society in which inequality is high (income is generally unequal) or low (income is generally equal). In an attempt to remove any associative bias the respondent would have with their own country, we chose a foreign country whose income distribution would be unlikely to be known by respondents, New Zealand. Further, based on the technique of the McArthur Socio-economic Scale, included a reinforcement activity of asking respondents to indicate where they felt that most people in the country are on a ladder in regards to their level of income in relation to the entire country. We also added another reinforcement activity based on the research by Piff (2014) which asks respondents to list three advantages to treating others equitably. We modified this to ask for three

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[58] Perkins et Al. 2008
[59] Brunel et Al. 2004
[60] Maison et al. 2004
[61] Fazio, Olson, 2003

benefits to living in a low income inequality society for the low inequality condition, and for three disadvantages to living in a high income inequality society for high income inequality respondents. Research by Brockner and Higgins (2001) suggests that framing manipulations (by asking benefits vs. disadvantages) has highly similar effects to priming.[62] As such we asked for advantages for low income inequality societies and disadvantages for high income inequality societies to further strengthen the independent variable manipulation.

Study 2 also measures income inequality via priming the respondent with imagining income inequality, but this time using a text to describe the respondent's position as unequal-rich, unequal-poor, or equal. We conducted a pilot test with a basic text manipulation that did not include numbers in the descriptive text. This was done under the assumption that perceptions of inequality may be relative, and so suggesting a certain income may be high to one person and low to another, potentially muddying the manipulation. However, the results of this pilot resulted in insignificant results, suggesting the manipulation was not powerful enough. In light of this, we strengthened the manipulation by adding specific incomes. These incomes were chosen by using realistic ranges of income in Canada and the USA ($30,000 household annual income for those on the low end of the scale, and $9 million for those at the high end). We borrowed again the McArthur socioeconomic scale, this time modified to ask respondents where they felt they specifically were in relation to the rest of the population's income distribution. We also asked respondents to write down three advantages or disadvantages to living in a high or low income inequality society, depending on the condition assigned. By asking the respondent to think of them as the individual specifically, we hoped to see a stronger manipulation. We also hoped to see if

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[62] Brokner, Higgins, 2001

those in the high-inequality condition are less likely to complete the work due to their perception of high personal income.

Dependent Variables

Creativity: measures creativity via ideation based-creativity using a Remote Associatives Test (Appendix). The remote associatives test was developed in 1962 by Sarnoff Mednick to measure problem solving and creative thinking (Bowden, 2003). It is now commonly used as a test for creativity and measuring the ability of respondents to have quick insights. While Mednick's RAT test included 30 items (as does ours), there is varying time limits assigned to respondents depending on the research. Our pilot study gave respondents 10 minutes to complete 30 items. Most respondents were able to complete the study with time to spare, decreasing the strength of our manipulation. After the pilot study, we reduced the time allowed for respondents to complete the RAT to 5 minutes from 10. This was to increase pressure on respondents to act as best as they could under the manipulation, and increase the variance of scores.

Covariates (mediator):

Self-Regulation - Self-regulation will be measured using a modified version of the self-regulation scale developed by Ralf Schwarzer, Manfred Diehl, & Gerdamarie S. Schmitz, 1999. (Cronbach's alpha = .76) The modified scale consists of 4 positive oriented items that are intended to measure attention and emotion regulation within the individual. The scale items ask for the respondent to identify how well they are able to regulate themselves in general. Because we want to know how respondents feel they are able to regulate themselves after the manipulation, we modified the scales items to reflect how well they are able to self-regulate in the moment. For example; we converted; "I can concentrate on one activity for a long time, if necessary." to "I feel like I could concentrate on one activity for a long time, if necessary." We removed one item, "4. If an

activity requires a problem-oriented attitude, I can control my feelings.", as there was no sensible way to convert it to a present feeling.

Controls:

Social Dominance Orientation – Research suggests that some individuals may not be concerned with social justice issues such as income inequality.[63] Social Dominance Orientation is a construct that suggests different people have different levels of orientation to social dominance; some think there should be power hierarchies between people, while others prefer egalitarian relations between people. People high on the Social Dominance Orientation scale are likely to support group hierarchy, while people low on the scale are likely to oppose group status and power differences.[64] Those who score highly on the SDO scale may not see inequality as a significant societal issue to them. This would mean they would be less stressed when primed with a high inequality situation than those who were low in the SDO scale. Those people would then not have to utilize cognitive resources to self-regulate, resulting in normal creativity. In order to measure for whether this has a confounding effect I use the Short SDO Scale (Pratto et al. 2012) – 4 items (Appendix).

Personal Relative Deprivation Scale

Research by Mishra et al. (2012) posits that personal relative deprivation may lead to riskier behaviour by those in low status positions in society compared to those in high status positions. Personal relative deprivation is also closely aligned with other inequality factors, such as mental and physical health (Hou, 2004), and gambling (Mishra, 2012). We use the Personal Relative Deprivation Scale (4 items) in order test whether

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[63] Ho et al. 2012
[64] Pratto, 2000

individuals with high or low relative deprivation will affect the respondents ability to be creative.

Mood – Mood has been shown in research to affect an individual's ability to perform cognitive actions, including creativity. A recent meta-analysis of 62 experimental studies found that a positive mood had a positive effect on ideation-based creativity (Davis, 2009). If the recent/current feelings of the respondent are positive or negative this may have an adverse effect on the study. We will measure using the Brief Mood Introspection Scale (BMIS) (John D. Mayer) – 17 items (Appendix). The pilot study indicated that the relationship between Mood and income inequality was not significant, as such we removed this indicator from the final studies.

Social Class

Research by Piff (2014) found that individuals associated with a higher social class are more likely to have increased feelings of entitlement and narcissism. Further, individuals born in high social classes may choose higher risk strategies later in life, compared to those who were born in the middle class (Kish-Gephart, 2015). Perceived social class is different than personal relative self-deprivation in that the former may not involve social comparison, whereas the latter is based on an individual's comparison relative to others. Given this, we measure respondent childhood social class and their current social class in the demographics part of the survey.

Manipulation check:

Respondents are asked to recall the inequality text, that is, to remember whether the text described them as being in an unequal society or an equal society. Respondents for study 2 are also asked to identify their position in the society described whether they were rich or poor.

