

Kim, Hisam

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For Inquiry: KDI Communications Unit

Address: 263, Namsejong-ro, Sejong-si 30149, Korea

Tel: 82-44-550-4030 **Fax:** 82-44-550-0652

Authors | Hisam Kim, Adjunct Fellow at KDI
(82-44-550-4098, 82-62-715-3654)

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Healing a Wary, Self-cultivating Society through Education

Hisam Kim, Professor at GIST · Adjunct Fellow at KDI

“Can education improve Korea’s self-cultivating society which has left its people untrusting of others? Reforming public education, particularly eliminating rote-based learning and encouraging horizontal and participatory classes, will enhance peer relationships, trust and cooperation to ultimately contribute to reversing the decline in social capital.”

I . Social Capital: Significance and Current Status

As an intangible asset that stems from the relationship between people, social capital is comprised of trust, networks and norms, and its significance is acknowledged from multiple perspectives. Indeed, mutual trust, cooperation, personal connections and the pressure of social norms can correct market failures caused by public goods and information asymmetry; social trust and public spirit are essential for economic growth, structural reform and transition and; happiness among individuals and local communities is contingent on social support, interpersonal trust and participation in social activities.

However, for Korea, the level of social capital remains subpar compared to its economic and human capital. Based on international standards, the level of social trust in Korea is equal to that of a developing country. And, instead of cooperation and partnership, the incessant competitive environment has cultivated a ‘each to his own’ mentality. According to the World Values Survey (WVS), Korea saw interpersonal trust drop to 27% from 38% in

The significance of social capital, which is formed of interpersonal relationships and interaction, is recognized throughout society.

Amid the growing popularity of the “each to his own” mentality, Korea is experiencing a continuous decline in mutual trust.

* Based on Kim, Hisam, *The Role of Education in Social Capital and Policy Directions*, Research Monograph 2017-06, Korea Development Institute, 2017 (in Korean).

<Table 1> Share of the Public that Agree “Most People Can Be Trusted”

(Unit: %)

	1981-1984	1989-1993	1994-1998	1999-2004	2005-2009	2010-2014
Korea	38	34	30	27	28	27
Japan	41	42	42	43	39	39
China	-	60	52	55	53	63
Hong Kong	-	-	-	-	41	48
US	43	52	36	36	39	35
Italy	25	34	-	33	30	-
Germany	31	35	-	35	39	45
Sweden	57	66	60	66	69	62
Norway	61	65	65	-	74	-
Finland	57	63	49	58	62	-

Note: Respondents were asked to choose between ‘Most people can be trusted’ and ‘Can’t be too careful.’ The small number of those who did not respond or gave invalid answers were excluded.

Source: Calculated by author using the World Values Survey (<http://www.worldvaluessurvey.org/WVSOnline.jsp>, last accessed: Sep. 12, 2017).

the past three decades (Table 1). Moreover, there is a distinct gap in social capital among the classes as relational social capital—measured by whether an individual has people to trust in and rely on—increases in line with income (economic capital) and education (human capital).

The low degree of happiness in Koreans is due to the lack of social capital.

The weak level of social capital in Korea plays a dominant role in the low degree of happiness and quality of life felt by a large number of Koreans despite their strong economic ability and long healthy life expectancy. The lack of social support, solidarity and public trust has severely diminished people’s happiness, with many having no friends or relatives to rely on; showing little generosity in terms of donating and charity work and; believing that corruption and irregularities are rampant. Even on a regional basis, it was found that happiness was more influenced by social trust than by other variables related to physical infrastructure.

