Digitalization and Its Impacts on Political Science Education and Research: The Case of South Korea

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Abstract   The digital revolution has made an immense impact on our society. And witnessing recent events in all parts of the world, it does not require a logical leap to conclude that the revolution also brought about profound changes in the modus operandi of the modern representative democracy. However, surprisingly little attention has been paid thus far to how the discipline of political science as a scientific community has collectively absorbed, digested, and reflected on the issues of the digital revolution and its implications. The aim of this paper is to examine and provide an account of how South Korean political science and political scientists have dealt with the changes and challenges posed by the digital revolution, with special attention to the aspects of teaching, learning and research. Based on our survey of political science programs at major universities, the website of the Korea Open Course Ware, research publication records, etc., we argue that the political science community in South Korea and their work, belying responsible for analyzing the challenges and implications and to provide useful guidance, have been regrettably slow to keep up with the speed at which the society and technology advanced, a stark contrast to the fact that the ICT and the digital revolution have already been fully recognized and utilized by the mass public and the political elites in the country. Indeed, the discipline remains far behind, in both education and research. A vicious cycle has already been formed between the problems of insufficient researchers and research assistants and the dearth of relevant classes offered as part of the discipline's regular

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curriculum. Further, excessive emphasis on statistics and empirical methodology on top of insufficient theoretical background have rendered nascent research effort unproductive. Breaking the chain of this vicious cycle, we believe, calls for a solid policy initiative and implementation. In order to do so, however, we must first come to recognize the many hindrances confronting the discipline's progress.

Keywords   digital revolution · Internet · education and research · political science

Introduction

In the age we live in and in most parts of the world, it is not an exaggeration to say that there is not a single segment of society that has not experienced a fundamental transformation in the last few decades arising from the remarkable advancement of information digitalization, communication technologies (ICT) and the spread of Internet and mobile access devices. Politics and political science, the subject of our study, are no exception. New information, norms and values spread through decentralized digital networks effortlessly and at an astounding speed. Today, we are less concerned with the dearth of information than we are with discerning the valuable and factually correct information from those that are not. Similarly, with the advent of various channels of personalized digital media, the dynamics between political elites and the mass public, as well as that within the public, has become greatly diversified while the monopolistic position of traditional mass media has undergone substantial weakening.

For many of us, no more than a glimpse of changes in the modern representative democracy is sufficient to accept the idea that the digital revolution has made an immense impact on our society and, in particular, how 'authoritative allocation of values'- i.e., 'politics' (Easton 1953) transpires both at the domestic and international level. In fact, confronted with the new challenges posed by digitalization, a plethora of individual scholars and teams have examined the impact of digital revolution on politics and its prospect (e.g. Arterton 1987; Barber 1998; Bimber 2001, 2003; Compaine 2001; Davis and Owen 1998; Davis 1999; Grossman 1998; Margolis and Resnik 2002; Rash 1997; Norris 2001a, 2001b; Rheingold 1995, Toffler and Toffler 1995; Weare and Stanley 2004; Van Dijk and Hacker 2003). Nonetheless, relatively little attention has been paid to how the discipline of political science, as a scientific community, has collectively absorbed, digested, and reflected on the issues of the digital revolution and their implications.

Given such glaring lack of understanding of how the digital revolution affects the discipline of political science and how the latter responds to the former, this essay aims to examine and provide an account of how South Korean political science and scientists have been dealing with the changes and challenges brought by the digital revolution, with special attention to the aspects of teaching, learning and research. The essay is structured as follows. At the outset, we briefly survey the current state of the digital revolution and that of political science as an academic discipline in South Korea for the purpose of providing a general background. In the next two sections, we show the results of our survey regarding the efforts within the academia to adapt to the challenges of the digital revolution, particularly in how they go about teaching,

learning and conducting research. In each section, we focus on two discrete aspects of the digital revolution: ICT as a tool and as a topic. The final section of this essay discusses the implications of this paper's findings and comments on the prospect of political science as an academic discipline in South Korea.