Chapter 5: Results

I. Study 1: Income Inequality Climate

Manipulation check

Respondents were asked at the end of the questionnaire to recall whether the society that was described to them at the beginning of the questionnaire was a high income inequality society or a low income inequality society. Individuals who were unsure or did not correctly indicate the level of income inequality in that society were removed from the analysis. Further, respondents were presented with a ladder, with the top of the latter indicating the richest in society, and the bottom of the latter indicating the poorest in society (see appendix 1). Respondents were asked to indicate where they thought the majority of people in that society were. In the low-inequality condition, if respondents stated that they thought individuals were in the top 2 or bottom 2 rungs of the ladder, they were removed (because that would be indicating that the respondent did not understand the manipulation that the low inequality society meant that most people were in the middle of the ladder.) In the high-inequality condition, respondents who stated that they thought majority of the population were in the top 4 rungs of the income distribution ladder were removed. It should be noted that only a few individuals from each condition were removed because of this, the majority selected within the correct range.

Outcome Variables

Table 4: Study 1 Correlations

Correlations

	Age	Gender	Personal Income	Household Income	Historical Economic Situation	Current Economic Situation	Employment Status	Education	SDO	RAT Score	Inequality	PRDS
Age	1											
Gender	0.157	1										
Personal Income	0.098	-.336**	1									
Household Income	0.019	-0.102	.572**	1								
Historical Economic Situation	0.026	0.082	0.103	.233**	1							
Current Economic Situation	-0.085	-.187*	.335**	.490**	.479**	1						
Employment Status	.313**	0.157	-.385**	-0.155	0.036	-0.067	1					
Education	-0.038	-0.142	.295**	.201*	.196*	.215**	-.185*	1				
SDO	0.093	0.151	-0.015	-0.038	-0.032	-.204*	0.053	-0.061	1			
RAT Score	0.103	.210*	-0.083	-0.034	-0.037	-0.11	0.071	-0.021	.189*	1		
Inequality	-0.087	0.157	-0.018	-0.032	0.071	0.063	-.209*	0.051	0.053	0.012	1	
PRDS	-.270**	0.006	-.175*	-.199*	-0.086	-.234**	0.017	-0.13	-0.115	-0.021	-.167*	1
Self Regulation	0.035	0.104	0.063	0.012	0.055	-0.02	-0.121	0.019	0.112	0.14	-0.006	-.197*

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Bivariate correlation analysis was conducted for all demographic and factor variables collected for the study.

Self-Regulation

Bivariate correlation analysis was conducted and the correlation between inequality and self-regulation was not significant. A reliability test for the self-regulation scale was performed which resulted in acceptable reliability (α=.72). Independent samples T-test was conducted to determine if there was a statistically significant difference between a high income inequality environment and low income inequality environment on respondents feelings of ability to self-regulate. Results did not show a statistically significant difference in mean self-regulation between conditions, $t(143)$ = .072, p = .942. The high inequality condition (M = 3.51, SD= +/-.51) was not different than the low inequality condition (M = 3.5, SD= +/- .50).

Creativity (Remote Associatives Test)

Bivariate correlation analysis was conducted and the correlation between inequality and creativity was not significant. An independent samples T-test was conducted to determine if there was a statistically significant difference between a high income inequality environment and low income inequality environment on respondents Creativity (RAT Score). Results did not show a statistically significant difference in mean RAT Score between conditions, $t(140) = -.73$, $p = .469$. The high inequality condition (M = 18.3, SD= +/-7.4) was not significantly different than the low inequality condition (M = 19.2, SD = +/- 6.1).

Mediation Analysis

The relationship between income inequality (climate) and creativity was not mediated by self-regulation. The standardized regression coefficient between income inequality (climate) and self-regulation was not statistically significant, neither was the standardized regression coefficient between self-regulation and creativity. The standardized indirect effect was (-0.0098)(2.0132) = .0196. We tested the significance of this indirect effect using boot-strapping procedures. Unstandardized indirect effects were computed for each of 5,000 bootstrapped samples, and the 95% confidence interval was computed by determining the indirect effects at the 2.5th and 97.5th percentiles. The bootstrapped unstandardized indirect effect was .82, but the 95% confidence interval ranged from -1.4, +3.1. Thus, the indirect effect was not statistically significant. Hypothesis 1A and Hypothesis 1B are not supported.

Discussion

The results of this study indicate that there seems to be no relationship between the environment of income inequality and an individual's creative performance. This suggests that respondents, despite imagining being in a high or low inequality environment, do not

associate themselves as one of the majority in that environment. I discuss further in the general discussion and limitations sections as to other reasons that the results of study 1 were not significant.

II. Study 2: Individual Income within Inequality Climate

Manipulation check

Respondents were asked at the end of the questionnaire to recall whether the society that was described to them at the beginning of the questionnaire was a high income inequality or a low income inequality society, as well as their level of income within that society. Individuals who were unsure or did not correctly indicate the income they were told to imagine they had, or the level of income inequality in the society described, were removed from the analysis. Further, respondents were presented with a ladder, with the top of the latter indicating the richest in society, and the bottom of the latter indicating the poorest in society (see appendix 1). Respondents were asked to indicate where they thought they were in the society described. In the low-inequality, middle-income condition, if respondents stated that they thought individuals were in the top 2 or bottom 2 rungs of the ladder, they were removed (because that would be indicating that the respondent did not understand the manipulation that the they had a middle income and so should select in the middle of the ladder.) In the high-inequality, rich individual condition, respondents who indicated that they were in the bottom 4 rungs of the ladder were removed. In the high-inequality, poor individual condition, respondents who indicated they were in the top 4 rungs of the ladder were removed. It should be noted that only a few individuals from each condition were removed because of this, the majority selected within the correct range. Please see Appendix 2 for all reasons respondents were removed.

Outcome Variables

Table 5: Study 2 Correlations

	Age	Gender	Personal Income	Household Income	Historical Economic Situation	Current Economic Situation	Employment Status	Education	SDO	RAT Score	Inequality	PRDS
Correlations												
Age	1											
Gender	0.014	1										
Personal Income	.229**	-0.123	1									
Household Income	0.014	0.062	.614**	1								
Historical Economic Situation	0.016	0.065	.176*	0.14	1							
Current Economic Situation	0.059	-0.027	.473**	.514**	.509**	1						
Employment Status	0.1	0.136	-.461**	-.304**	-.176*	-.298**	1					
Education	0.046	-0.034	.186*	.275**	0.143	.305**	-.169*	1				
SDO	-0.058	0.108	-0.111	-0.039	-0.093	-0.033	0.038	0.064	1			
RAT Score	.255**	.252**	0.126	.163*	-0.114	-0.042	-0.028	0.007	0.115	1		
Inequality	-0.004	-0.119	-0.004	-0.021	0.025	0.073	-0.116	0.008	-0.035	-.154*	1	
PRDS	-.162*	-0.147	-.212**	-.270**	-.162*	-.383**	.244**	-.220**	-0.11	-0.055	-0.067	1
Self Regulation	0.107	0.088	0.092	0.144	0.011	0.089	-0.067	0	.206**	0.145	-0.067	-.260**

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Bivariate correlation analysis was conducted for all demographic and factor variables collected for the study.

