

The Sociology of Grit: A Cross-Cultural Examination of Social Stratification of Grit
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Abstract

This paper presents a cross-cultural examination of the currently fashionable psychological notion of ‘grit’ and explores its potential for contributing to understanding social stratification, bringing grit into sociological discussion of agency, one of the core tenets of life course studies. Grit, comprising of perseverance and passion towards long-term goals, has received growing attention from academia and the general public as a strong predictor of academic achievement. Yet grit researchers have been less interested in potential antecedences of developing grit and largely centered in a single nation (e.g., the United States). Current scholarship largely fails to consider structural and cultural contexts that may impact grit’s development. Suggesting that grit could work as a “behavioral engine” transforming subjective beliefs about agency (i.e., personal sense of control, the traditional measure) to actual agentic practices that potentially produce better life outcomes, I analyze data from four nations (France, South Korea, Turkey and the U.S.) and provide evidence that grit operates in a fashion useful for understanding stratification. I find individuals who are strong believers of one’s control over life outcomes (i.e. personal sense of control) are more likely to develop grit in four different countries. This finding adds power to the concept of grit as these relationships are found in four distinct nations with distinct cultural orientations of valuing agency. This study provides significant insights into how social structural factors contribute to the development of grit, particularly highlighting the mediating role of the sense of control in four different cultures.

1. INTRODUCTION

Stratification by objective resources such as wealth, income, education, and occupation has long been at the heart of sociology (Blau and Duncan 1967; Breen and Jonsson 2005; Featherman and Hauser 1978; Jonsson et al. 2009; Keister and Moller 2000; Lee and Solon 2009; McCall and Percheski 2010). However, much less is known about the beliefs and choices that maintain these inequalities. Two related concepts have independently been found to shape individuals' agentic practices that lead to such stratified outcomes: the sense of control, a belief that one can control his/her life outcomes (Mirowsky and Ross 1991), and grit, the disposition of effort and interest to pursue long-term goals (Duckworth et al. 2007). Surprisingly, these two phenomena have only been studied in isolation, overwhelmingly in the United States, and the latter concept – growing in influence in psychology – is almost unmentioned in sociology (see Kundu 2016; Kundu and Noguera 2014 for rare exceptions). This paper explores these two psychological resources as distinct facets of agency, an umbrella construct that has long been a core topic in the life course literature.

While the sense of control has been documented as having a well-established relationship with social structural positions and stratification consequences (Mirowsky and Ross 2007; Ross and Mirowsky 2013), grit has rarely been linked to social stratification. Part of the reason that grit gains such popularity from the general public and media is due to the assumption that grit is not fixed, but a teachable trait (Duckworth 2016). Grit is suggested as one of the useful “soft skills” or “non-cognitive knowledges” (Lareau 2015) that benefit children, particularly those from high-poverty environments who lack critical economic and social resources for achievement (Denby 2016; Shechtman et al. 2013). However, this approach to grit (i.e., seeing grit as a class-free, individual skill) has also raised concerns about blaming the victim; giving too much focus on grit in school achievement would contribute to solidifying the conservative notion of ‘blaming the victim’ (Zernike 2016).

This study is the first attempt to demonstrate grit's potential role in contributing to social stratification research, cross-culturally. Grit is comprised of perseverance and passion towards long-term goals (Duckworth 2016; Duckworth et al. 2007), and has been suggested as a strong predictor of academic achievement and incorporated in national and international tests of student performance as a core non-cognitive skill (Shechtman et al. 2013; Zernike 2016). Grit, theoretically, plays a driving force of transforming the subjective beliefs about personal agency—the traditional measure of agency that is already well-linked to social structural antecedents and consequences-- to actual practices of exerting agency in a person's life, which in turn influence life outcomes (see Kwon 2017a for further discussion).

Research concentrating on an individual-level mechanism that maintains or solidifies existing social stratification is not new to sociology. Sewell, Haller and Portes (1969) introduced the Wisconsin model of status attainment and illuminated a critical role of social psychological resources, such as educational and occupational aspiration, in maintaining and reproducing social stratification (by mediating the effect of family origin on the educational and occupational attainment). In addition, self-direction (Pearlin and Kohn 1966) and long-term future planning (O'Rand and Ellis 1974) are closely linked to social stratification such that people from an upper-class background are more likely to develop these psychological functioning, which in turn leads to better life course achievement.

While the linkage between agency and one's life course outcomes has long been one of the major concerns of life course researchers, the majority of research have concentrated on how one's aspirations, expectations, or subjective beliefs shape one's life outcomes. This is also

linked to the findings from the well-known marshmallow test on delayed gratification (Mischel 2014) and planful competence (Clausen 1991) which demonstrate the longitudinal relationship between early psychological orientations and later life outcomes. Having an agentic belief, however, is only part of the process linking subjectivity to concrete life outcomes. Grit can be interpreted as a “behavioral engine” that bridges status, subjective beliefs about one’s power over life, and actual life course outcomes. Research on agency almost fully relies on studies of subjective self-beliefs, largely assuming those beliefs get translated into action. Grit offers one potential mechanism translating those beliefs into behaviors that influence stratification outcomes.