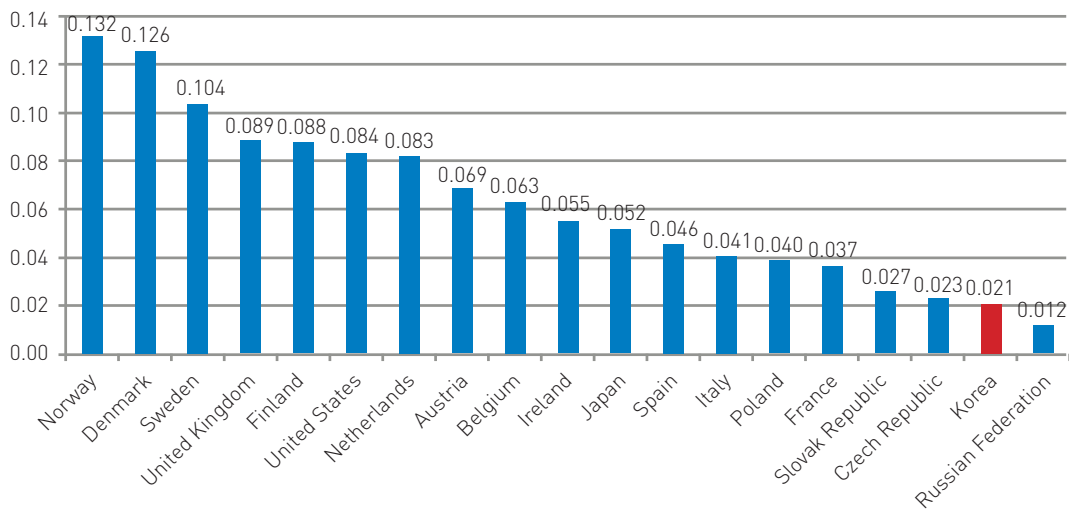
Accordingly, as the weight of social capital receives increasing recognition, Korea must make urgent efforts to improve the level of social capital. In doing so, the following questions must be addressed: Is social capital an environmental condition that must be accepted by society? Or can education make positive changes in people?

II. Relationship between Education and Social Capital: International Comparison

1. Empirical relationship

According to an analysis using the 2015 PIAAC (Program for the International Assessment of Adult Competencies), the higher the education received, the stronger the social trust,

[Figure 1] International Comparison of the Impact of Education on Social Trust



Note: Education level refers to the years of schooling. Respondents answered 'There are only a few people I can trust completely' using a five-point scale (1 for 'strongly agree' to 5 for 'strongly disagree').

Source: Calculated by author using raw data from the 2015 PIAAC.

which is measured by the degree of trust in others (unspecified persons). However, the extent of the increase varies significantly from country to country. Korea and countries in Eastern Europe exhibited a very small increase while those in Northern Europe showed notably higher figures (Figure 1).

The causes for the aforementioned disparity need further examination. However, one cause lies in the teaching practices of each country. While most schools in Eastern Europe use vertical teaching methods, those in the North are more horizontal and focused on the active interaction between students. Algan *et al.* (2013) showed that social trust is low in countries where vertical teaching is prevalent; Korea being one. The study also pointed out that social capital such as trust in cooperation can vary in the same country and school depending on the teaching style, implying that it is the teachers' method and not certain characteristics that has an impact.

Further analysis using the WVS revealed that Koreans with higher education have stronger trust in others but weaker confidence in institutions and systems, partly due to the low public trust among the highly educated young population. Conformity to social norms is not necessarily proportional to the level of education in Korea. The fact that the quantity of education does not guarantee more social capital can be observed in the maturity of students' values and views on occupation at different stages of the education process. That is, as people climb the academic ladder, materialistic and pragmatic views about occupation that favor pay and job security tend to prevail over placing value on social contribution and good colleagues.

Then, what should be the focus of education to cultivate social capital? Ito *et al.* (2015) examined the correlation between the social preferences of adults in Japan and the regional and school characteristics of the education they received in elementary school.

In Northern European countries that apply horizontal collaborative methods, people with higher education show stronger social trust. But, this is not the case for Korea and East European countries wherein one-sided lectures are more dominant.