Self-Regulation

Bivariate correlation analysis was conducted and the correlation between inequality and self-regulation was not significant in this study. A reliability test for the self regulation scale was performed which resulted in acceptable reliability (α=.78). A stem-and-leaf plot analysis of the different conditions showed that self-regulation was normally distributed for each condition. I ran a one-way ANOVA to determine if the relationship between individual income inequality and self-regulation was significant. There was a marginally statistically significant difference in self-regulation score between the different income inequality conditions, $F(2, 170) = 2.812$, $p = .063$. For further investigation, I ran an LSD test to determine the specific variance between conditions. High income inequality – rich individuals had a mean score of 0.21 higher than low income inequality – middle income individuals. This was statistically

significant at p = 0.20. However, there was no statistically significant difference between the other two conditions.

Figure 2: Self-Regulation Mean Differences
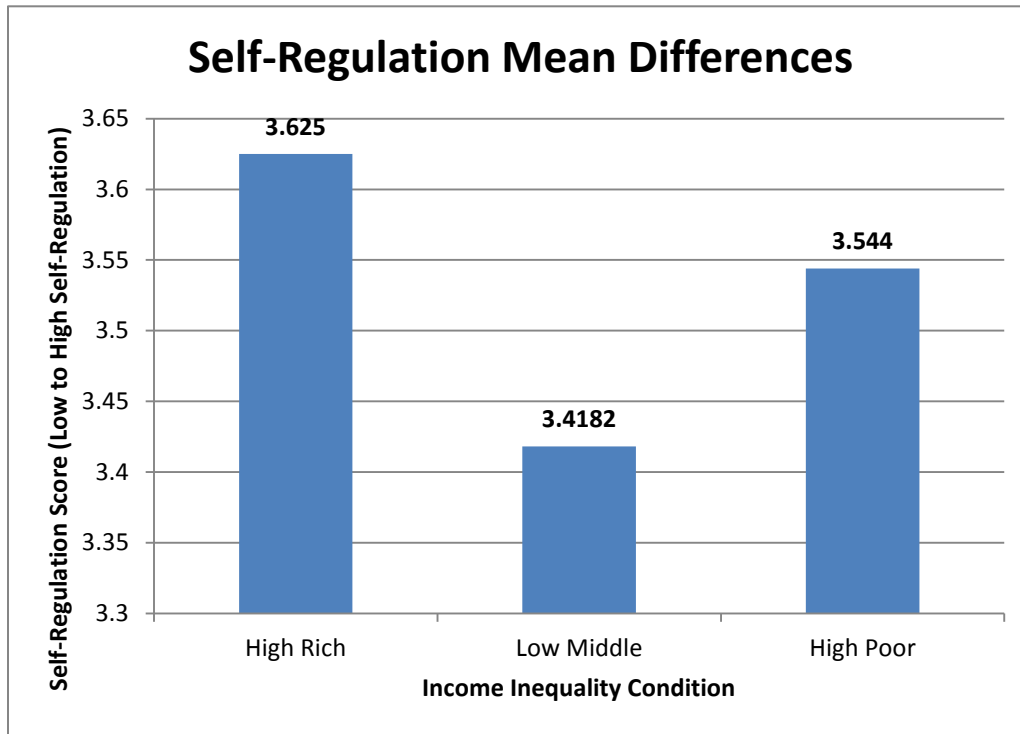
Creativity (Remote Associatives Test)

Bivariate correlation analysis was conducted and the correlation between income inequality condition and creativity score was significant in this study. There was a small correlation between income inequality and creativity score, r = .154, p<0.05. A stem-and-leaf plot analysis of the different conditions showed that creativity score was normally distributed for each condition. I ran a one-way ANOVA to determine if the relationship between individual income inequality and creativity score was significant. There was a statistically significant difference in creativity score between the different income inequality conditions, $F(2, 170) = 3.608$, $p = .029$. For further investigation, I ran an LSD test to determine the specific variance

between conditions. High income inequality – rich individuals had a mean score of 2.54 higher than high income inequality – poor income individuals. This was statistically significant at p = 0.05. Low income inequality – middle income individuals had a mean score of 3.24 higher than high income inequality – poor income individuals. This was statistically significant at p =.012. There was no statistically significant difference between high income inequality – rich income, and low income inequality – middle income individuals.

Figure 3: Creativity Score vs. Income Inequality Condition

Creativity Score (RAT)
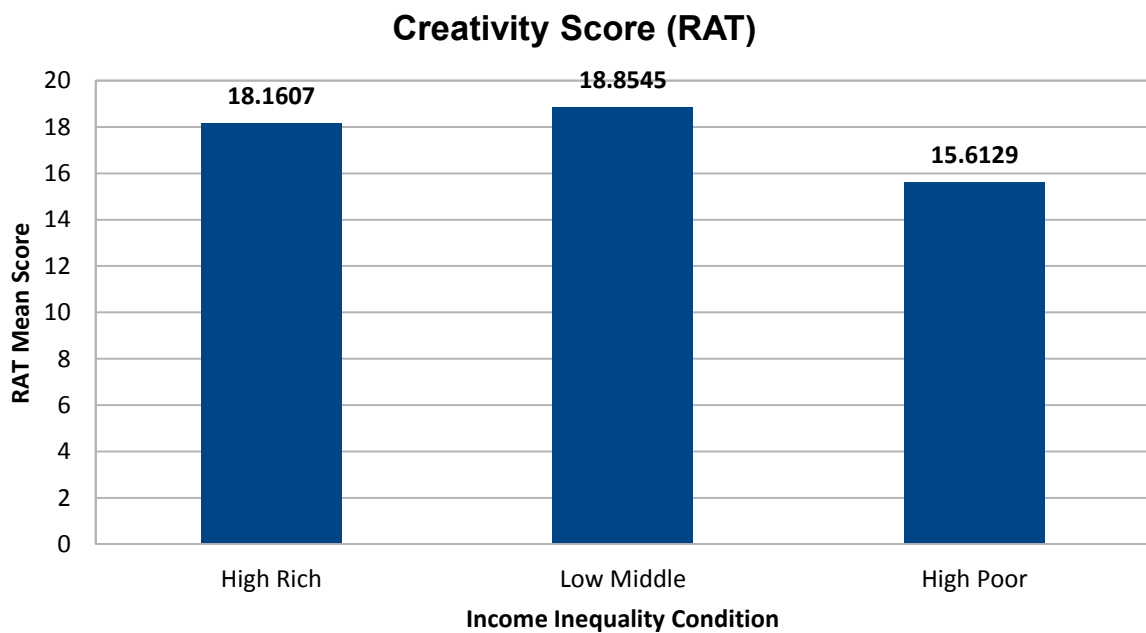
Mediation Analysis