However, previous grit studies, mostly conducted within psychology, have rarely been interested in these structural or psychological correlates of grit. In addition, grit research, like other psychological studies, have been heavily concentrated in the United States (Datu, Valdez and King 2016a). With heavy attention to grit’s utility as a powerful predictor of academic achievement, previous research on grit has placed grit in a contextual vacuum, dismissing potential roles of social structure and culture that may influence an individual’s development of grit (see Kundu 2016 for recent attempts to place grit in the social structural context). We are unaware whether grit is a useful construct in other cultures. In sum, we are left with unexamined questions whether grit is tied to social structural positions, potentially via the subjective beliefs about agency (e.g., sense of control), and whether this linkage between status, sense of control and grit is observed outside of the United States in which the majority of grit studies have been based.

Filling the gaps in previous research, this paper demonstrates an individual’s grit is linked to the typical measure of agency (i.e., sense of control) that is widely linked to structural antecedents and achievement by analyzing data from four nations with distinct cultures (France, South Korea, Turkey and the U.S.). By examining the psychological notion of ‘grit’ across cultures and its potential for contributing to understanding social stratification, this paper brings grit into sociological discussion.

2.1. BRINGING GRIT INTO SOCIOLOGICAL FOCUS

A subjective sense of agency, which refers to individuals’ subjective beliefs about one’s power over life outcomes, has been at the heart of agency research (Hitlin and Long 2009), with the sense of control (Mirowsky and Ross 1991) being the most widely used measure. The sense of control is a learned expectation that a person controls her or his own life outcomes (Lewis, Ross and Mirowsky 1999; Mirowsky and Ross 1991). Individuals who have a higher sense of control believe that they are responsible for successes and failures in their life and do not attribute their life outcomes to external factors such as others, fate, or luck. The sense of control has been documented as a core link between stratification position (largely captured through education) and individual outcomes like occupational success and academic achievement (Mirowsky and Ross 1998; Mirowsky and Ross 2007; Ross and Mirowsky 2013; Wang et al. 1999; You, Hong and Ho 2011).

Despite the decisive role of the subjective belief about agency in human life, how this subjective belief is linked to the actual exertion of agency is relatively understudied (Kwon 2017b). I argue grit captures a missing component that is required to understand how individual agency operates at the behavioral level, above and beyond the cognitive level where the traditional measure of agency captures. Grit, which refers to a combination of persistency of perseverance and consistency of interest (Duckworth et al. 2007), may operate as a “behavioral

engine” that transforms subjective beliefs about personal control over life outcomes to actual practice of exerting agency in daily lives. Duckworth and her colleagues have documented evidence supporting grit’s utility in academic and professional achievement: people who are high in grit tend to achieve better academic outcomes (Bazelaïs, Lemay and Doleck 2016; Datu, Valdez and King 2016b; Duckworth et al. 2007; Duckworth and Quinn 2009; Nofle and Robins 2007) and show better performance in different professional domains (Duckworth et al. 2007; Duckworth, Quinn and Seligman 2009; Eskreis-Winkler, Shulman and Duckworth 2014; Robertson-Kraft and Duckworth 2013).

Previous research has proposed a link between the sense of control and grit, implying that the sense of control motivates individuals to develop gritty attitudes toward their long-term goals, which then lead to better life outcomes (Duckworth et al. 2007). Given that people in advantageous social positions are more likely to possess more valued resources that further lead to better achievement (Bourdieu 1984), individuals with higher socioeconomic status will be more likely to acquire those psychological resources that are, in turn, beneficial for maintaining those advantaged positions (see Kwon 2017b for further discussion).

Established sociological literatures on status attainment illustrate that holding stronger beliefs about power over their own life outcomes helps already advantaged individuals to achieve better life outcomes (Ross and Mirowsky 2013). One possibility is that people who already obtain better structural positions tend to hold more agentic perspectives, such as having stronger control beliefs, which in turn encourage gritty disposition. This may show the positive association between the two agentic components (i.e., the sense of control and grit) and the mediating effect of the sense of control on the relationship between structural positions and grit. However, we can also find people who are strong believers in their own agency but often give up on their goals, putting less effort toward life projects. This case with a potential inconsistency between the two important psychological resources implies that grit and the sense of control are not identical, though likely positively correlated. I suggest that developing a sense of control is only a part of what keeps people working toward various stratification goals; it likely increases a sense of grit that in turn motivates the stick-to-it approach important for success.

Grit researchers have been largely unconcerned with the influence of socioeconomic position on its development. As grit researchers argued, grit may be a supplementary psychological resource that helps these people lacking in other beneficial resources to persevere and stick with better life course trajectories (Duckworth 2016; Shechtman et al. 2013). However, shedding light on the mediating role of the sense of control directs us to explore the possibility that grit may be tied to one’s socioeconomic background. This study, hence, will test the relationship between individual’s class position, the sense of control, and grit, putting grit in proper social structural context that previous grit studies have largely dismissed.