How children are taught is more significant to the cultivation of social capital than what is taught. What is critical to fostering social capital is how to teach, not what to teach.

The study suggests that for the formation of social capital, the method of teaching is more important than the content of what is taught. It was found that those who received education that was horizontal and emphasized participation and cooperation during elementary school grew up to be altruistic, cooperative and reciprocal and had strong national pride. But other teaching practices that were centered on anti-competition, leftist political thinking, human rights and peace, and hard work and effort did not affect sociality and citizenship. These findings and those in Algan *et al.* (2013) imply that teaching methods should be deemed as a vital component in increasing the social capital obtained through public education.

2. Undergraduates' Awareness of Education and Social Capital: The US, China, Japan and Korea

A research survey on perceptions about social capital and education was conducted in 2017, targeting 4,000 undergraduates in the US, China, Japan and Korea (1,000 per country). The survey examined the impact of education on social capital¹⁾ and was useful in exploring students' educational experiences at school (elementary to high school) and capturing their attitudes toward the realities of university education as well as those on social capital, education and the relationship between the two.

A high proportion (81%) of Korean respondents described high school as a 'battlefield.'

Compared to other countries, an overwhelmingly high proportion (81%) of Koreans described high school as a 'battlefield' wherein students aggressively compete to receive better grades to enter prestigious universities (Figure 2). A minority viewed it as a "square" where students gather to learn mutual understanding, harmony and cooperation or a 'marketplace' where knowledge and money are traded between supplier and consumer.²⁾

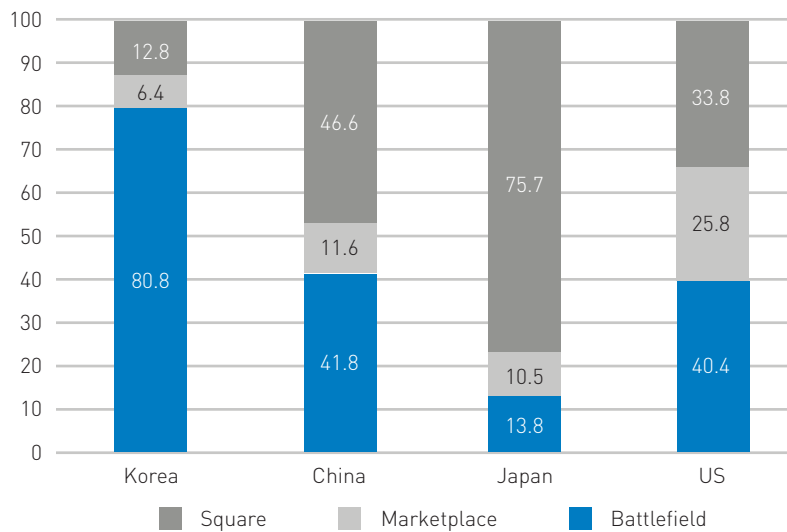
In terms of competition, many respondents blamed family background for the inequality and felt that the competitive environment in education hinders altruistic cooperation. There was also the prevailing assumption that parents' economic strength strongly affects the likelihood of entering a prestigious university and that such universities are the golden ticket to a successful life. Their evaluation of teachers and professors as educators was relatively low, much like the Japanese respondents.

Nevertheless, Korean undergraduates were in as much agreement as those in other countries that changes in education will improve social capital. There was also a preference for differentiating classes by level rather than dividing schools by student performance. In addition, respondents in Korea showed higher preference for the enlargement of the quota for university admission that considers various factors like the admission officer system and affirmative action of prestigious universities. With regards to the format of entrance

1) Rationales for selecting the four countries, sample undergraduates and their representation, the survey process and characteristics of respondents are described in pp. 62-64 of Kim (2017).

2) 'Square,' 'marketplace' and 'battlefield' as metaphors for how education is understood are borrowed from O (2013).