In order to test mediation I used Hayes's PROCESS mediation/moderation macro of ordinary least squares path analysis.[65] Because I am using an ordinal categorical variable for my independent variable I had to run PROCESS multiple times and then to compare the effects of the conditions against each other.[66]

For the Low-Income Inequality – Middle Income condition, mediation analysis resulted in

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[65] http://www.processmacro.org/
[66] http://quantpsy.org/pubs/hayes_preacher_2014.pdf

a direct effect of income inequality on self-regulation (a= -.1644, p=.0309), meaning low income inequality-middle income individuals were less likely to have positive self-regulation compared to those in the high inequality conditions. There was also a direct effect of positive self-regulation on creativity score (b= 2.588, p=0.025), meaning self-regulation had an effect of increasing creativity score. There was evidence of a direct effect of the low-income inequality–middle income individual condition on creativity score (c'=2.4581, p = 0.328). A bias-corrected bootstrap confidence interval for the indirect effect (ab = -.4256) based on 10,000 bootstrap samples was entirely below zero (-1.3521 to -.0073). This suggests that low income inequality is actually slightly decreasing self-regulation, which is results in a lower income-inequality score. Based on these results Hypothesis 2b is not supported.

Figure 4: Low Income-Inequality – Middle Income Mediation
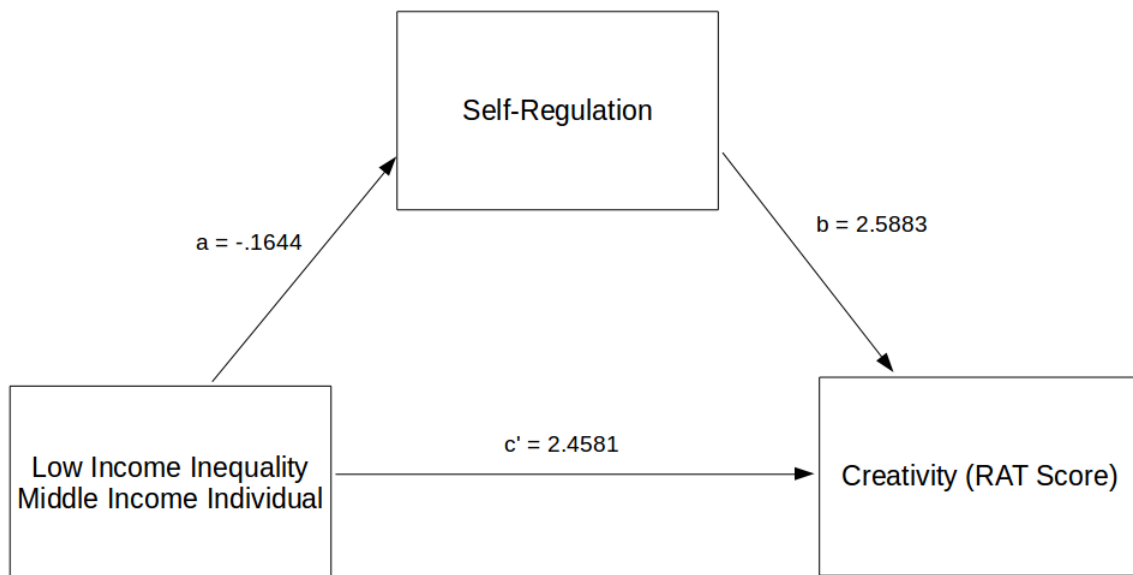
For the High-Income Inequality – Rich Individual condition, mediation analysis resulted in an insignificant direct effect of income inequality on self-regulation (a= .14, p=.0655), as well as an insignificant direct effect of positive self-regulation on creativity score (b= 2.082, p=.0791). There was also no evidence of a direct effect of high income inequality – rich income on creativity score (c'=.7325, p = 0.523). A bias-corrected bootstrap confidence interval for the indirect effect (ab = -.2914) based on 10,000 bootstrap samples was above and below zero (-.0305 to 1.0682). Based on these results Hypothesis 2c is not supported.

Figure 5: High Income-Inequality – Rich Income Mediation
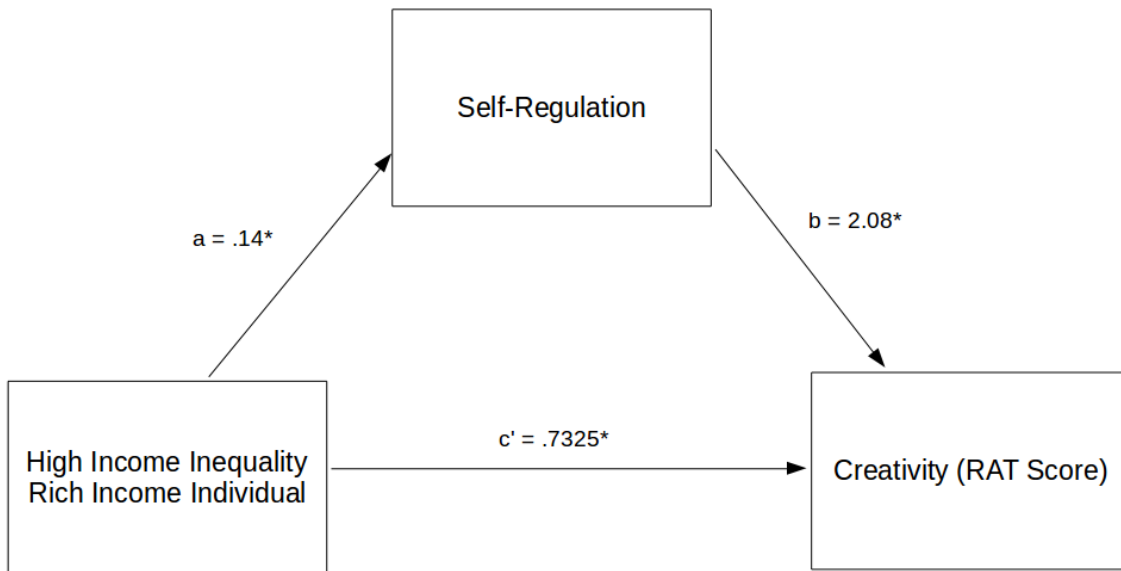
* = not statistically significant

For the High-Income Inequality – Poor Individual condition, mediation analysis resulted in an insignificant direct effect of income inequality on self-regulation (a= .0218, p=.769), however did produce a direct effect of positive self-regulation on creativity score (b= 2.253, p=.0496). There was evidence of a direct effect of high income inequality – poor income on creativity score (c'= -2.9408, p = .0075), suggesting that those in the high inequality-poor condition do perform more poorly on the creative test than the other conditions. A bias-corrected bootstrap confidence interval for the indirect effect (ab = -.0492) based on 10,000 bootstrap samples was above and below zero (-.2201 to .5904). Based on these results Hypothesis 2a is not supported.