In addition, this study is distinctive from previous studies since it includes a subjective measure for class, reflecting the symbolic interactionist approach which argues that “independent variables do not automatically influence dependent variables” (Shott 1979:1321). Material resources and objective indicators are crucial to “shape individual’s perceptions of social class rank in society” (Kraus et al. 2012:153), thus I expect education and household income shows statistically significant relationships with subjective class identification. Additionally, I expect whether individuals really ‘believe’ that they are in positions with sufficient resources to author their own life trajectories could directly influence the development and exertion of agency.

2.2. UNDERSTANDING CULTURAL CONTEXTS OF GRIT

Previous cross-cultural research has found that the basic assumptions we have held for individual functioning are not universal, but vary across cultures (Matsumoto and Yoo 2006). The vast majority of psychological research have concentrated on western industrialized countries or WEIRD (i.e., Western, Educated, Industrialized, Rich, and Democratic) populations (Henrich, Heine and Norenzayan 2010), and this concentration on the Western populations, or more specifically American samples, also becomes a concern for grit research (Datu, Valdez and King 2016a), as well as the study of agency more broadly. Whether the concept and measure of grit that has been developed in the United States can be applicable to other cultural contexts is, thus, open to discussion.

Cultures provide individuals with different perspectives or schema that inform them how to view the self, the world, and the relationship between the two. In the Western tradition, the self has long been viewed as autonomous and separated from others (Geertz 1973). Markus and Kitayama (1991) found that this type of independent self is predominant in the United States and Western European countries while in other nations including East Asian countries an interdependent self, which is less differentiated from others and considers relationship to others important to decide who you are, is prevalent. Holding different views on the self is also linked to how individuals perceive their power over life outcomes. For example, Sastry and Ross (1998) have found cultural differences in the sense of control: in cultures like the American culture where autonomy and independence are highlighted, people are more likely to be encouraged to hold a stronger belief about personal control (i.e., the sense of control) than those who are embedded in cultures that value autonomy to a lesser degree.

Only recently have a few researchers endeavored to validate the grit scale and the utility of grit in non-Western contexts such as China (Li et al. 2016), the Philippines (Datu, Valdez and King 2016a; Datu, Valdez and King 2016b), Japan (Suzuki et al. 2015), and South Korea (Mun and Ham 2016). Mixed findings have been documented with regard to the validation of the grit scale in these Asian countries. Li et al. (2016) validated the grit scale among Chinese high school students while Datu, Valdez and King (2016a) found the persistency of effort dimension works better than the consistency of interest dimension or even the whole grit scale using Filipino college and high school student samples. While these studies have clearly contributed to our understanding of grit by extending its focus to different cultural settings that previous U.S.-centered research on grit has dismissed, they limit their data collection to student samples (for exception, Suzuki et al. 2015 relies on working adults in Japan) in a single nation which makes cross-cultural comparison difficult. In addition, we still do not know how social structure, the sense of control and grit are interrelated since these studies have also concentrated on grit's predictive power of academic achievement, demonstrating a disjuncture between psychological and sociological inquiry. To fill the gap in the literature, this paper takes a first step toward exploring how structure, agentic beliefs, and grit operate in four different countries with distinctive cultural contexts.

Cross-cultural studies often assume the association between cultural orientations and particular nations (e.g. mostly assuming Americans or Western Europeans as individualist while East Asians as collectivist) and rely on this assumption when interpreting cultural differences in psychological functioning (Oyserman, Coon and Kemmelmeier 2002). Prior to the main analysis of the relationship between social structural positions, sense of control and grit in four countries, I explore cultural contexts of valuing autonomy in four different countries to get a general sense of whether and how four countries in our sample differ with regard to cultural orientation of

valuing the development of agentic attitudes towards life. This will provide us with better understanding of cultural contexts in which these four countries are embedded. In addition, this cross-cultural data allows us to begin to explore how grit is related to more common measures of agency across stratified societies with different cultural beliefs, in the service of better understanding the nature of agency, its precursors, and how it might be important for sociological mechanisms of stratification.

3. DATA AND METHODS

This study is based on four-nation data collected by a cross-national survey, *Moral Schemas, Cultural Conflict, and Socio-Political Action* (2015). Data have been collected in France, South Korea, Turkey and the United States. This cross-cultural data collection lies not only on the opposite axes of important value dimensions (e.g. materialism vs. post-materialism in (Inglehart and Abramson 1999), but also on the opposite axis of the widely used cultural dimension of individualism vs. collectivism (Hofstede 1980, 2001). We used quota sampling on gender, age groups, and household income in each country. Even though quota sampling provides researchers with better opportunities of collecting survey data with lower costs, compared to probability sampling methods that have recently experienced a response rate decline (Curtin, Presser, and Singer 2005) and increasing costs, I acknowledge that the interpretation of data collected from quota sampling should be cautious given the potential risk of collecting data from somewhat biased respondents (Yang and Banamah 2014).¹ Even though current data are obtained through the non-probability sampling method, current data set is the only cross-national data set that includes relevant measures such as grit, the sense of control, structural and cultural variables. In this respect, current data have a distinctive advantage compared to other international data. Sample sizes are around 450, with key demographics being as representative of the target nations as possible (the Turkish sample is younger and highly educated compared to the national averages). After list-wise deletion by key variables, our samples in four nations range from 436 (Turkey) to 467 (South Korea) (see Table 1).