[Figure 2] Comparison of Undergraduates' Perceptions about High School



Source: Kim, Hisam, "Survey on the Values of Undergraduates in Four Countries," Survey questionnaire, KDI · GIST, 2017 (in Korean).

examinations, China and the US preferred essay tests (more educationally adequate) while Korea and Japan preferred multiple-choice (easier to distinguish right and wrong in terms of fairness).

Korean participants showed relatively low social trust, which was measured through a wide range of questions. In a thought experiment on trust in public institutions and about their response methods (polluted drinking water), it was found that respondents had little trust in government announcements and relied more on self-help methods than on collective solutions, pointing to a lack of public trust and bridging social capital. Of all four countries, Korea had the lowest confidence in the fairness of the results of the qualitative and comprehensive judgments in university admission and competitive bidding processes.

Korea also had the lowest percentage of those who believed that the general public and government officials abide by social norms. At the same time, Korean respondents had the most hostility toward goal-oriented values (using any means to obtain goals, "the end justifies the means."). This implies that if the negative realities of our society such as corruption affect the desire for fairness, it will lead to deeper distrust and skepticism.

Collectively, what can be learnt from the series of thought experiments using hypothetical situations is that, in Korea, the prosocial values and solidarity—bridging social capital—of the older generations have not been adequately passed down to the younger generations. Korean and Japanese respondents showed fewer experiences of giving to charity and less willingness to give than their counterparts in the US and China. Koreans were also the least inclined to share the cost of sustaining the employment of others. This implies that, if things do not change in terms of social solidarity, there will be no buffer against the employment shocks from the fourth industrial revolution.

Regarding social inclusiveness and willingness to resolve conflicts, Korean respondents believed that religious differences were the main obstacle to discussion and compromise

Korean undergraduates have low public trust and prefer self-help methods to collective solutions.

Korea has the lowest percentage of those who believe that the general public and government officials will meet social norms.

Korea shows low willingness to make donations and has weak solidarity.

compared to ideology, political orientation and conflicts of interest. This points to difficulties in forming bridging social capital between people of different religions. They also had the most negative opinions about the environment for foreigners residing in Korea, and were aware of the level of discrimination against different nationalities. Indeed, such tendencies may become stumbling blocks to the social cohesion of Korean society when the time comes for Korea to turn to foreign workers to tackle the problems arising from population aging.

About 73% of Korean respondents preferred a secluded residential environment for privacy protection over communication and interaction.

About half of the Korean participants expressed attachment to their local community while 73% preferred a secluded residential environment, choosing privacy over communication and interaction with neighbors. When running into an unfamiliar neighbor in the elevator, Koreans were more reluctant to be the first to say hello. Moreover, although the respondents had many people they could turn to in times of hardship, most sought support from outside the circle of family and relatives, highlighting the need to place more focus on family interaction which serves as the seedbed to the cultivation of social capital. They perceived Korea as a closed bonded society rather than open and bridged. Also, compared to respondents from the US and China, those from Korea and Japan showed lower levels of social capital in terms of social involvement such as participating in community groups, clubs and public activities and showing commitment to justice and willingness to serve both country and society.

The percentage of those who had negative experiences of interpersonal trust and public institutes was higher for the US and China. And, given that the respondents from both countries exhibited more social capital, it may mean that low social capital is not necessarily correlated to the negative experiences and inadequate environments of school.