Current State of the Digital revolution in South Korea

In February 2003, an article on the Guardian reported the assuming of the office by the winner of the presidential election held in December 2002 in South Korea. Its heading read "World's first Internet president logs on" (Watts 2003).[1] The reporter of the article wrote "South Korea will stake a claim to be the most advanced online democracy on the planet tomorrow with the inauguration of a president who styles himself as the first leader fully in tune with the Internet."[2] Quoted in the article, a high-ranking government official said "the development of Internet technology has changed the whole political dynamics in South Korea to an extent that the outside world has not yet grasped."[3] Surely, the report identified South Korea's superior Internet environment as a critical factor that facilitated the rise of "webocracy":

> New Korea's hi-tech credentials have been a focus of national pride. Its biggest claim to international fame is the development of Internet services, which are far ahead of most countries. Almost 70% of homes have a broadband connection, compared with about 5% in Britain. Because of the high connection speeds, much faster than most British broadband, people use the web more for shopping, trading and chatting. Koreans are said to spend 1,340 minutes online per month, and 10% of economic activity is related to IT – one of the highest levels in the world (*The Guardian*, 24 February 2003).

Indeed, the Korean government's rigorous implementation of the "Information Superhighway" project undertaken since 1995[4] propelled the country to one of the leading information-oriented societies well ahead of 2002 presidential election. Today, with over 15 years passed since, South Korea still boasts its leading edge in the global transformation process.

As of the first quarter of 2017, the U.S. News reports, South Korea enjoyed the fastest Internet speed in the world.[5] South Korea's average Internet connection speed was 28.6

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[1] Available at https://www.theguardian.com/technology/2003/feb/24/newmedia.koreanews (1 May 2018)

[2] In the aftermath of the 2002 presidential election, many foreign and domestic media did not hesitate to conclude that Roh Moo-hyun won the election as a result of his dominance over his major rival Lee Hoi-chang in on-line campaigning, particularly successful in mobilizing young voters. For these accounts and more academic analysis of the relationship between the spread of the Internet and the 2002 Presidential election in Korea, see Yun (2003), Kim (2006) and Shin (2006).

[3] The official was Yoon Yong-kwan, the head of foreign policy formulation in the new president's transitional team. Yoon himself was a political scientist and used to be a professor of department of international relations at Seoul National University, before taking the position in government.

[4] For the national "Information Super Highway" project, see Kim (2006), esp. p.53.

[5] Available at https://www.usnews.com/news/best-countries/slideshows/10-countries-with-the-fastest-internet -speeds (1 May 2018). The report was based on the statistics provided by Akamai (2017), one of the largest content delivery network providers in the world. Akamai report is available at https://www.akamai.com/fr/

megabits per second (Mbps) at that time when the world's average was merely 7.2 Mbps. South Korea was ahead of Norway, the country with the second fastest Internet speed by over 5 Mbps. In fact, South Korea has remained in first place for the last thirteen consecutive quarters. One important factor behind this impressive achievement is the high broadband adoption rate. 85 percent of Internet connections in South Korea had an average connection speed of 10 Mbps or greater– the fastest rate in the world, roughly 10 percentage point above the second highest, Switzerland – while the average global high broadband connectivity rate was around 45 percent as of the first quarter of 2017 (Akamai 2017).[6] These numbers attest to the country's much higher capacity of information transmission than in any other country in the world.

Clearly benefiting from strong infrastructure, over 9 out of 10 South Koreans (92.6%) are active Internet users. The comparable figures of China and the U.S. – the countries with the largest and the third largest number of Internet users – are 52.6 and 87.9 percent, respectively.[7] Considering these figures, it is not without grounds to claim that South Korea is one of the countries that may have been most affected by the changes and challenges posed by the digital revolution.

Current State of Political Science as an Academic Discipline in South Korea

According to Park (2005)'s research on the origin, evolution, and development of the discipline of political science in South Korea, it was not until the 1945 liberation of Korea from the Japanese colonial rule and the United States' occupation that political science became properly recognized and began to be institutionalized as a distinct and independent academic discipline. It was only after 1946 that major universities, including Seoul National University, began to establish the department of political science independent of faculty and department of law. A few months after the Armistice Agreement on the Korean War was signed in 1953, the biggest academic community that is still active today, the Korean Political Science Association (KPSA) was established by 15 founding members. The KPSA managed to publish its first issue of Korean Political Science Review (KPSR) in 1959. The period from the 1945 independence till the military coup d'état of May 1961, loaded with extraordinary political upheavals and twists and turns, undoubtedly provided the fertile ground for the growth of political science as an independent academic discipline. In this sense, political science in Korea has roughly 70 years of history, a figure tantamount to that of the Republic of Korea.