[INSERT TABLE 1 ABOUT HERE]

The survey includes measures of the sense of control (Mirowsky and Ross 1991), part of the Grit-S Scale (Duckworth and Quinn 2009), the post-materialism scale (Inglehart 1971; Inglehart and Abramson 1999), the Portrait Values Questionnaire (Schwartz 1994; Schwartz et al. 2001), and a set of basic demographics questions derived from the General Social Survey, the World Values Survey, the European Social Survey and the International Social Survey Programme.

Grit and Sense of Control: Four questions from the Grit Scale (Grit-S) developed by Duckworth and her colleagues (Duckworth and Quinn 2009) are used in the data analysis.²

¹ Some researchers have argued that quota sampling can produce a quasi-representative sample (Neuman 2011) while others argued that quota sampling cannot produce such a representative sample that probability sampling can produce (Gschwend 2005; Yang and Banamah 2014).

² Duckworth and Quinn (2009) shortened their original 12-item Grit scale (Duckworth et al. 2007) to the Grit-S scale with 8 items based on each item's predictive validity across different samples. Using the same criteria, 4 items (2 items for perseverance and 2 items for consistency of interest) that show the highest predictive validity are selected and included in the survey.

Scales range from “very much like me” (1) to “not like me at all” (5). Following Duckworth et al. (2007), responses are averaged to create a measure for grit, ranging from 1 to 5. For sense of control, this study employs the Sense of Control Index that Mirowsky and Ross (1991) developed. Response categories range from “strongly disagree” (-2) to “strongly agree” (2) and items referring to denying control are reverse coded. Following Mirowsky and Ross (1991), responses are averaged to construct an indicator for the sense of control.³

Social Structural Positions: Social structural positions are measured by an individual’s objective socioeconomic status such as education and household income as well as subjective class identification. Education and household income questions were originally taken from the World Value Survey and the European Social Survey that reflects local context, such as the educational system and local currency. For example, the household income question was drawn from the European Social Survey: the question has 10 categories based on deciles of the actual household income range of each country.⁴ Subjective class identification ranging from 1 “lower class” to 6 “upper class” is included in the analysis.

Cultural Orientation: Cultural orientation is measured by Inglehart’s 4-item post-materialist index (Inglehart 1971). This well-known index, which is also included in the World Values Survey, asks respondents which two of the following things they would emphasize: maintaining order in the nation, giving people more say in important government decisions, fighting rising prices and protecting freedom of speech. Respondents who chose maintaining order and fighting rising prices are categorized as a materialist who emphasizes traditional, survival values (recoded as 1) while those who chose the other two are labeled as a post-materialist who emphasizes self-expression values (recoded as 3). The rest are categorized as mixed (recoded as 2).

Valuing Autonomy: As a part of Schwartz’s 21-item Portrait Values Questionnaire (PVQ; Schwartz et al. 2001), respondents are asked to answer how much the person described in each item is like them on a 6-point Likert scale ranging from “very much like me” to “not like me at all.” To measure the extent to which respondents in each nation value autonomy in their own lives, responses to the two items of the Schwartz’s battery were reverse coded and averaged to create an index for valuing autonomy and self-direction (Schwartz 2013): “It is important to her/him to make her/his own decisions about what she/he does. She/he likes to be free and not depend on others” and “Thinking up new ideas and being creative is important to her/him. She/he likes to do things in her/his own original way.” Alphas range from .55 (France) to .64

³ When studying abstract concepts cross-culturally, it is important to establish measurement invariance across countries. In particular, showing metric invariance of the measurement models (whether the factor loadings of latent constructs are the same across countries) is crucial as it indicates that there are no cultural differences in responding to the survey questions that are presented to measure the concept (Matsumoto and Yoo 2006). Since in the survey only two items for each sub-dimension of grit were included, I could not run a higher-order CFA that is suggested in Duckworth and Quinn (2009)—the model did not converge. Instead, I loaded all four items onto one latent variable, grit, and added the sense of control measurement model to test the measurement invariance in tandem. As the metric invariance model (imposing all factor loadings the same) yielded an inadequate fit, I tested partial invariance by freeing some factor loadings based on theoretical justification. The final measurement model yields a Chi squared statistic of 811.70 with 209 degrees of freedom, an RMSEA of 0.08 and a CFI of 0.89, indicating that this model provides an adequate fit to the data, though not excellent. Results of the partial metric invariance test is available upon request.

⁴ For detailed information, see ESS survey documentations “ESS6 Appendix A2 Income ed. 2.0” and “ESS4 Appendix A2 Income ed. 5.0” on the ESS website (<http://www.europeansocialsurvey.org/>).

