



The Center for IP Understanding

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# **IP Literacy in Asia: From Mobile Games to Creator Education**

*Emerging Trends in China, South Korea, Singapore and Japan*

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### Introduction

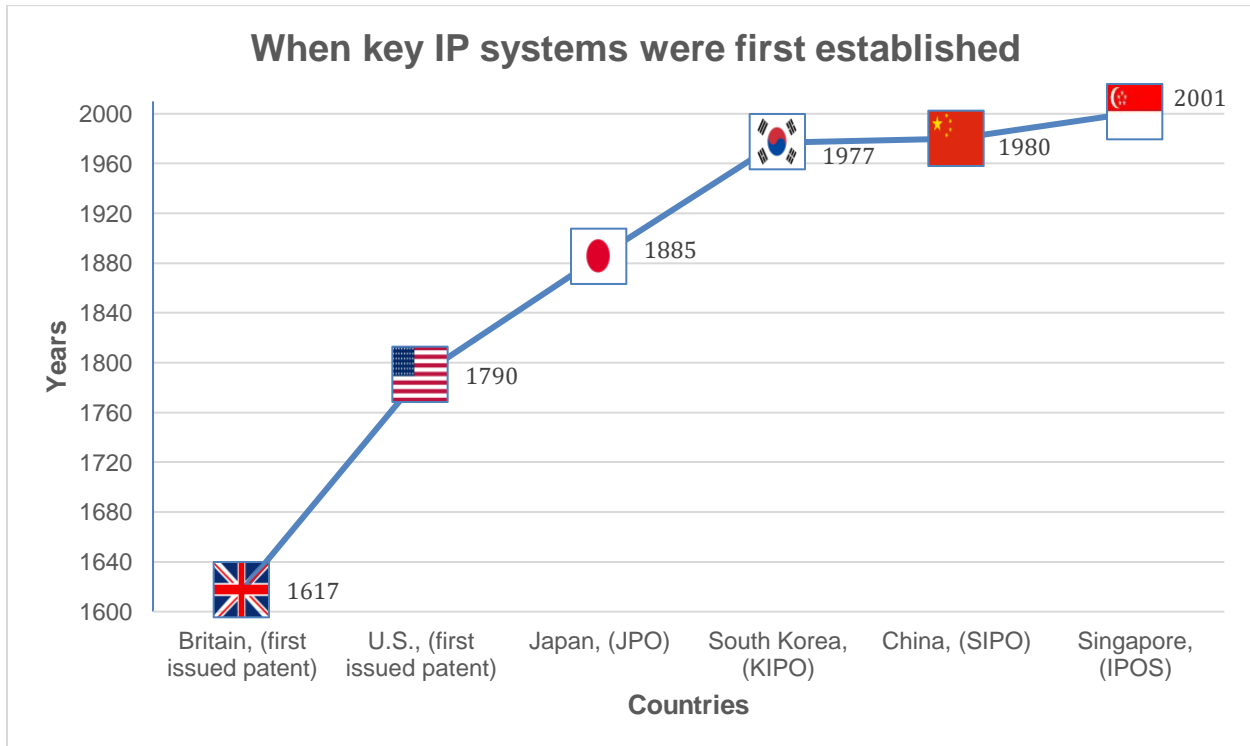
Many in the global intellectual property community have stressed the importance of improving the public's understanding of the impact and value of intellectual property and its associated rights by encouraging a basic competency across various forms of IP. Greater levels of IP literacy are believed to improve economic outcomes for creators and tech developers as well as dissuade consumers from knowingly transacting for counterfeit goods and pirated content and businesses to “efficiently” infringe.