Park (2005) divides the 70 years-long course of development of South Korean political science as an independent academic discipline into five distinct phases: 1) founding phase (from independence in 1945 until the coup d'état in 1961), 2) formative phase (until the beginning of *Yushin* – revitalizing reform – regime in 1972), 3) awakening phase (until the fall of Park's regime with his assassination in 1979 and the restoration of authoritarian rule by

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fr/multimedia/documents/state-of-the-internet/q1-2017-state-of-the-internet-connectivity-report.pdf (1 May 2018).

[6] Also available at https://www.statista.com/statistics/417225/high-broadband-connectivity-countries(1 May 2018).

[7] Available at https://www.internetworldstats.com/stats.htm (1 May 2018).

General Chun with the brutal suppression of Kwangju Uprising in May 1980), 4) phase of alternative-exploring (until the massive civic democratic movements in June 1987 and opening of democratic Sixth Republic in February 1988) and 5) phase of maturity (until the present). Undergoing these 5 phases, the discipline of political science in South Korea has significantly grown both in its quantity and quality. Not only has its size of membership proliferated, the member's academic backgrounds as well as their scope and modes of inquiry have become much more diversified.

The founding stage was triggered by the coming of then a Western academic discipline into Korea via Japan in the form of imported goods. In its formative stage, Korean political science grew as scholars devoted their time to earnest learning of American political science. The influence of American political science on its Korean counterpart still remains strong to the present day. Nonetheless, roughly between the awakening and the alternative-exploring phases, Korean political scientists began to recognize the importance and necessity of constructing the discipline that better reflects local contexts and characteristics. That is, instead of simply applying theories of Western political science as imported, they began to develop their own original, generalizable theories to analyze Korean political phenomena. Further, Korean scholars received doctoral degrees from institutions in Europe, North America, Australia and other part of Asia in addition to domestic institutions.[8]

The table shows that during the early years, doctors in political science were mostly foreign products, albeit relatively small in number. But the trend is later reversed. In the most recent 5 years, the ratio of domestic degree holders to foreign degree holders is 3:1. Its implications are twofold. On the one hand, such pattern is indicative of diversity in Korean political science discipline. On the other hand, it attests to the capacity of the foreign degree holders to raise and educate a new generation of young scholars on their own. Having experienced profound intellectual challenges during the alternative-exploring phase in the 1980s, by the time it reached the maturity stage, Korean political science has grown significantly in size, breaths and

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[8] In the early 1970s, government ministry that had a jurisdiction over education allowed domestic institutions confer the doctor of philosophy in political science (Park 2005, p.71). The table below shows the number of political science doctorate awardees from domestic and foreign institutions.

Number of PhDs in Political Science

	Foreign Institutions	Domestic Institutions	Total
1955 ~ 1959	1	0	1
1960 ~ 1969	32	0	32
1970 ~ 1979	67	95	162
1980 ~ 1989	150	191	341
1990 ~ 1999	492	563	1055
2000 ~ 2004	212	319	531
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2012	37	81	118
2013	20	68	88
2014	29	81	110
2015	39	93	132
2016	29	111	140

Source: Park (2005) for information up to 2004. Post 2012 data were collected by the authors from statistics provided by the Korean Researcher Information system (available at http://www.kri.go.kr).

methodologies (Park 2005, p.83).

Table 1 below tracks the types and number of educational institutions in general and those that grant political science. The country's Ministry of Education classifies higher education institutions into junior college, college, university, and graduate school.[9] As of December 2017, South Korea has 146 junior colleges, 238 colleges and universities, and 1,199 graduate schools. Among them, 42 universities offer a Bachelor's degree and 35 graduate schools offer a Master's or Doctoral degree in the field of political science.

Table 1 Number and Types of Institutions Granting Degrees in Political Science

	Number of Institutions	Number of Institutions That Offer Diploma in the Discipline of Political Science
Junior College (2~3 years)	146 (9/137)[*]	N/A
College & University (4 years)	238 (47/191)	42
Graduate School	1,199[†] (241/958)	35
Distance & Cyber Universities	21 (0/21)	None

Note: N/A = not applicable. [*] Numbers in the parenthesis is the number of (national+public/private) schools. [†] When a university has multiple graduate schools, the latter are counted independently.

Source: For higher education in general, KEDI (2017). Other information on the discipline of political science was compiled by the authors.

By contrast, we can also see in the last row of the Table that no distance and cyber education institutions award degrees in the discipline.[10] Although it was not our original intention to discuss in this section how Korean political science adapt to the changing educational environment in the digital age, we point to this figure for the purpose of providing a piece of background information that is relevant to the main argument of this essay. That is, the discipline of political science in South Korea has not been fully utilizing the available benefits of the new education environment afforded by the digital revolution, nor has it adapted well.