(Turkey). As previous researchers pointed out differences in how individuals use the scale (e.g., some respondents tend to avoid extreme values of the scale while others tend to use the extreme values to highlight the importance), Schwartz (2013) suggested correcting for these individual differences by centering each value around the individual's mean scores across all values. Following his guidance, I centered the scores around individual means so that a higher score means a higher relative importance that a person gives to autonomy.

Demographics: I control for several demographic variables that were shown to be related to psychological functioning by previous research including age, gender (1 = male, 0 = female), racial/ethnic majority (1 = white in the U.S. and France; Turkish in Turkey, 0 = non-white in the U.S. and France; non-Turkish in Turkey), marital status (1 = married, 0 = not married) and religion (1 = have a religion, 0 = no religion).

4. RESULTS

4.1. Understanding Cultural Contexts of Valuing Autonomy in Four Countries

[INSERT TABLE 2 ABOUT HERE]

Table 2 explores the extent to which each society is leaning towards post-materialistic values rather than materialistic values. Post-materialist orientation refers to the tendency highlighting autonomy and quality-of-life over economic or physical security while materialist orientation is on the opposite end of the spectrum (Inglehart and Abramson 1999). Following Abramson and Inglehart (1995), I calculated a PDI (percentage difference index) by subtracting the proportion of materialists from the proportion of post-materialists in each national sample. Table 2 shows that the United States (1.16) is the most post-materialistic among the four nations in our sample. Turkey (-24.4) is the most materialistic, followed by Korea (-13.38) and France (-5.32). In addition, Table 3 shows that Americans, on average, place relatively high importance on autonomy and self-direction values, followed by France, Turkey, and Korea ($F = 21.35$, $p < .001$). This finding implies that these four countries have distinct cultural contexts of how people see independence and autonomy, as hypothesized at the data collection stage.

[INSERT TABLE 3 ABOUT HERE]

4.2. Social Structural Positions, Sense of Control and Grit

Table 4 presents descriptive statistics on the sense of control and grit, as well as bivariate correlation results of the two. Americans, French, Turks and Koreans show higher levels of sense of control and grit in general, scoring higher than the mid-point of each scale (i.e., 0 on the sense of control scale and 3 on the grit scale). Mean values of the sense of control and grit are slightly higher among Americans than others, though the gap between these countries is not large enough to discuss cross-cultural differences. Yet, given our Turkish sample is much younger ($M=34.13$) than other national samples (U.S. age mean = 46.25, France age mean = 46.05, Korean age mean = 42.95), high levels of the sense of control and grit in Turkish sample might be affected by this skewed sample in Turkey.⁵

⁵ Recent studies (e.g. Marcus et al. 2017; Taras et al. 2012) documented the younger generation in Turkey is more individualistic (e.g. highlighting personal autonomy over societal goals) than older generations

[INSERT TABLE 4 ABOUT HERE]

In our cross-cultural data, as Duckworth suspected, grit is positively associated with a sense of personal control: in Table 4, I found that bivariate correlations between grit and the sense of control ranged from 0.22 (France) to 0.37 (the United States), indicating a small-to-moderate correlation between the two across countries ($p < .001$). This tells us that we can see the majority of people are either high or low in both of the sense of control and grit. Yet we can still see many who are off-diagonal, being high in one but low in the other, as they show only moderate correlation between the two. Based on the previous research on grit and the sense of control, I investigated a theory-driven split of the sense of control scale and grit scale: people who are high in grit can be defined as those who scored above 3 on a 5-point scale and people who have a higher the sense of control can be defined as those who scored above 0 (neutral) on a scale ranging from -2 to 2. Figure 1 presents proportions of each combination of high and low sense of control and grit in four countries. This result confirms that we have a significant number of people in off-diagonal cells (high in one but low in the other): people who are high in grit but low in the sense of control and those low in grit and high in the sense of control occupy 34% of the US sample, 39% of the French sample, 36% of the Turkish sample and 46% of the Korean sample, supporting the assumption that the sense of control and grit are positively correlated, but not identical (see Figure 1).

[INSERT FIGURE 1 ABOUT HERE]

Table 5 examines whether there is a positive relationship between socioeconomic status and agency resources in four countries and demonstrates the role of sense of control in mediating the advantages of holding higher socioeconomic status on one's grit. I expect that a positive association between structural positions, sense of control and grit is commonly found across four countries (see Figure 2 for a hypothetical path diagram), but with varying degrees of association. I conducted a structural equation modeling analysis to elaborate the mediating role of the sense of control between individual's structural position and one's gritty disposition in four countries. Table 5 shows standardized path coefficients from the same structural models in four countries. Fit indices were good in all four countries, suggesting my hypothesized model (presented in Figure 2) fits well with the data ($\chi^2(10)=7.44$, $p=0.68$, RMSEA 0.00, CFI 1.00, in the U.S.; $\chi^2(9)=21.21$, $p=0.01$, RMSEA 0.05, CFI 0.95 in France; $\chi^2(10)=12.30$, $p=0.27$, RMSEA 0.02, CFI 0.98 in Turkey; $\chi^2(9)=11.88$, $p=0.22$, RMSEA 0.03, CFI 0.99 in Korea).