Figure 6: High Income-Inequality – Poor Income Mediation

* = not statistically significant
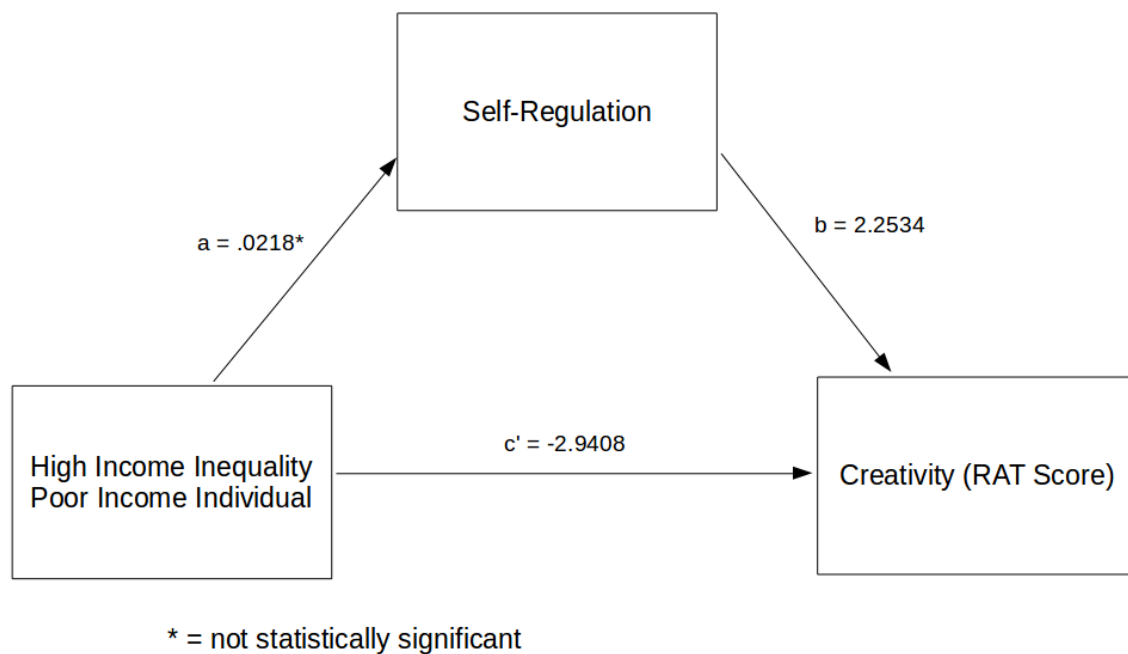
Discussion

While all hypotheses for study 2 were not supported, there were some interesting results discovered from this relationship. Considering that the effect of self-regulation on creativity score was significant for high inequality-poor, low inequality-middle income, and marginally significant for high-rich, the results suggest that self-regulation does affect creativity. High self-regulation increases creativity, increasing the average score of the remote associative test.

Interestingly and counter-intuitively, we saw that low-income inequality- middle income condition decreased self-regulation in comparison to the other conditions. Why is this? Low income inequality should decrease associations with stressful situations, resulting in low usage of cognitive resources, meaning high ability to practice self-regulation. However, it is that low usage of cognitive resources that may result in respondents reporting lower on the self-regulation scale. Because the self-regulation scale items are positive oriented, they infer that the individual is currently using self-regulation resources. Low-income inequality-middle income respondents may not feel under-duress due to their neutral condition, as such they may not feel any extra cognitive distress or the need to self-regulate, resulting in lower in-the-moment reporting of their self-regulation feelings.

We also saw that income inequality in the low income inequality – middle income and high inequality -poor condition did increase creativity scores. These results suggest that the level of income inequality that an individual is experiencing does influence their ability to be creative, with the high inequality-poor condition performing worse than both the high-income inequality -rich and low-income inequality – middle conditions. However, as there was only one condition in which the IV significantly affected self-regulation, it seems that our independent variable is not an appropriate manipulator of self-regulation.

Chapter Six: Discussion and Conclusions

I. Limitations and Future Research

Upon completion of the study and post-analysis, there were several revelations about the study design and relationships between the variables that could improve future studies on the relationship between income inequality and creativity.

Household Income

In study 2, Household Income showed a small correlation with RAT score ($r = 0.163$, $p=0.05$). This relationship suggests that household real income could have an effect on creativity, and strengthens the argument that this theoretical relationship has external validity. Future research could examine the relationship between household income levels and creative performance.

Social Dominance Orientation

Social Dominance Orientation showed a positive correlation with self-regulation in Study 2. This could suggest that respondents with high social dominance orientation are less likely to be effected by high income inequality, resulting in less cognitive resource depletion. Future research could examine the relationship between social dominance orientation and self-regulation when interacting with income inequality.

Self-Regulation

The self-regulation scale, while having a good alpha and being able to predict creativity for some conditions, could be strengthened. Future research should examine the self-regulation scale used to determine a more neutral current self-regulation measure. This could be conducted possibly by using an implicit measure of self-regulation as opposed to an explicit scale. If continuing with the use of a scale, converting to a 7-point scale would add more variability for respondents, as well as adding more items to increase diversity of responses.

Remote Associatives Test

The Remote Associatives Test (RAT) had good homogeneity of variance and is considered a good measure of ideation-based creativity, however given more time, further creative measures could be used for the analysis of creativity. Due to the popularity of the RAT, one thing that may be useful to include in future studies using online panels is to ask whether participants have completed an RAT before, as this may have influenced the results.

Income Inequality Manipulation

The income inequality manipulation used in this study was shown not to significantly affect self-regulation for either study, as such, future researchers hoping to explore the relationship between income inequality and self-regulation may want to pursue other methods. Potentially using a quasi-experimental design where income inequality is already established instead of attempting to prime the respondent. This leads to the structure of the questionnaire.

Questionnaire

Respondents were asked demographic items at the beginning of the study, However, respondents were asked at the beginning of the study what their household income and economic status were. This may have brought individual's income front of mind, which may have decreased the strength of the manipulation about the imaginary level of inequality and their imaginary income level. Conversely, one of the manipulation checks, where individuals were asked to indicate the benefits of low income inequality for the low income inequality condition, and the disadvantages to high income inequality in the high income inequality condition,   may have biased the results to be positive. In future studies this item, if used, should be neutral, asking just for things the respondent associates with income inequality.