This report from the **Center for Intellectual Property Understanding (CIPU)** offers a survey of efforts to improve basic IP competency among the general population of four Asian countries: Singapore, South Korea, Japan, and China. Our research reveals that, while three of these four countries have IP systems which are only a few decades old, each nation has individually undertaken strong efforts to engage their respective populations on IP topics to encourage greater use and acceptance of rights. Many of these practices, from the introduction of IP topics into the national educational curriculum to the development of mobile gaming platforms for IP outreach, are notable for their innovation and impact on IP literacy in these Asian nations, while at the same time suggesting their absence or absence in Western countries, which have long been considered to be bastions of intellectual property rights. Among the major differences between the IP literacy efforts employed by countries in this survey include the relative age of their IP systems, with Japan's 19th century IP laws serving as the elder statesman in this group; their embrace of digital technologies, which some use to support online IP classes while at least South Korea has pursued the development of mobile games; and their apparent goals in improving IP awareness, whether to achieve greater facilitation of IP rights or to encourage indigenous development of technological innovation. Important similarities between these countries emerge as well, from the inclusion of stronger IP policies as official national priorities in Japan and China to efforts to clearly introduce IP topics into the national educational curriculum in each country surveyed except for South Korea.

In attempting to assess levels of IP literacy in any country, one major issue is a lack of research quantifying this basic competency across the general public. However, a survey of activities within a country to increase IP literacy gives us the opportunity to infer desire for competency and individual levels by examining what government agencies are doing to reach demographics outside of the legal profession or business executives. Similar CIPU reports exploring IP literacy levels and teaching techniques are planned for Europe and the U.S.

There are several reference points that can serve as a baseline for any exploration of IP awareness and understanding in Asian countries. First, compared to many Western economies, each of the nations in this survey have much younger intellectual property regimes, some which were established as recently as the late 1980s, nearly two centuries after the passage of the

first patent law in the U.S. Second, despite this relative youth, these nations have been able to develop very strong IP systems that have become internationally recognized. For example, in the 2020 International IP Index released by the U.S. Chamber of Commerce, only China ranks outside the top 15 nations for the overall score of their IP systems.<sup>1</sup> Third, these countries continue to pursue developments to their IP systems to stay competitive with other economies. Evidence of this is easy to find in China, where the national government has enacted a series of important IP reforms in recent years, and through legal development like the implementation of fair use regimes in Singapore, Japan and South Korea.<sup>2</sup>



### Singapore Leverages IPOS Resources to Deliver Business and Public IP Education

Singapore currently enjoys a strong position among international property regimes not only in its own region, but internationally as well. The island nation ranked 11th among national IP systems in the 2020 edition of the International IP Index, buoyed by the country's 1st-place ranking for strength of patent rights.<sup>3</sup> Then in early March, Daren Tang, previously the Chief

<sup>1</sup> U.S. Chamber of Commerce, Global Innovation Policy Center, *Art of the Possible*, 2020 International IP Index, [https://www.uschamber.com/sites/default/files/023881\\_gipc\\_ip\\_index\\_2020\\_fullreport\\_final.pdf](https://www.uschamber.com/sites/default/files/023881_gipc_ip_index_2020_fullreport_final.pdf) (accessed 14 April 2020)

<sup>2</sup> University of Illinois Law Review, Peter K. Yu, *Fair Use and Its Global Paradigm Evolution*, March 2019, <https://illinoislawreview.org/wp-content/uploads/2019/03/Yu.pdf> (accessed 24 May 2020)

<sup>3</sup> U.S. Chamber of Commerce *supra* note 1

Executive of the Intellectual Property Office of Singapore (IPOS), was elected to serve as the next Director General of the World Intellectual Property Organization (WIPO).<sup>4</sup>

Singapore's IP rights regime and consumer respect for IP has shown massive growth since 1984, when U.S. Senator Patrick Leahy called the Southeast Asia nation "the piracy capital of the world."<sup>5</sup> Singapore passed its first intellectual property law in 1987, finally developing its own indigenous IP laws instead of continuing to rely upon the UK's legal regime as a former British colony.<sup>6</sup> Singapore would join international economic organizations including WIPO and the World Trade Organization (WTO) during the 1990s, and in the 2000s the country stopped appearing on the Special 301 Report's Watch List developed by the U.S. Trade Representative.<sup>7</sup>

Much of Singapore's efforts to conduct educational outreach and improve IP literacy among the general public takes place through IPOS. Singapore's national IP office has done much to increase the availability of its services to the public by embracing technology. In August 2019, IPOS released the world's first mobile app offering trademark registration services to businesses and entrepreneurs directly through mobile devices.<sup>8</sup> IPOS has also engaged in various educational initiatives directed at the general public including the establishment of the Honour Intellectual Property Alliance in 2002, a program for improving public awareness of IP which has reached tens of thousands of people through online activities and offline events such as roadshows and concerts.<sup>9</sup> IPOS currently operates the IP Academy, the only education and training center in Singapore focused on intellectual property and intangible assets with programming for the public, especially legal professionals and IP management personnel.<sup>10</sup> In 2019, the IP Academy offered more than 170 training programs enrolling more than 5,000 individuals in total.