[INSERT FIGURE 2 ABOUT HERE]

Findings from the first column of each country in Table 5 support my hypothesis on the relationship between objective class positions and subjective class identification, suggesting "self-identifications reflect objective circumstances" (Lareau 2008:7). In all four countries, having a higher education and household income is linked to a tendency to self-identify as a higher-class position ($p < .01$).

even though Turkey has been labeled as more collectivistic than Western countries, suggesting generational shifts on cultural orientation in Turkey.

The second column of each country in Table 5 shows that those who self-identify as the upper class tend to report a higher sense of control in the U.S. and France ($p < .001$). The same pattern is found in the other two countries, but with a lesser degree particularly in Turkey ($p < .10$). This finding confirms previous studies which have reported people with higher socioeconomic status are more likely to have a higher sense of control (Kraus, Piff and Keltner 2009; Lachman and Weaver 1998; Mirowsky and Ross 1998; Schieman and Plickert 2008), yet this relationship between one's structural position and the sense of control may be less pronounced in collectivistic cultures, especially Turkey.

As I expected, I find cross-cultural commonality in the relationship between the sense of control and grit. The last column of each country in Table 5 shows how the sense of control is associated with grit in four countries, when controlling for other sociodemographic factors. As I hypothesized, in all four countries, people who believe they are responsible for their life outcomes (i.e. having a higher sense of control) tend to report a higher level of grit ($p < .001$). This implies that individuals who are strong believers of one's control are more likely to develop gritty dispositions of working hard to pursue their desired long-term goals and this linkage is commonly found in four different cultures with varying degree of valuing autonomy. However, class identification seems not to have direct effects on grit except for the case of France where subjective class shows a significant, positive association with grit ($p < .05$). In this aspect, grit, at face value, seems not to be tied to the one's subjective class positions.

While the direct effect of class identification on grit is not significant in the U.S., Turkey and South Korea, there is fair amount of indirect effect, via sense of control, on grit. Table 6 shows direct, indirect, and total effects of class on grit. The percentage of the total effect of class on grit that is mediated by the sense of control ranges from 24.63% (Turkey) to 88.89% (the U.S.). While the linkage between class position and gritty inclination is more apparent in France, in other countries this linkage is less visible.

Aside from social class variables, age is a significant predictor of grit in all four countries. People who are older tend to be grittier than younger counterparts across cultures in our data set, extending earlier findings of Duckworth et al. (2007) using the U.S. data to other countries, France, Turkey, and Korea. Religion is another interesting predictor that shows a cross-cultural difference between France and Turkey. Having a religion is negatively associated with developing gritty inclination in France where 80% of our sample who said they have a religion identified themselves as Catholic ($p < .10$). In contrast, in Turkey where 97% of our sample who said they have a religion identified themselves as Muslim, respondents who have a religion tend to report a higher level of grit than others without a religion ($p < .01$). This finding in Turkey, coupled with a negative association between having a religion and the sense of control ($p < .10$), implies that having a religion may lessen the beliefs that one can control one's life outcomes while it encourages gritty inclination of working hard with passion towards one's long-term goals, suggesting distinctive features of the two psychological resources in relation to religion.

[INSERT TABLE 5 ABOUT HERE]

[INSERT TABLE 6 ABOUT HERE]

5. DISCUSSION AND CONCLUSION

This study explores if and how grit is useful for sociological understanding by addressing four major limitations in previous research. First, despite their emphasis on grit's power to predict academic performance, grit researchers have been less interested in grit's social antecedents. Second, despite the suspicion that beliefs about one's control over life outcomes might in part influence one's gritty disposition, no study explores grit in relation to the sense of control, a core sociological construct. Third, grit research has largely been centered in a single nation, specifically the United States. Fourth, previous cross-cultural studies have often omitted social structural explanations in understanding cross-cultural differences in psychological functioning. This paper helps develop an integrative understanding of how structural and cultural forces correlate with grit by incorporating measures of cultural orientations as well as structural positions into our understanding of grit.

Placing grit within sociological discourse about agency and social stratification, this paper examines grit's relationship with the sense of control, which has already well-established relationships with the social structural antecedents and consequences, across cultures. Analyzing data from four different nations— France, South Korea, Turkey and the U.S., this study offers cross-cultural evidence that the sense of control is highly predictive of grit. This result supports what Duckworth et al. (2007) suggested but has never been empirically examined: grit is determined by beliefs about one's controls over positive and negative life outcomes. This implies the sense of control can provide individuals with a motivation to develop a gritty disposition and guides concrete behavior by putting more and consistent effort to get the desired outcomes, and this, eventually, contributes to achievement. Furthermore, this paper expands this finding cross-culturally: having a stronger belief about one's capability to formulate one's life closely relates to grit in France, South Korea, Turkey and the U.S., four different countries that represent distinct cultural orientations of favoring autonomy over physical/economic security (i.e., post-materialism). This cross-cultural evidence supporting the relationship between the sense of control and grit contributes to better understanding of how subjective agency at the cognitive level can be actually exercised at the behavioral level.