Table 2 shows the number of researchers, classified by their age group and gender, who identified political science as their field of specialty when subscribing to the Korean Researcher Information System, a database of researcher information maintained by the South Korean government (http://www.kri.go.kr). In South Korea, any researcher who applies for government

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[9] Junior colleges are institutions that typically offer a short 2 to 3 year-educational course in a specialized area. College and University are schools that offer regular 4 year-educational courses and confer bachelor's degree for those that complete the required curriculum. Colleges allow students to gain specialized knowledge in a specific field of study while universities are those institutions that encompass multiple colleges. Graduate schools offers advanced degrees including a master's and doctoral degrees. In <Table 1>, the number of graduate schools is, in a sense, overestimated in that the government agency that provides this statistic, the Korean Educational Development Institute (KEDI) under the ROK Ministry of Education, separately counts all graduate schools that offer a master's degree or higher in different fields of study within a university. Out of 1,199 graduate schools, 46 are graduate school colleges, established independently from existing university (KEDI 2017).

[10] Distance and cyber universities provide education mainly via online communication networks. Distance universities are mainly aimed at reeducating elderly students, so are regulated by Life-Long Education Act (KEDI 2017).

financial support for his/her research project or is in search for a position in higher education institutions is required to complete the registration.[11] As such, despite the fact that the number is based on self-reporting by the researchers, it is generally safe to assume that the figure represents the size of those engaged in the discipline quite accurately.

Table 2 Number of Political Science Researchers Registered to the Korean Researcher Information (KRI) System

Age Group	Gender	n	%
Under 30	Male	51	1.49
	Female	78	2.27
30s	Male	203	5.92
	Female	206	6.00
40s	Male	521	15.19
	Female	230	6.70
	Not identified	2	0.06
50s	Male	804	23.43
	Female	135	3.93
	Not identified	5	0.15
Over 60	Male	1,075	31.33
	Female	70	2.04
	Not identified	30	0.87
Not Identified	Male	15	0.44
	Female	6	0.17
Total		3,431	100.00

Source: < https://www.kri.go.kr/kri2> (2 May 2018)

Table 2 demonstrates that there exists a sizeable community of political scientists in South Korea. We can also see that female researchers are growing in number, particularly in the younger age groups. Although gender is not the only criterion of showing diversity of academic activity, it surely offers a glimpse into an important aspect of diversity. Another significant aspect of diversity can be found in the subfield of specialization of the members of the Korean Political Science Association (KPSA), the biggest umbrella organization of Korean political science community.[12] Having started with 15 founding members in 1953, the KPSA has by now more than 2,200 full members.[13] A doctorate degree is a requisite for the full membership. Thus, roughly speaking, the membership of the KPSA is a subset of researchers registered in the KRI system. According to a survey conducted with 1,680 KPSA full members in 1997, 26.6 percent of full members chose comparative politics and area studies as their subfield of specialization. Political thoughts and theory was chosen by another 23.0 percent, international relations by 21.8 percent, public administration by 18.0 percent, Korean politics by 7.3 percent,

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[11] Strictly speaking, the institutions require the applicants to do so.
[12] The KRI system does not provide information on the self-identified subfield of specialization by the registered researchers currently.
[13] The KPSA also has 39 institutional members. The information on membership is available at http://www.kpsa.or.kr/modules/doc/index.php?doc=history&_M_ID=23 (3 May 2018).

and miscellaneous category by 3.3 percent (Lee 2001; Park 2005). Although the survey was undertaken 20 years ago, these results do prove substantial diversification that in terms of subfields within the political science community at the start of its maturity phase.[14]

However, a concerning pattern can be detected in the above table. That is, as we move to the top of the table, we see diminishment of the size of political scientists. This trend suggests that the discipline is facing the crisis of shrinking community.[15] This shrinking is in part related to a macro-level change in the country's demographic composition. The starkly low fertility rates in the last decades[16] turned South Korea into a fast 'aging society.' As a result, it is estimated that in the near future, the number of available admissions at higher education institutions – excluding graduate schools –will exceed the number of students who are eligible to apply. This fundamental change in the demographic structure puts a great deal of pressure on all of the higher education institutions in South Korea, particularly as most of these institutions are privately owned and rely on the student's tuition for operations. In response, South Korean government in recent years has implemented an array of policies that aim at restructuring colleges and universities, including reducing the size of students. Consequently, many independent departments were forced to merge with other related disciplines or even to close down for good. Political science departments have not been an exception. At least a couple of departments that we saw in table 1 experienced recent consolidation. This implies a reduction of available job openings in the higher education institutions, which is already highly competitive. Thus, many talented young students begin to switch their career path to a more promising field of study. Thus, despite the stellar growth of the Korean political science discipline in the last 70 years, its prospect does not continue to be as bright. Indeed, Korea's political science is at a crossroads.