IP literacy efforts pursued by IPOS are very mindful of the business value of ideas and intangible assets in a global tech-based economy that many consider to be the fourth generation of the Industrial Revolution, according to Dr. Ming Tan, Managing Director of IPOS International. "Enterprises and customers intuitively appreciate the value of intellectual property and intangible assets – they appreciate good brands, strong design, transformational

<sup>4</sup> World Intellectual Property Organization, *WIPO's Coordination Committee Nominates Singapore's Daren Tang for Post of Director General*, 4 March 2020, [https://www.wipo.int/pressroom/en/articles/2020/article\\_0003.html](https://www.wipo.int/pressroom/en/articles/2020/article_0003.html) (accessed 14 April 2020)

<sup>5</sup> Lee Kuan Yew School of Public Policy, National University of Singapore, *The Development of Singapore's Intellectual Property Rights Regime*, Microsoft Case Study Series on Information Technology, Public Policy and Society, May 2014, [https://lkyspp.nus.edu.sg/docs/default-source/case-studies/lkws\\_series01\\_sg\\_ip.pdf?sfvrsn=5135960b\\_2](https://lkyspp.nus.edu.sg/docs/default-source/case-studies/lkws_series01_sg_ip.pdf?sfvrsn=5135960b_2) (accessed 13 April 2020)

<sup>6</sup> Id.

<sup>7</sup> Id.

<sup>8</sup> Intellectual Property Office of Singapore, *Singapore Introduces World's First Trademark Registration Mobile App*, 21 Aug. 2019, <https://www.ipos.gov.sg/media-events/press-releases/ViewDetails/singapore-introduces-worlds-first-trademark-registration-mobile-app/> (accessed 14 April 2020)

<sup>9</sup> Lee Kuan Yew School of Public Policy, *supra* note 3

<sup>10</sup> IP Academy, *About IP Academy*, <https://ipacademy.iposinternational.com/about/> (accessed 14 April 2020)

technology and innovative business models,” Dr. Tan said. “However, some enterprises are better than others at explicitly identifying and managing these assets. There is an appetite for IP literacy: we have seen signups for our public online courses grow exponentially, and we work across public agencies to include IP literacy in roles ranging from procurement to education.”

One program offered by IPOS’ IP Academy geared towards the general public is the SkillsFuture for Digital Workplace class, a program which has engaged with 1,200 participants over the last year and a half. The class is designed to introduce entrepreneurs to emerging technologies, cybersecurity and IP protection.<sup>11</sup> This program is part of Singapore’s Smart Nation initiative aimed at developing the country’s telecommunications, networking and big data industries. IPOS also offers online classes in applying IP fundamentals in business, courses which are designed to inform students how various forms of IP, including trademark, copyright, patent and registered design, can aid business activities.<sup>12</sup> This course consists of online modules which are completed in about 12 hours over the course of two weeks and are offered to the public at a cost of \$18 Singapore dollars (\$12.63 USD) per IP module.<sup>13</sup> Most IP Academy classes are typically offered in physical classroom settings and have only moved online during the COVID-19 pandemic, although IP Academy’s Executive Director Kitt-Wai Kok indicated that the organization was interested in further developing online class availability.