External Validity

External validity, as defined by "inferences about the extent to which a causal relationship holds over variations in persons, settings, treatments, and outcomes,"[67] for this theorized relationship between income inequality and creativity is fairly strong considering the boundaries of the study. Respondents are a random sample from online panellists. The demographic results show a normal curve distribution of respondents (although lacking many upper income respondents) meaning the results can be generalizable to the general population within the boundary conditions of the study. Respondents are only from the Canada, the U.K., and the U.S., so we can surmise that these results are not generalizable to non-Anglo Saxon cultured countries. The reason the study was limited to this group was due to each countries relatively similar level of income inequality compared to other OECD countries, as well as that all countries are predominantly English speaking. The Remote Associatives Test involves knowledge of English idioms and words that many non-English speakers may not understand fully. This study only looks at ideation-based creativity, which is what the RAT measures. As such other types of creativity, such as problem-solving, may not have the same interaction with income inequality as ideation based creativity does. Ideation based creativity requires cognitive resources and focus, therefore the use of self-regulation as the mediator of the relationship between the two variables is logical.

Demographics

Respondents were slightly more likely to be female (57%), than male (43%). It's unlikely that this difference is big enough but may have had an influence on the study results. Further, on average more respondents have university educations than the general population. This may have made the RAT test easier for respondents than a more representative sample of the general population. While this study uses data from an general online panel, which is composed of individuals from multiple backgrounds and contexts, it does not necessarily

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[67] Shadish, Cook & Campbell, "Construct Validity and External Validity"

represent the relationship that income inequality may have within an organization. However, it can be argued that individuals within the organization are not removed from the society they live in. Those in society that have depleted cognitive resources due to income inequality likely extend this self-regulation into their work.

Creativity

There is also opportunity to explore the ideal level of inequality to increase creativity. As the means for the relationship between individual income within inequality environments showed, high income inequality-rich individual performed worse on average than the low-income inequality-middle income respondent (though this was not statistically significant.) Similar to previous research on pay-dispersion in firms, the relationship between income inequality and pay may not be linear.[68] As such future research could explore the level at which inequality is ideal for promoting creativity.

II. Contributions & Conclusion

The purpose of this paper was to contribute to the research of how income inequality can affect creativity, and subsequently innovation. Based on previous academic and organizational research, income inequality has been shown to have many negative effects on society. Businesses however, seem to continue to grow in societies where income inequality is increasing, or already high. This economic growth however may not be due to innovative or creative practices, but due to other strategies of growth. For example, there is currently debate around the significance of patents, with their frequency being higher in high income inequality societies in comparison to low income inequality societies.[69] It could be argued then that patents are not necessarily representative of innovation (and to extent, creativity), but of the social structure of accumulation of that society. Research into

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[68] Mahy et al. 2011
[69] Acemoglu, 2012

pharmaceutical patents found that in some cases a high amount of patents actually decreased innovation in the country.[70] Further, research by the OECD and others[71] has shown that patents do not necessarily create economic growth.

This study is but on a small step in building a research framework that shows the relationship of income inequality to innovation. Had hypotheses proved accurate, they would have shown that income inequality has an adverse effect on creativity in individuals. Unfortunately with only sparsely significant interactions between the models it suggests that a more basic model is needed. I encourage future researchers to learn from this research model and to design a more robust study on the relationship between income inequality and creativity.

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[70] Hall, 2007
[71] Motohashi, 2004, O'Neal and Hendy, 2012

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Appendix 1: Study instrument outline:
Thesis Study 1 and 2Q3

D1 Demographics
In the first section of this survey, we would like to ask a few questions about you. The purpose of gathering this information is to summarize with the rest of the survey respondents, and not to identify you individually. Please know no information you provide here will be attributed back to you.

D2 What is your age in years? (number)

D3 What gender do you identify by?
❍ Man
❍ Woman
❍ Other

D4 Please indicate your yearly average personal income
❍ Less than $15,000
❍ $15,000 - $25,000
❍ $25,001 - $35,000
❍ $35,001 - $50,000
❍ $50,001 - $75,000
❍ $75,001 - $100,000
❍ $100,001 - $150,000
❍ $150,001 or more

D5 Please indicate your yearly average household income
❍ Less than $15,000
❍ $15,000 - $25,000
❍ $25,001 - $35,000
❍ $35,001 - $50,000
❍ $50,001 - $75,000
❍ $75,001 - $100,000
❍ $100,001 - $150,000
❍ $150,001 or more

D6 Which of the following best describes your family's economic situation while you were growing up?
- ❍ Lower Class
- ❍ Lower-middle
- ❍ Middle
- ❍ Upper-Middle
- ❍ Upper Class

D7 Which of the following best describes your family's current economic situation?
- ❍ Lower Class
- ❍ Lower-middle
- ❍ Middle
- ❍ Upper-Middle
- ❍ Upper Class

D8 In what country were you born?

D9 Is English your first language?
- ❍ Yes
- ❍ No, it's: _____

D10 What is your current employment status?
- ❍ Employed full-time
- ❍ Employed part-time
- ❍ Previously employed, but not currently employed
- ❍ Never Employed
- ❍ Retired

D11 What is the highest level of education you have completed?
- ❍ None
- ❍ Elementary/Primary
- ❍ High School
- ❍ Some College/University
- ❍ College/University
- ❍ Graduate/Post Graduate
- ❍ Professional (eg. JD, MBA, MD)
- ❍ Doctoral

Sb1 Please take a few minutes to read the following text imagine/visualize yourself as the person described:

You live in a very prosperous country. This country has very low income inequality. You are middle class in this country, you make about $70,000 a year. Those who are poorer than you don't make much less than you, and those richer than you don't make much more than you. Almost everyone in this country lives a relatively comfortable life, and there is low crime and very little poverty. You rarely, if ever, have to worry about when your next pay-cheque is arriving. You or your kids are able to afford decent education and activities, and you are able to afford some luxuries. You live in a community where there is low crime. You can afford your vehicle and you like your house. You are not that much better off, but also not that much worse off, than most people in society. Financially you are secure.

Now, think of the ladder below as representing where people's income levels are in this country.

Where would you place yourself on this ladder? (Please click on the ladder rung where you think you are, relative to where other people in your country.)