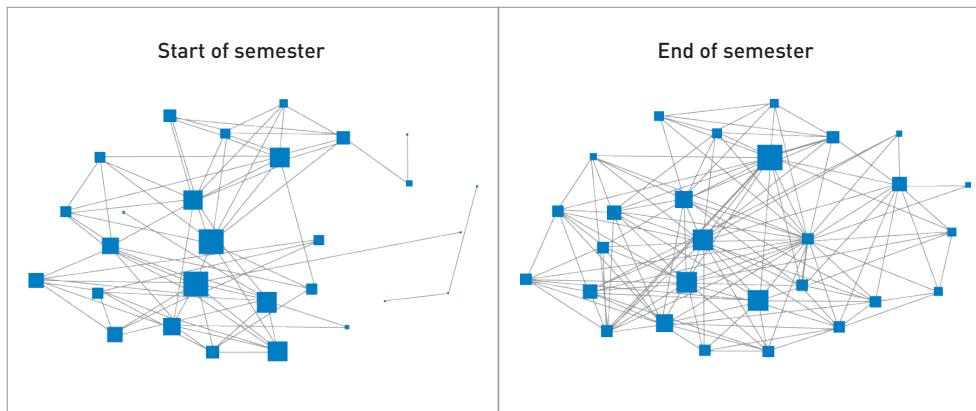
Korean undergraduates believe that as the level of education increases, the level of cooperative spirit decreases.

Korean respondents were most critical of the compliance, cooperation, and volunteerism at each educational stage (elementary, middle and high schools and university), and believed that people's cooperative spirit diminished as they moved up in education. Additionally, Korea was more skeptical about the possibility that discussions, project-based learning (PBL) and team-level evaluations could enhance communication and collaboration skills, implying that 'quality' should be at the core of any changes made to teaching methods and evaluations. When asked what would help students perform better in assignments that require free and creative thinking, China, Japan and the US chose team work while Korea chose individual work. This means that Koreans are the most pessimistic about the fact that team work can produce collective creativity.

III. Educational Experiment on Teaching Methods and Social Capital

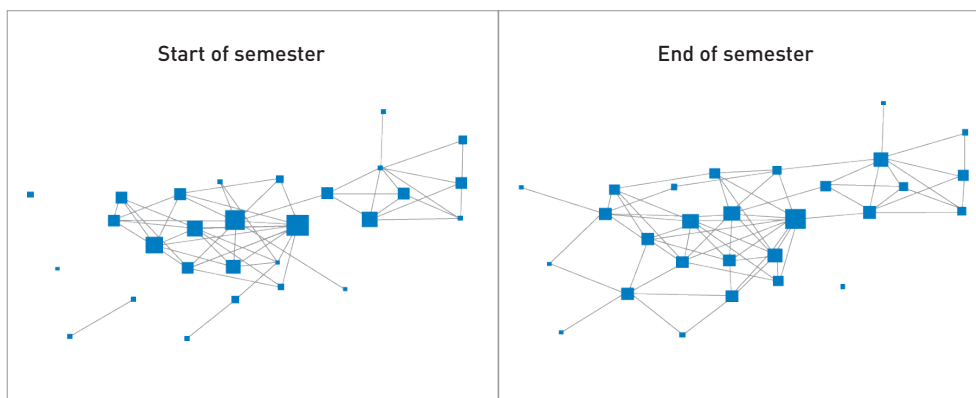
During the spring semester of 2017, an educational experiment was conducted on the undergraduates (184 students from six classes) of Gwangju Institute of Science and Technology (GIST). In order to analyze the impact of teaching practices, three lectures

[Figure 3] Changes in Students' Network of Friends: Horizontal



Source: Survey of 28 students taking the 'Economics of Education' course during the spring semester of 2017 at GIST.

[Figure 4] Changes in Students' Network of Friends: Vertical



Source: Survey of 28 students taking the 'Comparative Class X' course during the spring semester of 2017 at GIST.

that were taught via vertical teaching methods were categorized as the control group while three that used the horizontal approach were categorized as the treatment group. The analysis tracked the changes in the participants' network of friends (relational social capital) and their perceptions about social capital both at the beginning and end of the semester. And for the treatment group, round tables were placed in classrooms and students were divided into teams at the beginning of the semester. Team-based discussions and assignments were also adopted for the purposes of creating more active horizontal interactions.