Like other Asian countries, Singapore includes intellectual property topics within the national educational curriculum implemented by the country’s Ministry of Education. Communication with IPOS indicates that children in the nation’s schools are introduced to basic concepts in intellectual property by the age of 11, when online behavior lessons first introduce students to ideas of respecting and crediting the work of others. Legal considerations related to sharing media are also a part of the cyber wellness curriculum for secondary-level students in Singapore’s public schools.<sup>14</sup> Secondary students are expected to be able to understand and apply those legal considerations when sharing media at the end of the lesson activities.<sup>15</sup>

Educational opportunities in IP-related topics increase for students in Singapore’s tertiary level, which is equivalent to a bachelor’s- or master’s-level schooling in the U.S. IPOS, in collaboration with Nanyang Technological University (NTU), has developed courses in intellectual property for undergraduates in NTU’s School of Material Science and Engineering and its School of Chemical and Biomedical Engineering. One such elective in the material science school provides students with an overview of IP, its business significance, ways IP can support

<sup>11</sup> IP Academy, *SkillsFuture for Digital Workplace*, <https://ipacademy.iposinternational.com/enterprise-course/skillsfuture-for-digital-workplace/> (accessed 14 April 2020)

<sup>12</sup> IP Academy, *(Fully Online) Applying IP Fundamentals in Business*, <https://ipacademy.iposinternational.com/enterprise-course/applying-ip-fundamentals-in-biz/> (accessed April 15, 2020)

<sup>13</sup> Id.

<sup>14</sup> Ministry of Education, *2014 Syllabus Cyber Wellness Secondary*, [https://www.moe.gov.sg/docs/default-source/document/education/syllabuses/character-citizenship-education/files/2014-cyber-wellness-\(secondary\).pdf](https://www.moe.gov.sg/docs/default-source/document/education/syllabuses/character-citizenship-education/files/2014-cyber-wellness-(secondary).pdf) (accessed 18 April 2020)

<sup>15</sup> Id.

organizational procedures and Singapore's IP registration procedures.<sup>16</sup> NTU also hosts short duration seminars on IP-related topics. In the past year, these topics included patent applications, copyright and computer software.<sup>17</sup> Singapore University of Social Sciences also offers an IP class for undergraduates that teaches the basics of IP law and how IP assets, especially patents, can impact business activities.<sup>18</sup> Other IPOS collaborations with Singapore universities exist, but those are geared more towards master's students and professional classes, indicating a low level of general public exposure to these programs. One- or two-day courses in IP management for professionals, managers, executives and technicians (PMETs) are offered by the National University of Singapore and Singapore Management University.<sup>19,20</sup>

Tertiary-level students across Singapore can also participate in IPOS' Future Leaders in Innovation Transformation (FLINT) program, which similarly provides an overview of different IP forms and information on how IP can achieve business goals.<sup>21</sup> The program is specifically designed both to increase IP awareness and to promote its utilization among entrepreneurial students expected to create startups after they complete their schooling.<sup>22</sup>

### **Major Takeaways for Singapore:**

Although it appears that IP awareness education in Singapore does not take place much outside of the operations and collaborations of IPOS and its IP Academy, the general populace has some exposure to IP topics through the national curriculum for public schools. While other educational programming in the area is voluntary and much of it geared towards those seeking advanced schooling, IPOS programs have been designed to show the practical impact of IP on either business interests or particular fields of study. Such emphasis on the practicalities of IP is unsurprising given the importance of the value-added manufacturing, information and communications, and finance and insurance industries to Singapore's economy.<sup>23</sup> Singapore's strong rights regime seems to contradict the country's relatively modest efforts at encouraging

<sup>16</sup> Nanyang Technological University, School of Materials Science and Engineering, *MS4660 Fundamentals of Intellectual Property in Materials Science and Engineering*, <http://www.mse.ntu.edu.sg/Programmes/Undergraduates/CurrentStudent/AcademicMatters/Course-Summary/Major-Prescribed-Electives/Pages/MS4660-Fundamentals-of-Intellectual-Property-in-Materials-Science-and-Engineering.aspx> (accessed 18 April 2020)

<sup>17</sup> Intellectual Property Office of Singapore, *supra* note 12

<sup>18</sup> Singapore University of Social Sciences, CET Courses, *IP for Technology & Innovation Industries*, <https://www.suss.edu.sg/courses/detail/ipm303?urlname=bsc-management-and-security-studies-bsmss> (accessed 21 April 2020)

<sup>19</sup> National University of Singapore, School of Continuing and Lifelong Education, *From Ideas to Assets: Industry 4.0 & Innovation Management in the Digital Economy*, <https://scale.nus.edu.sg/programmes/executive-courses/advanced-manufacturing/from-ideas-to-assets-industry-4.0-innovation-management-in-the-digital-economy> (accessed 21 April 2020)