Education of Political Science in the Digital Age

Now we turn to the discussion of ICT as a tool. A typical college class in South Korea runs in the following manner. Around the start of a class, students enter their lecture hall after tagging their ID card on the device installed near the gate. As their student IDs are tagged, a scanning device also takes a picture of each student. Simultaneously, student's attendance is automatically recorded in the course management system and the lecturer, if he/she wills, can easily check such records. As the class begins, the lecturer starts the computer in the lecture room, logs onto a school-wide course management system, finds the lecture note that he/she uploaded before coming to the class, and displays it on the front screen. Sometimes, the lecture note includes certain URLs to video clips on the YouTube. When the lecturer clicks on a URL, the video clip is played on the screen. As the class ends, the lecturer makes an announcement to the students

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[14] Note that comparative politics and area studies, the most populated subfield in the survey, include many diverse sub-subfields within it.

[15] Part of the reason may be the relative long duration of study to get a doctoral degree. But this cannot explain all the differences between 30s and 40s and, especially, 40s and 50s.

[16] The total fertility rate, the average number of children that would be born to a woman over her lifetime, is mere 1.05 in 2017. The rate was dropped to below 2.0 in 1984 and it has kept declining since then. Information is available at http://www.index.go.kr/potal/info/idxKoreaView.do?idx_cd=1428 (2 May 2018).

that information on their assignment can be found on the online course management system. Students upload their assignments to the system before a set deadline. As the assignment is uploaded, their work is automatically checked for possible plagiarism, and as grades are entered into the system, students are again instantly notified.

Indeed, as in the above description of a typical operation of a class, the ICT – as a tool – are now integral parts of teaching practices and help us operate classes so much more effectively and efficiently. However, the use of the new information technologies has mostly been the result of a university-level decision rather than individual departments. We could hardly find any example in which a department of political science was the source of an original initiative to utilize the new tools to enhance our experience of teaching and learning. In fact, political science community has done little to take advantage of technological advancements the digital age affords us. As we saw earlier in Table 1, none of the 21 distance or cyber universities in the country offer a degree in political science.

Another glaring evidence of poor utilization of technological development is found on the website of the Korea Open Course Ware (KOCW, <www.kocw.net>) run by the Korea Education and Research Information Service (KERIS), a public institution under the Ministry of Education. The KOCW, similar to the MOOCs (Massive Open Online Courses), provides the general public with free, open, unlimited access to university lectures and courses. As of May 2018, KOCW provides access to a total of 16,018 lectures, 13,701 courses of 186 universities and 2,317 courses of 23 research institutes. While there are 5,959 courses in the field of social science, only 226 of those are political science courses (3.8% out of the courses in social science, 1.4% out of the total), a miniscule proportion that belies the discipline's central position in all social sciences. What is more disappointing is that roughly 60 % of 226 political science courses provide only notes without video lectures, and that none of the political science courses is part of the 36 most recommended and popular courses, as determined based on the number of page views.[17]

Perhaps what comes as even more concerning is the fact that out of those 226 political science courses offered on the KOCW webpage, only two of them are related to the subject of this essay, i.e. political science in the digital age.[18] This finding prompts us to wonder 'how the features and challenges of the digital revolution are dealt with in regular, offline, political science classroom in South Korea.' The following two tables present the result of our survey of both undergraduate and graduate curricula at 10 major political science departments in South Korea. Both tables include the total number of courses in each university's curriculum, the number of courses related to digital revolution or information technology, and finally, whether these courses were actually offered in last 5 years.[19]

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[17] The exact numbers frequently change as more courses are uploaded, although the number of political science courses seldom changes. Indeed, the figure remained unchanged at least for the past 6 months during which this essay was being written. The information is available at http://www.kocw.net/home/search/majorCourses.do#subject/020314 (3 May 2018).