Firstly, the changes in the students' network of friends were analyzed by class (Figure 3 and 4). It was found that the density of the whole network (of all possible connections, number of cases in which students are actually linked to their friends) increased much more, and the degree of the average weighted connection, which reflects the intensity of friendships (three-stage scale from hi and bye, small talk to buddy), rose sharply for the treatment group. The inequality of coreness, which measures the degree of inequality

among students at the core of networks, was much lower in the treatment group than in the control group.³⁾ Indeed, the student interaction in horizontal teaching methods distributes roles within a group rather than concentrating them on a few specific students. This, in turn, alleviates the inequality of coreness and therefore, the network as a whole is not significantly disrupted even if certain students disappear from the network.

In addition, five quantitative analyses were conducted on the effects of teaching methods on students' social capital, the results of which can be found below.

Firstly, according to an analysis of the changes in the social capital of students who experienced different teaching methods during the semester, those who received project-based learning exhibited a larger increase in social capital and cooperation at semester-end. On the other hand, students in lecture-oriented classes performed poorly in developing friendships and had limited awareness of social capital e.g. trust in fairness. Students in classes that encouraged active interaction between teacher and student showed stronger faith in complying with rules, implying that communication is important in students' compliance with top-down norms.

Second, a difference-in-differences analysis was conducted on the variation of changes in social capital. The results showed that the increase in network density and intensity was higher for students in the treatment group. The difference between the groups becomes more apparent when a class from the treatment group that applied horizontal teaching methods more consistently is designated as the experiment class. The social exclusion felt by the students was smaller and faith in trust and fairness was stronger in the experiment class.

Third, in the context that a network of friends can serve as a conduit for teaching methods to affect social capital, an examination was conducted into whether changing students' network of friends through teaching reshapes their views and attitudes towards social capital. To that end, an analysis was conducted into whether the different networks of students in the same class were correlated to the differences in their perceptions about social capital (the class-fixed effects model estimation). The results showed that students who had more frequent and intense relationships with others were more positive about social capital. This tendency was clearer at the end of the semester as students formed additional and closer connections with their classmates.

A fourth analysis was conducted with the same goal as the third and on the same students to see whether the changes in their network of friends lead to changes in their perceptions and attitudes towards social capital (the student-fixed effects model estimation). The comparison of the changes in social capital at the beginning and end of the semester reveals that when the network of friends is tight, there is stronger faith

3) From the beginning to the end of semester, the density of the whole network posted steep increases in the three treatment groups (0.33→0.62, 0.39→0.54, 0.24→0.45) while only marginal increases were observed in the three control groups (0.21→0.29, 0.24→0.28, 0.26→0.32). These treatment groups also exhibited positive changes in terms of the degree of average weighted connection and inequality of coreness. Refer to pp. 162-163 of Kim (2017) for further accounts.

Social capital increased further among students who were more frequently exposed to PBL activities.

Students who received a horizontal-type education showed more increases in their network of friends and better perceptions about social capital at the end of the semester.

Peer relationships fostered in the course of horizontal interactions were found to improve perceptions and attitudes about social capital.

in inclusiveness (opposite to social alienation), public spirit (moral objection about free-riding) and fairness. The survey period was a mere three months but the results suggest that if networks are broadened through collaborative interaction, students' views about social capital could become as positive as the increase in their network of friends.

Lastly, an analysis was conducted to see if the changes in students' relative preference to be grouped via student autonomy, randomly or teacher's discretion was correlated to the teaching method (multinomial logit model). It was found that in classes that frequently had over one week-long group projects, students grew to be as accepting of random grouping—the less preferred method—as grouping by student autonomy by the end of the semester as they formed closer relationships with their classmates during the assignments. On the other hand, in classes that were mostly based on lectures, the students expressed negative feelings towards teachers using their discretion to form groups. In other words, students who spent a semester with a teacher who used vertical teaching methods had less faith in the teacher's judgement.