<sup>20</sup> Singapore Management University, SMU Academy, *Strategic IP Management for Businesses*, <https://academy.smu.edu.sg/strategic-ip-management-businesses-2511> (accessed 21 April 2020)

<sup>21</sup> Intellectual Property Office of Singapore, *Future Leaders in INnovation Transformation (FLINT)*, <https://www.ipos.gov.sg/understanding-innovation-ip/flint> (accessed 18 April 2020)

<sup>22</sup> *Id.*

<sup>23</sup> The World Bank, *Singapore Overview*, <https://www.worldbank.org/en/country/singapore/overview> (accessed 22 April 2020)

IP awareness but it could simply indicate that the country has a greater interest in the smooth facilitation of IP rights rather than the indigenous production of intellectual property. This conclusion is supported by the relatively low number of patent filings into Singapore, which has increased in recent years but only reached 7,415 patent applications in 2018.<sup>24</sup> IPOS' work to increase the availability of its services through mobile apps and other technological means appears to be consistent with this goal.

### **South Korea's IP Literacy Efforts Feature Mobile Innovation Games**

Much like other Asian countries, the story of respect for IP rights in South Korea follows an archetypical path from IP rights violator to supporter of relatively strong IP rights. South Korean chaebols, or industrial conglomerate firms, were highly export-oriented by the early 1980s and pressure from Western economies, including the threat of a Section 301 investigation into the country's IP practices by the United States, pushed Korea to adopt stronger patent laws by the end of that decade.<sup>25</sup> The United States' Special 301 investigation in the mid-1930s had targeted weak Korean IP protections in sectors such as pharmaceutical, agricultural chemicals and computer software.<sup>26</sup> Patent reforms enacted by Korea in 1987 broadened patentability to the chemical and pharmaceutical sectors, extended patent terms from 15 to 18 years and allowed for term extensions in certain situations causing delayed market introduction of products.<sup>27</sup>

Although South Korea's increased investment in research and development in the decades following these patent law enactments had much to do with efforts to reach foreign markets with larger consumer bases, pro-patent changes to that country's laws support an inference that the government wants to encourage greater use of the patent system across the general populace. Several such amendments to Korea's patent laws became effective in July 2019, including trebled damages awards to patent owners proving willful infringement and increased discovery obligations for defendants.<sup>28</sup> Support for greater IP literacy among professional classes is also provided by the Korea Intellectual Property Association (KINPA), which offers regular workshops, quarterly seminars for corporate officers and meetings with the Korean Intellectual Property Office's (KIPO) Intellectual Property Trial and Appeal Board for resolving disputes on

<sup>24</sup> World Intellectual Property Organization, Statistical Country Profiles, Singapore, [https://www.wipo.int/ipstats/en/statistics/country\\_profile/profile.jsp?code=SG](https://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=SG) (accessed 2 June 2020)

<sup>25</sup> Lee G. Branstetter & Namho Kwon, *South Korea's transition from imitator to innovator: The role of external demand shocks*, *Journal of The Japanese and International Economies* Vol. 49, September 2018, [https://www.heinz.cmu.edu/faculty-research/profiles/branstetter-lee/\\_files/jjie-branstetter-kwon.pdf](https://www.heinz.cmu.edu/faculty-research/profiles/branstetter-lee/_files/jjie-branstetter-kwon.pdf) (accessed 22 April 2020)

<sup>26</sup> Ronald Reagan Presidential Library & Museum, Ronald Reagan, *Memorandum on the South Korea-United States Copyright, Patent, and Trademark Rights Agreement*, 14 August 1986, <https://www.reaganlibrary.gov/research/speeches/081486i> (accessed 2 June 2020)

<sup>27</sup> Id.