Grit has been highlighted as the useful non-cognitive resource (Lareau 2015) that individuals can foster (Duckworth 2016), and it is considered vital to shape better life paths especially for those who come from lower-income backgrounds, lacking advantageous socioeconomic resources. Findings of this study (i.e., null associations between grit and subjective class in all four countries) may at face value support presumptions on which previous grit researchers have relied – grit is not tied to socioeconomic background of individuals, but anyone can grow grit, a beneficial resource for better life outcomes. Yet, I found one's socioeconomic position has an indirect effect on grit via the subjective beliefs about one's power over life outcomes (i.e., sense of control). A higher socioeconomic position gained by achieving higher education and higher household income provides individuals with advantageous life trajectories (with less chances of experiencing failures/adversities but more chances of having favorable life chances) (Beller and Hout 2006; Conley [1999] 2010), thereby keeping a higher subjective belief about one's power over life outcomes (i.e., sense of control) intact (Mirowsky and Ross 2007). This sense of control, in turn, leads to developing grittier attitudes than others, indirectly mediating advantages of occupying a higher-class position.

This study is not without limitations, however. First, an important limitation of my analysis stems from a cross-sectional data set on which this study relies. Like previous grit studies, my theoretically derived causal hypotheses plausibly operate in the opposite direction.

Second, the data do not rely on probability sampling methods, thus limiting its methodological rigorousness. In addition, current data set does not include the full Grit-S scale suggested by Duckworth and Quinn (2009) that contains four items in each component, but contains two items from each component of grit. Despite these limitations, as aforementioned, current data set is the only cross-national data set that has important measures for grit, sense of control, social structural and cultural variables. Future study with better data should contribute to better understanding about this topic.

Despite the limitations, this study takes the first step toward empirically linking grit to social stratification by explicating factors that affect grit, in particular, establishing the relationship between the sense of control and grit, cross-culturally. While grit has been inscribed into national education policy and even into the PISA, critics and opponents of grit raise concerns about incorporating grit into a metric to grade students, seeing this trend revolving around grit as a fad (Strauss 2014). This heated debate about grit has confused parents and educators who have a strong interest in developing children's potentials and capacities to achieve better life outcomes. Given the urgency of identifying what grit is, whether it matters, and what factors contribute to developing grit, this study provides significant insights into how an individual's grit can be developed in relation to social structural and cultural forces.

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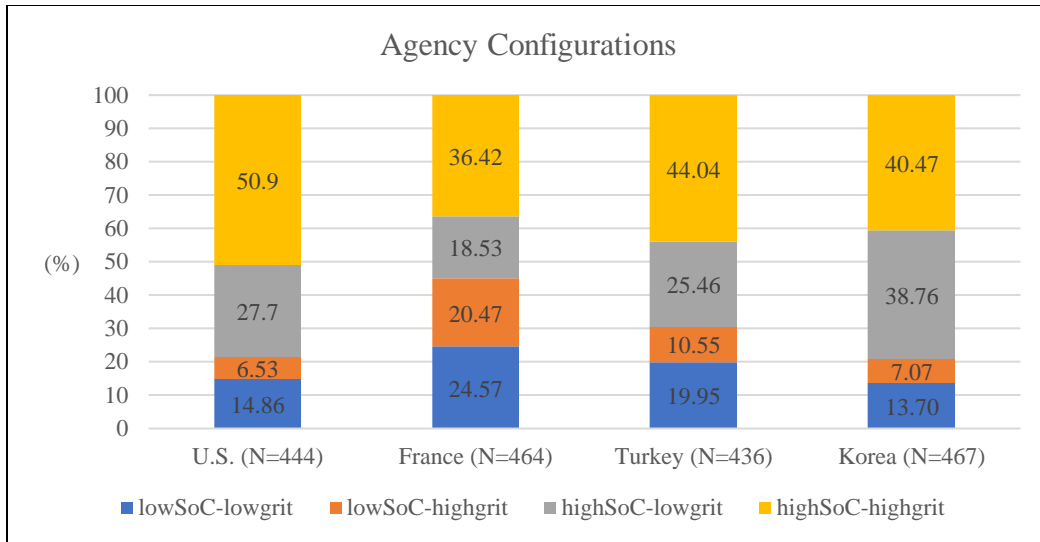


Figure 1. Distribution of Agency Configurations
Note: SoC indicates sense of control.