[18] The two courses are "Political Process in Information Society" (http://www.kocw.net/home/search/kemView.do?kemId=1048449, 3 May 2018) and "Information Revolution and International Relation" (http://www.kocw.net/home/search/kemView.do?kemId=959290, 3 May 2018).

[19] Not all courses in the curricula are actually offered, because some of them are selective. The opening of course depends on the student's needs as well as the faculty member's decision. We were not able to locate

Table 3 Digitalization and IT Related Courses in the Regular Curriculum of Political Science Departments at Major Universities: Undergraduate Level

University	Total Number of Courses in the Curriculum	Number of Courses that are related to Digital/IT in Curriculum	Offered in last 5 years
Seoul National University	84	1	Yes
Korea University	61	3	No
Yonsei University	73	1	Yes
SungKyunKwan University	41	0	.
Kyung Hee University	52	1	Yes
Hanyang University	64	0	.
Ewha Women's University	38	1	Yes
Sogang University	N/A	N/A	N/A
Chung Ang University	34	1	No
Hankuk University of Foreign Studies	44	0	.

Note: N/A = not available
Source: Compiled by the authors through the search of the departments' webpages.

Table 4 Digitalization and IT Related Courses in the Regular Curriculum of Political Science Departments at major universities: Graduate Level

University	Total Number of Courses in the Curriculum	Number of courses that are related to digital/it in curriculum	Offered in last 5 years
Seoul National University	79	2	Yes
Korea University	103	1	No
Yonsei University	76	2	Yes
SungKyunKwan University	N/A	N/A	N/A
Kyung Hee University	68	0	.
Hanyang University	28	0	.
Ewha Women's University	21	1	Yes
Sogang University	N/A	N/A	N/A
Chung Ang University	78	0	.
Hankuk University of Foreign Studies	63	0	.

Note: N/A = not available
Source: Compiled by the authors through the search of the departments' webpages.

The table above patently illustrates that courses on digital revolution or information technology are not a regular part of the official curriculum of most of prominent political science programs in the country. Among the curricula of nine undergraduate political science departments we could find on the web, only six have relevant courses as part of their

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and identify the curricula of all the 42 undergraduate and 35 graduate political science departments in Korea (<Table 1>). But these ten departments are considered to be major with respect to their size of students as well as their size of faculty members. So, these ten departments are likely to have more diverse courses in their curricula. This is why we focus on them.

curriculum. At the graduate level, only a half (4 out of 8) offer such courses. Worse still, whether the course is actually offered to the students was not guaranteed even when a department listed relevant courses as part of their curriculum. Not much is different at the graduate level.

Of course, these findings do not mean that the challenges and implications of digital revolution on the politics and modern representative democracy are categorically not discussed in other political science courses. However, the paucity of independent courses in the regular curriculum and the much severer paucity of actual course offerings do suggest that in the classrooms of South Korean political science programs, the subjects have not garnered the due level of attention and discussion that they deserve.

Political Science Research in the Digital Age

Part of the reason for the relatively little attention paid to digital revolution in teaching is related to scant research activity on the subject. That is, we cannot expect an opening of an independent course when there is not enough original research work or researchers dealing with the topic. The following table (Table 5) shows the total number of articles published in the *Korean Political Science Review* (KPSR) in the last five years and the number of articles that deal with the impact and implications of the digital revolution and new information technologies. The KPSR, a journal published four times a year in Korean, is the country's equivalent of the APSR. It is one of the most prestigious journals in the Korean political science discipline that covers a wide range of topics of subfields, and thus, is the most preferred venue of publication for most of researchers with respectable research work.

Table 5 Number of Articles Related to Digitalization/ICT Published in the Korean Political Science Review in the Last 5 Years

	2013	2014	2015	2016	2017
Number of Articles (overall)	64	67	54	45	44
Number of Articles related to Digital / IT	1	0	2	0	1

Source: Compiled by the authors.