Sb2 Please take a few minutes to read the following text and imagine/visualize yourself as the person described:

You live in a very prosperous country. This country has very high income inequality. You are on the low end of the income distribution – meaning you make very little money for the work that you do. In a year, you don't make more than $30,000. Meanwhile, there are some people in this country making $9 million a year, i.e., three hundred times the money that you make. You find that you are living from pay-cheque to pay-cheque. You or your kids aren't able to afford a very good education or activities, and you aren't able to eat out very often. You live in a community where there is lots of crime, and many people live in poverty. You find it hard to afford your vehicle, and you wish you had a nicer home. You are with the worst off in society. Financially you are insecure.

Now, think of the ladder below as representing where people's income levels are in this country.Where would you place yourself on this ladder? (Please click on the ladder rung where you think you are, relative to where other people in your country.)

Sb3 Please take a few minutes to read the following text and imagine/visualize yourself as the person described:

You live in a very prosperous country. This country has very high income inequality. You however are on the high end of the income distribution – meaning you make a lot of money, about $9 million a year. There are many poor people in this country, most people make less than $30,000 a year. There is lots of crime and poverty, but you yourself have access to anything you want or need. You or your kids are able to afford the best education and activities, you eat out often, and you live in a community that is safe from crime. You have a luxury brand car you enjoy driving, and a home that you love living in. You are a part of the best off in society. Financially you are very secure.

Now, think of the ladder below as representing where people's income levels are in this country.Where would you place yourself on this ladder? (Please click on the ladder rung where you think you are, relative to where other people in your country.)

Sa1 Please take a few minutes to read the following text and try to imagine/visualize that
you are living in the country described.

Income inequality in New Zealand is amongst the lowest in the world. Everyone works hard, and everyone is able to make ends meet. The country's economic growth is high, and almost everyone in the country has at least some income that allows them to live without major financial worry or stress. There is barely any poverty or homeless people in the country, and while there are some well-earned millionaires that indulge in luxuries, there are hardly any billionaires. Living standards are amongst the highest in the world for all citizens. Although there are a few who make about $30,000 a year and an equal number making $9 million, most households in the country make around $120,000 a year.

Now, think of the ladder below as representing where people's income levels are in this country. Where would you place most people in the country on this ladder? (Please click on the ladder rung where you think most people in this country are, relative to all the different levels of income people have in this country.)

Sa2 Please take a few minutes to read the following text and try to imagine/visualize that you are living in the country described.

Income inequality in New Zealand has never been higher. Everyone works hard, but many cannot make ends meet. The country's economic growth is high, but many people are experiencing hardship and worry due to a high cost of living and not enough income to support themselves or their families. Living standards are only high for a few, while many are struggling paycheque to paycheque. The vast majority of New Zealanders are making about $30,000 in annual household income a year, while a small percentage of households make over $9 million a year, and some even make more than $90 million a year.

Now, think of the ladder below as representing where people's income levels are in this country. Where would you place most people in the country on this ladder? (Please click on the ladder rung where you think most people in this country are, relative to all the different levels of income people have in this country.)

R1 What are three disadvantages of living in a high income inequality society?
     1
     2
     3

R2 What are three advantages of living in a low income inequality society?
     1
     2
     3

R3 Please write down three benefits of living in a low income inequality country like New Zealand.
     1
     2
     3

R4 Please write down three disadvantages of living in a high income inequality country like New Zealand.
     1
     2
     3

C1 We'd like to ask you a few questions about how well you feel you are able to concentrate right now. Please answer these questions in relation to how you feel you are right now, in this moment.

	1 - not at all true	2 - barely true	3 - moderately true	4 - exactly true
1. I feel like I could concentrate on one activity for a long time right now, if necessary.	○	○	○	○
2. I feel distracted away from this activity, but I don't have any problem coming back to this topic quickly.	○	○	○	○
3. Right now I can control my feelings.	○	○	○	○
4. Right now I find it difficult for me to suppress thoughts that interfere with what I need to do.	○	○	○	○
5. I can control my thoughts from distracting me from my current task.	○	○	○	○
6. I feel worried about something, and I find it difficult to concentrate on this activity.	○	○	○	○
7. I feel interrupted, but I don't have any problem resuming my concentrated style of working.	○	○	○	○
8. I have a whole bunch of thoughts and feelings that interfere with my ability to work in a focused way.	○	○	○	○
9. I am focused on my goal and I am not allowing anything to distract me from my plan of action.	○	○	○	○

T1 Remote Associatives Test:

Please read the instructions carefully before beginning the test on the next page.
Instructions: Look at the three words and find a fourth word that is related to all three.

Example: What word is related to these three words?
paint doll cat

The answer is "house": house paint, dollhouse, and house cat.

Here is another example:stool powder ball
The answer is "foot": footstool, foot powder, and football.

On the next page you will have up to 5 minutes to complete up to 30 sets of words. Please complete as many as you can.

T3 You have 5 minutes to complete the following items. Complete as many as you can:

Item	Response
cottage/swiss/cake	
cream/skate/water	
loser/throat/spot	
show/life/row	
night/wrist/stop	
duck/fold/dollar	
rocking/wheel/high	
dew/comb/bee	
fountain/baking/pop	
preserve/ranger/tropical	
aid/rubber/wagon	
flake/mobile/cone	
cracker/fly/fighter	
safety/cushion/point	
cane/daddy/plum	
dream/break/light	
fish/mine/rush	
political/surprise/line	
measure/worm/video	
fox/man/peep	
sense/courtesy/place	
worm/shelf/end	
piece/mind/dating	
flower/friend/scout	
river/note/account	
print/berry/bird	
pie/luck/belly	
date/alley/fold	
opera/hand/dish	
cadet/capsule/ship	

C2 Please indicate how much you agree or disagree with each of the following statements by clicking on the most applicable rating.

	-3	-2	-1	0	+1	+2	+3
When I think about what I have compared to others, I feel deprived.	❍	❍	❍	❍	❍	❍	❍
I feel privileged compared to other people like me.	❍	❍	❍	❍	❍	❍	❍
I feel resentful when I see how prosperous other people seem to be.	❍	❍	❍	❍	❍	❍	❍
When I compare what I have with others, I realize I am quite well off.	❍	❍	❍	❍	❍	❍	❍

C3 There are many kinds of groups in the world: Men and women, ethnic and religious groups, nationalities, political factions. How much do you support or oppose the ideas about groups in general? For each statement, select a number from 1, meaning you extremely oppose the statement, to 10, meaning you extremely favour the statement, to show your opinion.

	1 - Extremely Oppose	2	3	4	5	6	7	8	9	10 - Extremely Favour
1. In setting priorities, we must consider all groups.	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
2. We should not push for group equality.	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
3. Group equality should be our ideal.	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
4. Superior groups should dominate inferior groups.	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

C4 In your own words in a sentence or two, could you please recall from the text presented at the beginning of the study; what your income level was (if any), and the level of inequality in the society described?