<sup>28</sup> Un Ho Kim & Sun Chang, *Korea strengthens protection against IP infringement and unfair competition (Amendment of the Patent Act and the Unfair Competition Prevention Act)*, IFLR1000, 16 January 2019, <https://www.iflr1000.com/NewsAndAnalysis/Korea-strengthens-protection-against-IP-infringement-and-unfair-competition-Amen/Index/9145> (accessed 29 April 2020)



IP adjudication.<sup>29</sup> Regional resources for Korean IP professionals, such as the Intellectual Property Promotion Division operated by Daejeon Technopark, also strive to promote a strong IP infrastructure in localities with small- and medium-sized enterprises which utilize IP.<sup>30</sup>

Educational resources on intellectual property which are designed for South Korea's general public are made available by IP Discovery, a program of the Korea Invention Program Association (KIPA) offered in cooperation with both the Korean Intellectual Property Office (KIPO) and WIPO.<sup>31</sup> Along with general public resources made available for Korean adults, IP Discovery also has interactive materials for youth, including learning toolkits for middle- and high-school aged children, and kids, including an educational video series and workbook materials featuring the popular Korean animated character 'Pororo the Little Penguin'. IP Discovery's youth materials employ gamification techniques that keep users engaged by introducing IP topics through forms of play. One example of this educational gaming developed by IP Discovery includes Invention City, a mobile game for Android and iOS devices in which players engage in logic and puzzle games with the aim of developing new inventions.<sup>32</sup> Invention City and other game-based learning resources available for youth through IP Discovery are designed to convey basic precepts of intellectual property and IP rights and help students develop soft skills to improve their communication and collaboration skills.<sup>33</sup> According to the Google Play store, more than 100,000 Android devices have downloaded the Invention City game as of April 2020.

This use of mobile gaming platforms to engage in IP literacy efforts appears to be unique to South Korea and it has piqued the interest of IP experts elsewhere around the world. "Games such as Invention City are good examples of the 'hook' needed to engage the student, and draw them in to online learning," said Ruth Soetendorp, Professor Emerita at Bournemouth University and Convenor of the UK Intellectual Property Awareness Network Education (IPAN). Dr. Sabine Jacques, a leading intellectual property gamification specialist working at the University of East Anglia, added that gamification can provide an environment which allows for very self-directed learning journeys. "Using game design and mechanics to convey complex information is interesting for several reasons," Dr. Jacques said. "Most learners are accustomed to playing games in their childhood reminding them of fun times but also providing them with an immediate response to specific actions. Resulting in an immersive learning environment, gamification decentralises the origin of knowledge. Gamification also offers a more tailored and controlled learning experience for learners, leading to an increase in learners' motivation." Dr. Jacques did

<sup>29</sup> Korea Intellectual Property Association, Major Activities, <http://www.kinpa.or.kr/kinpa.english.activities.ActivitiesAct/viewMajorActivities.any> (accessed 1 May 2020)

<sup>30</sup> Daejeon Technopark, Intellectual Property Promotion Division, <https://www.djtp.or.kr/english/sub0209> (accessed 1 May 2020)

<sup>31</sup> IP Discovery, <http://www.ipdiscovery.net/> (accessed 29 April 2020)

<sup>32</sup> IP Discovery, Invention City, [http://www.ipdiscovery.net/\\_HTML/01\\_02\\_04.php](http://www.ipdiscovery.net/_HTML/01_02_04.php) (accessed 29 April 2020)

<sup>33</sup> World Intellectual Property Organization, Advisory Committee on Enforcement (ACE) Twelfth Session, *Engaging Audiences to Build Respect - Awareness-raising Activities*, [https://www.wipo.int/edocs/mdocs/enforcement/en/wipo\\_ace\\_12\\_side\\_event\\_4/wipo\\_ace\\_12\\_side\\_event\\_4\\_exhibition.pdf](https://www.wipo.int/edocs/mdocs/enforcement/en/wipo_ace_12_side_event_4/wipo_ace_12_side_event_4_exhibition.pdf) (accessed 29 April 2020)



caution that, to be successful, these types of educational models should focus on integrating game mechanics with traditional learning models rather than gaming systems which emphasize point scoring or player ranking systems.