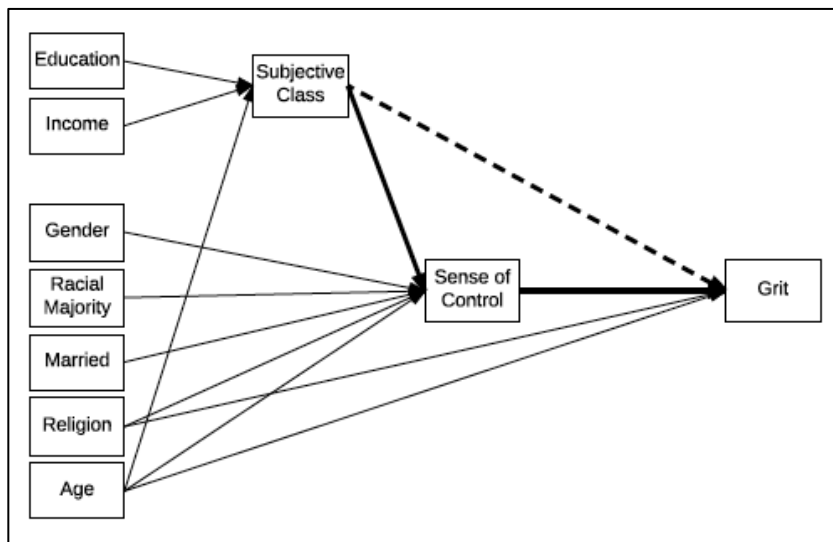


Figure 2. A Hypothetical Path Diagram

Table 1. Descriptive Statistics

Variable	U.S.A. (N=444)				France (N=464)				Turkey (N=436)				South Korea (N=467)			
	M	SD	Min	Max	M	SD	Min	Max	M	SD	Min	Max	M	SD	Min	Max
Age	46.25	17.09	18	83	46.05	16.20	18	99	34.13	12.30	18	98	42.95	13.98	18	73
Male	0.50	0.50	0	1	0.51	0.50	0	1	0.56	0.50	0	1	0.48	0.50	0	1
Racial Majority (White/Turkish)	0.80	0.40	0	1	0.85	0.36	0	1	0.83	0.38	0	1				
Married	0.47	0.50	0	1	0.37	0.48	0	1	0.48	0.50	0	1	0.61	0.49	0	1
College or above	0.42	0.49	0	1	0.51	0.50	0	1	0.67	0.47	0	1	0.63	0.48	0	1
Family Income	5.56	3.25	1	10	4.82	2.80	1	10	7.97	2.68	1	10	5.52	2.81	1	10
Class	3.36	1.21	1	6	3.33	1.07	1	6	3.57	1.11	1	6	3.34	1.07	1	6
Religion	0.59	0.49	0	1	0.40	0.49	0	1	0.79	0.41	0	1	0.48	0.50	0	1

Table 2. Post-materialists vs. Materialists in Four Countries

(%)	U.S.A. (N=431)	France (N=451)	Turkey (N=414)	Korea (N=441)
Materialist	14.62	17.52	28.02	29.48
Mixed	69.61	70.29	68.36	54.42
Post-Materialist	15.78	12.2	3.62	16.1
PDI	1.16	-5.32	-24.4	-13.38

Note: PDI refers to a percentage difference index.

Table 3. Valuing Autonomy

	U.S.A. (N=444)		France (N=464)		Turkey (N=435)		Korea (N=467)		F-test
	M	SD	M	SD	M	SD	M	SD	
Relative Importance of Autonomy	0.49	0.79	0.41	0.77	0.38	0.7	0.11	0.75	21.35***

Table 5. Standardized Path Coefficients

	U.S.A. (N=444)			France (N=464)			Turkey (N=436)			South Korea (N=467)		
	Class	Sense of Control	Grit	Class	Sense of Control	Grit	Class	Sense of Control	Grit	Class	Sense of Control	Grit
Age	0.060	0.227***	0.176***	0.043	0.030	0.263***	-0.056	-0.016	0.201***	0.127**	0.006	0.288***
Education	0.120**			0.217***			0.143**			0.157***		
Income	0.518***			0.397***			0.243***			0.375**		
White/Turkish		0.078+	0.020		0.012	-0.040		-0.027	-0.039			
Gender		-0.060			0.051			0.042			-0.021	
Married		0.090+			0.053			0.063			0.039	
Religion		-0.037	-0.051		0.071	-0.074+		-0.090+	0.118**		0.002	0.039
Class		0.203***	0.008		0.182***	0.101*		0.088+	0.071		0.148**	0.042
Sense of Control			0.316***			0.184***			0.284***			0.265***
Constant	1.426***	-0.270	4.450***	1.655***	-0.410+	4.098***	1.884***	0.707**	3.643***	0.882***	0.553**	3.999***

*** p < .001, ** p < .01, * p < .05, + p < .10

Table 6. Standardized Direct, Indirect, and Total Effects of Subjective Class on Grit

	U.S.A.	France	Turkey	South Korea
Direct Effects	0.007	0.101*	0.071	0.042
Indirect Effects (via sense of control)	0.064***	0.033**	0.025+	0.039**
Total Effects	0.072	0.134**	0.096*	0.082+

*** p < .001, ** p < .01, * p < .05, + p < .10