De1 PLEASE CLICK THE NEXT BUTTON TO SUBMIT YOUR SURVEY AND RECEIVE CREDIT.

** Debriefing **
Study on the effect of Economic Inequality on Innovation

In this study, we are collecting data to study the relationship between economic inequality and innovation. There are some debriefing notes for you regarding this study we feel it is important for you to know. We are examining the relationship between how people in situations with more or less money than others will be able to complete creative tasks. Previous research has found that economic inequality is associated with a variety of stress factors (Wilkinson, 2009) and that this might affect a person's ability to be creative. We hope that we can extend this research to how economic inequality can affect innovation by employees in an organization.

In order for us to look at these variables, you were either assigned to a situation that suggested you were in a highly unequal income society or a more equal income society. We expect that those who received the text where society was more unequal would be somewhat less creative for a short time after reading the text than those who received the text where society was more equal.

The aggregate results of the study will be made available upon request by June 2015. Questions about this study can be directed to Kevin Morris at ummorrik@myumanitoba.ca. Any questions/complaints regarding a procedure may be reported to the Human Ethics Secretariat at 474-7122 or margaret.bowman@umanitoba.ca. Thank you for participating in this study.

De2 If you would like to receive a copy of the study results, please enter your email address here

De3 Do you have any comments about this study?

F1 Thank you once again for participating in our study.

Click next to submit your survey and receive your code.

Appendix 2: Data Cleaning methodology

For this analysis I removed data if the respondent did not meet one of several conditions;

1. For the high-income inequality condition-rich, if they selected one of the bottom four rungs of the ladder I assume they did not understand the manipulation, and they are removed. (7 respondents moved)

2. For the high-income inequality condition-poor, if they selected one of the top four rungs of the ladder I assume they did not understand the manipulation, and they are removed. (7 respondents removed)

3. For the low-income inequality condition – middle, if they selected one of the top two, or one of the bottom two rungs of the ladder I assume they did not understand the manipulation, and they are removed. (5 respondents removed)

4. For all conditions, when asked in the manipulation check at the end of the questionnaire to recall the text description income and level of inequality;

    1. if the respondent indicated their own income and not the manipulation they were removed.

    2. If the respondent indicated an incorrect level of inequality in the society they were removed.

    3. If the respondent did not respond to the manipulation check they were removed.

5. If the respondent did not attempt the Remote Associatives Test (meaning only filled out three or less responses in the test) they were removed. There are still scores that receive less than 3, in those cases however the respondent did answer many questions, but had incorrect answers.

6. Not all respondents who did not have english as their mother tongue were removed. This is because some of these respondents answered eloquently in the manipulation check, and did not struggle with the RAT test. Some foreign language respondents were removed, for example, an individual who responded to the open ended responses and RAT test entirely in Spanish.

Appendix 3 – Study 3 PROCESS code

```
Process vars=RATScore SelfReg
HighRich/y=RATScore/m=SelfReg/x=HighRich/total=1/model=4/boot=10000/seed=1112.

Process vars=RATScore SelfReg
LowMid/y=RATScore/m=SelfReg/x=LowMid/total=1/model=4/boot=10000/seed=1112.

Process vars=RATScore SelfReg
HighPoor/y=RATScore/m=SelfReg/x=HighPoor/total=1/model=4/boot=10000/seed=1112.
```

Appendix 4 – Study 1 and 2 Consent Form

Study Information and Consent form:
Research Project Title: Understanding Economic Inequality
Researcher: Kevin Morris, M.Sc. Student, University of Manitoba
Email: ummorrik@myumanitoba.ca, Department of Business Administration, 371 Drake Centre

Research Supervisor: Dr. Hari Bapuji, Associate Professor, University of Manitoba, Department of Business Administration, 416 Drake Centre, email: hari.bapuji@umanitoba.ca

INFORMED CONSENT
This consent form, a copy of which you may print for your records and reference, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to contact the main researcher. Please take the time to read this carefully and to understand any accompanying information.

1. What is this research about?
We are interested in examining perceptions related to economic inequality in a society.

2. What is involved in participating?
You will be asked to complete a demographic questionnaire about yourself (age, sex, country of birth, and employment status) as well as read a short text, and then perform a written task to the best of your ability. You will then be asked to fill out a short questionnaire.

3. Who may participate?
Anyone over the age of 18 may participate in this survey.

4. What are the benefits and risks?
The benefits of taking the survey are that you are contributing to scientific research. There are no risks involved in participating.

5. How will you protect my confidentiality?
All information in the questionnaire obtained will be kept anonymous and confidential, as there will be no identifying information gathered in this survey

6. What will happen to the data from this study?
All data will be kept indefinitely and stored on a password-protected computer in a locked room. Only Kevin Morris and his advisor, Hari Bapuji, will have access to this data.

7. How long will it take and what will I receive for participating?
It will take approximately 20 minutes to complete this study and therefore you will receive compensation as indicated on your site of recruitment.

8. What if I decide to withdraw from this study?
Participating in this study is voluntary and you can refuse to answer any question or withdraw your consent at any time without any negative consequences or loss of payment. If you do choose to withdraw, discontinue answering questions and proceed to the end of the study and submit it to receive credit. In the event that you choose to withdraw, any data that you provided will be destroyed and not included in any analyses.

9. What happens when the study is done?
When the questionnaire is completed, you will be automatically directed to a webpage explaining a more detailed report on the purpose of this study.

10. How can I receive a copy of the results of this study?
You will not be receiving individualized feedback on this study, but will be able to access an aggregate summary describing the average responses of participants. At the end of the survey, you will be given an option to receive the survey by providing your email address.

11. Has this research been approved by the University of Manitoba?
This research has been approved by the Psychology/Sociology Research Ethics Board at the University of Manitoba. If you have any concerns or complaints about this project you may contact any of the above-named persons or the Human Ethics Coordinator (HEC) at 1-204-474-7122 or email Margaret.bowman@umanitoba.ca.

12. What does selecting, "Yes, I consent to participating" and clicking "next" below mean?
This means that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibility. You are free to withdraw from the study at any time, and/or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation (by sending an email to ummorrik@myumanitoba.ca).

Before you start, a few notes to keep in mind are:

1. There are no right or wrong answers to any questions or anything you produce
2. If a question makes you feel uneasy, please feel free to skip ahead to the next question.
a. Otherwise, please be careful not to miss any questions, as they are important to our research!
3. Please complete the questions in order. Do not attempt to look ahead or go "back" to change your responses.
a. Continue until the very end of the questionnaire to submit your answers for your remittance.

Thank you very much for your participation today!