In Table 5, we can see that only four out of 274 articles published in the KPSR from 2013 to 2018 dealt with topics related to digital revolution and/or ICT. As this may as well be due to the fact that publication in KPSR is very competitive, we expanded the scope of search to include other major political science journals in South Korea and table 6 below shows the result.[20]

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[20] As in the case of the researcher, the National Research Foundation (NRF, http://www.nrf.re.kr) that maintains the Korean Researcher Information, also provides financial support for selective journals. Thus, the NRF have managed to have a list of academic journals that meet the requirements of the foundation. As of May 2018, 1,987 journals are registered in the list of the NRF and 58 of them are the journals that publish mostly political science research. The seven journals in table 6 are selected because they are ranked highly in terms of the citation index (Korean Party Studies Review, Journal of Korean Politics, Korea and World Politics, Journal of Legislative Studies, OUGHTOPIA), or because it published relatively more

Table 6 Number of Articles Related to Digitalization/ICT Published in Other Major Political Science Journals

Journals	2013	2014	2015	2016	2017	Total
Korean Party Studies Review	4/26*	1/22	1/22	1/17	0/11	7/98
Journal of Korean Politics	1/32	2/34	1/38	2/30	0/17	6/151
Korean and World Politics	0/27	0/28	0/25	0/25	0/18	0/123
Journal of Legislative Studies	0/25	0/18	0/23	0/31	0/29	0/126
OUGHTOPIA	0/13	0/16	1/23	0/21	0/10	1/83
21st Century Political Science Review	3/38	3/55	2/46	2/36	2/31	12/206
Journal of Political Science and Communication	1/25	1/18	1/23	1/31	0/29	4/126
Total	9/186	7/191	6/200	6/191	2/145	30/913

Note: The journals listed above are published in Korean, and their official English titles are shown. The entry in the cell indicates [the number of articles related to digital/IT]/[total number of articles published in the journal of the year]

Source: Compiled by the authors

To our dismay, we can see other journals showed very similar patterns. Out of the 913 published articles in seven other selective major political science journals between 2013 and 2018, only 30 (3.3 percent) articles dealt with the topics of our interest. Although we were not able to survey all of the political science research works done in the last five years and the above sample admittedly is not perfectly representative of them, the result indicates that at least in terms of its publication results, research on the challenges and implications of the digital revolution is not active or productive within the political science community in Korea.

Nevertheless, it does not mean that research interest in the subject is also absent. As we prepared this essay, we located group activities dedicated to the study of this subject, called "Study Group on Information Technology." The group started to hold seminars in 1999 as a relatively small study group with a size of 20. At first, the seminar was mostly about reading and discussion of the works done by foreign scholars since there was little reading materials written by domestic scholars and, at that time, the spread of the Internet connection, the central feature of ICT, was still incipient. However, amidst the proliferation of Internet users and the fever of the 2002 presidential election, the group started to expand the research activity and took on greater professionalism – including presentation of their original work and discussions/ debates - and diversification. As of 2017, the group has approximately 100 members, consisting of university professors (50%), professional researchers at research institutes (30%), public officials responsible for IT policy making (10%) and graduate students (10 %). With respect to the member's specialization, 60 percent of the members major in political science, the other 40 percent comprise relatively equal shares of law, media and communication, economics, and sociology majors. The group currently holds regular monthly seminar in which 20 members, on average, partake.[21] When we inquired their take on the serious paucity of published academic

research article on the subject of this essay's interest (21st Century Political Science Review), or because the journal is dedicated to the subfield that has more direct relevance to the impacts of the digital revolution, i.e., communication (Journal of Political Science and Communication).

[21] The description on the history, development, composition, and research activities of the "Study Group on Information Technology" is based on a series of successive e-mail interviews with one of the founding and still active members.

work on the subject, one of the founding and still active member of the group replied in e-mail interview:

> "It appears that the acceptance rate of the manuscripts that deal with this topic or subject is much lower than that of the others in the field. A reason for the low acceptance rate is that *while the advancement of information technology enhances our capacity to handle data, it also increases the volume of data that we are expected to cover at a much greater and much faster scale and speed.* Even after working hard with an extensive dataset, the result is likely to be similar to the one that can be reached by more traditional approaches. Even when we believe that what we are observing is a dynamic and complex movement in public opinion due to information technologies, reviewers reject the manuscript, asking 'why did you use such a complicated and sophisticated methodology to test such a trivial and obvious hypothesis?' "[Emphasis by the authors]