The findings from the educational experiments at GIST reveal that teaching methods can affect students' network of friends and perceptions and attitudes about social capital even in a single semester. In particular, horizontal and participatory teaching methods, which emphasize active interaction and collaboration between students and value their separate roles, contributed significantly to improving students' bridging social capital (specifically their network of friends) and inducing positive changes in their views about social capital.

IV. Directions for Education to Improve Social Capital

In terms of cultivating social capital, applying constructivism (knowledge obtained through interactions rather than transference) to teaching methods will encourage the introduction of horizontal learning elements. For instance, PBL can be helpful in developing future competencies such as creative thinking, problem solving and self-management, and improving social capital through collaboration for project execution. Moreover, a flipped classroom could be effective as it encourages teamwork even from the preparation stage and promotes in-class interactive feedback between members and teams.

Evaluations should be team-based and include more absolute assessments in order to correct the shortcomings in existing individual evaluations that can hinder collaboration and generate excessive vigilance and competitiveness. Also, evaluation tools that are based on student participation need to be developed to reflect peer reviews, and it would be meaningful to adopt a self-evaluation category in PBL to enable students to reflect on the progress that they have made during projects. Meanwhile, for university entrance exams, which are probably the most important evaluations in Korea, securing both the educational effects or adequacy and trust or fairness will be the most important challenge to address. Given that Korean society has a low level of trust, enhancing fairness should become a

Having experienced random grouping in class, students became more receptive to cooperating with others who are unfamiliar.

Horizontal interaction could be enhanced by adopting constructivism through, for example, PBL and flipped classroom programs.

It is necessary to extend evaluation systems to an appropriate degree, such as team-based, absolute, student participatory and process-focused formats.

priority while consistent efforts are made to improve educational adequacy which could enhance social capital and foster competencies for the future.

An innovative education environment such as bottom-up changes in classes should be developed and HR systems for faculty need to be redesigned to go hand in hand with educational innovation.

Education that is effective in raising students' social capital is determined by the instructor. Innovative teaching methods already exist and serve as prime examples. Thus, such methods should be promoted further and bottom-up innovation, which creates environments that encourage innovation, should be introduced to the classroom. HR systems for faculty should include incentives that would help elementary, middle and high school teachers focus more on their class than on administrative tasks while enabling university professors to pay as much attention to education as their research.

Korea's social capital is relatively small in cumulative size and on a downward trajectory. Indeed, in today's Korean society, many have only a handful of people that they trust in and rely on; wariness of others; little faith in fair competition (lack of social support and trust); strong preference for acting alone than working together (lack of social engagement) and; law and order are often overlooked for the sake of themselves and those close to them (damage to social norms).

Measures to reverse the decline in social capital must be sought in earnest. Accordingly, this study believes that public education is worthy of attention. Schools serve as a common venue where students become officially engaged in social relationships and can develop trust, a cooperative mind and public and law-abiding spirit. However, in reality, the competitive environment in schools teaches students to be cautious of others and cynical. Furthermore, as families become smaller, opportunities are already disappearing for children to learn basic social skills from family interaction before they enter school.

Transforming teaching methods to be more horizontal and participatory is an important agenda that will contribute to not only enhancing social capital but also to fostering those with skills needed in the future.

As such, teaching methods should be reformed to promote social capital. As shown through the experiment on Korean undergraduates whose educational experience is a series of competition and rigorous relative evaluations, the modified teaching methods were quite effective in inducing positive changes to their social capital. Transforming current teaching methods to be more student-led, horizontal and participatory could be a key to rising questions as to why we need to focus on public education in today's era of open online education. The shift is also necessary for Korea to foster more "cooperative geeks" who will be in high demand during the fourth industrial revolution. Today, collaboration and creativity are two of the most important qualifications in industry while social personality, democratic citizenship and critical thinkers are the most needed in society. Accordingly, the educational innovation suggested in this study is a priority agenda for Korea that could earn immediate consensus from society as a whole, regardless of peoples' conservative or progressive stance.

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