Reading an excerpt of her reply, we can sense 1) that the research on digital revolution and information technology in Korea has been mostly focusing on the individual behavior (including attitudes) – so, of little diversification – and 2) that it also has been 'dominated' by the perspective that emphasizes the importance of empirical verification.[22] Thus, research on the topic typically requires rigorous data processing work, advanced knowledge of statistics and skills in computer programming, knowledge and skills generally not part of the regular political science curriculum. Individual attitudes and behaviors are important aspects that ICT can affect and change. However, they only represent, in some sense, a somewhat small fragment of the full range of changes and challenges ICT technologies trigger in political processes. Empirical verification of phenomena is of course important. Nevertheless, quantitative approach is possibly not the only way of seeking through into the new phenomena and using quantitative methodology requires hypotheses based on strong theoretical foundation before we test them. Thus, an irony of the ICT is that while they significantly improve our capacity to analyze the data, they also increase the volume of the data that a researcher is expected to examine, enlarging researcher's challenge as she mentioned in the interview. At the end of the e-mail interview, she wrote:

> "(…) lack of researchers, lack of research assistants, absence of independent courses in the discipline's curriculum, too much emphasis on statistics and empirical methodology in the midst of the deficiency of theory; these are the reasons behind such a low level of publication record. In my view, they are all somehow connected. Since we do not have enough researchers, we cannot open the courses regularly for our students. In turn, many of our students graduate without enough understanding of the phenomenon that we are dealing with, which leads to the lack of potential research assistants for the subject. So, when we conduct a research that requires assistance, we have to train our students from the beginning. Thus, in many cases, we just do what we have been doing, the method that we are most familiar with. Also,

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[22] We read all 34 articles in <Table 5> and <Table 6>. 21 of them analyze the impacts of new information technology on individual behaviors and civic attitudes particularly in election times. 9 of them study the issue of cyber security, 2 of them analyze the effects of new information technology on industrial relationship from the perspective of political economy, and the rest of them deal with the impacts on governance (relationship between government and people) and democracy from a theoretical perspective.

students, the graduate students who want to continue their academic career in particular, realize that it would be very difficult to get a job if they specialize in this subject, given the lack of courses in the curriculum. Consequently, they depart for other topics to finish their theses even when they had an initial interest in the subject, and this in turn leads to the lack of researchers and research assistants. It's a vicious cycle."

Discussion and Conclusion

In the winter of 2016-17, South Korea along with the rest of the World witnessed the unfolding of a series of events thus far unprecedented. After the news broke out in October 2016 that a close friend of President Park, while having no official position, had intervened in a number of political and policy decisions for personal gains in the government, enraged South Korean citizens poured into the streets every weekend and, each holding a candlelight, demanded the resignation of the president. Although not centrally organized, the weekly demonstrations lasted all winter and millions of people participated in the rallies with no serious incident of violence. In time, the Korean National Assembly, overwhelmed by the demand of the millions of people, passed the motion of impeachment of the President, and the Constitutional Court unanimously upheld the decision. Studies based on the survey on the participants show that most of them participated voluntarily, but greatly encouraged and aided in the process by the advanced ICT such as SNS and information available on the Internet (Min and Yun 2017; Kim 2017; Lee et al. 2017).[23]

After the new administration took power in May 2017, investigations on the wrongdoings of the previous administration were initiated and led to the arrest of the former minister of defense and the director of the National Intelligence Service on charges of committing illicit activities including manipulation of public opinion by means of using online social networking services.

These events demonstrate that the changes brought by the ICT and the digital revolution have already been fully recognized and utilized by the mass public and the political elites in South Korea. Indeed, the South Korean society and politics have witnessed rapid and profound changes in the digital age. However, political scientists in the country, responsible to analyze the challenges and implications and to provide useful guidance, have been regrettably slow to keep up with the speed at which the society and technology advanced. In fact, the discipline remains far behind, in both education and research.

True to the lament of a researcher who has devoted her research career to the study of this important phenomenon, it appears that a vicious cycle is already in place: the problems of insufficient researchers, research assistants, and independent courses are aggravated by dearth of relevant classes offered as part of the discipline's regular curriculum. Excessive emphasis on statistics and empirical methodology and the deficiency of sound theoretical background result

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[23] In October 2017, *Friedrich Ebert Stiftung*, one of the oldest political foundations in Germany, announced that the year's Human Rights Award would be given to a total of 17 million Korean people who participated in the candlelight demonstrations that lasted all the winter of 2016-2017. Available at http://www.fes.de/menschenrechtspreis/ (9 May, 2018).

in unproductive research effort. Hence, efforts to break the chain of this vicious cycle, given its ominous implications on the society and the discipline itself, call for a solid policy initiative and implementation. However, the many perilous conditions confronting the discipline, the aging population, diminishing size of young students, and the increasing pressure of restructuring in the form of reducing the sizes of faculty and students and even elimination of the department, do pose hindrances for taking such an initiative.

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