Although it contributes to the IP Discovery program, KIPA also engages in its own programming for IP promotion and developing an innovation workforce within South Korea. Much of KIPA's IP promotion activities are aimed at improving IP awareness among business entities and professionals who can benefit from improved IP asset management. However, KIPA coordinates several events for students to encourage interest in science and innovation, including a Korea Student Creativity Olympiad and a Korea Student Invention Exhibition, an annual event which honors the best innovations from among thousands of student submissions.<sup>34</sup> Although many of KIPA's efforts to encourage the development of an IP workforce are geared at courses for university students and business professionals, the organization also supports invention clubs and other programming for K-12 students.<sup>35</sup>

"Just like the early bird catches the worm, the inventor starting younger can get more inventions," said Sung-Chan Chung, formerly Director General at KIPO and head of that agency's K-12 IP awareness program. Many educational resources on invention topics for students are made available by both KIPO and KIPA through an Invention Education Center online portal.<sup>36</sup> The site acts as a clearinghouse for various resources including lecture materials, invention education reports and student study materials. Contests for student inventors and entrepreneurs are operated through the portal, providing encouragement for students to develop their own innovations. The portal also offers resources for developing innovation educators through a certification program.

### **Major Takeaways for South Korea:**

In South Korea, many entities are invested both in introducing innovation topics to the nation's children from a young age as well as supporting a greater understanding of IP among participants in the business world. KIPA especially seems to be very involved in introducing IP topics to younger students, critical for instilling an understanding of IP rights from a young age. The use of video games to engage children in subject matter related to intellectual property is also a unique development which, while voluntary, likely augments efforts to introduce IP into school curricula and makes these otherwise daunting topics seem more approachable.

### **Japan's IP Literacy Efforts Consistent with National IP Policy**

Intellectual property commands a good deal of attention in Japan, which has pursued a policy of becoming an intellectual property-based nation since 2002 to promote economic

<sup>34</sup> Korea Invention Promotion Association, [https://www.ifia.com/wp-content/uploads/2019/04/KIPA\\_Overview.pdf](https://www.ifia.com/wp-content/uploads/2019/04/KIPA_Overview.pdf) (accessed 29 April 2020)

<sup>35</sup> Id.

<sup>36</sup> Portal for Invention Education, <https://www.ip-edu.net/> (accessed May 1, 2020)

competitiveness.<sup>37</sup> Many of these efforts are put in motion by Japan's Intellectual Property Strategy Headquarters, an advisory body to the Prime Minister which updates the country's IP strategy every few years. In June 2018, this body released an intellectual property strategy vision readjusting Japan's national IP strategy to achieve what the policy calls a "value design society," involving societal respect for IP rights in a global context, at some point between 2025 and 2030.<sup>38</sup> The 2018 policy updates previous national IP strategies to adapt to issues posed by an aging population and tech sectors which have emerged in recent years including blockchain and quantum computing.<sup>39</sup> The strategic plan envisions various mechanisms that can be employed to achieve its goals including digitized intellectual asset archives and a framework for joint business ventures to encourage product and service experimentation.<sup>40</sup>

"Intellectual property exists in every corner of our lives, but it is not something that the general public is usually conscious of," said Hideji Kobayashi, a member of Japan's Intellectual Property Strategy Headquarters. "By raising awareness of intellectual property, the public's view of goods and services can change." As a part of Japan's Cabinet, Kobayashi said that the Intellectual Property Strategy Headquarters promotes IP creation education programs in the nation's primary and secondary schools. "IP creation education promotes the understanding and internalization of the idea of 'creating something' and 'valuing something created' which thereby enriches society while allowing students to enjoy the process," Kobayashi said. "Through this effect, IP creation education sets two points as a goal: experiencing the fun of creation and respecting the idea of others." Kobayashi added that IP creation education consortiums have been established in several regions of Japan and that the Intellectual Property Strategy Headquarters would continue to support those initiatives. According to Kobayashi, the goal of IP education in Japan is that each of the country's citizens acquires the ability to creatively generate new values and put their IP knowledge into real-world practice.

Greater awareness of intellectual property rights is also a goal of Japan's 5th Science and Technology Basic Plan, officially approved by the nation's cabinet in 2016.<sup>41</sup> This policy seeks to help Japan progress towards "Society 5.0," which balances economic advancement and social problem resolution through technologies which integrate cyber and physical spaces, such as Internet of Things innovations.<sup>42</sup> A 2018 training document developed by the Japan Patent Office (JPO) for training staff from foreign government agencies discusses efforts that have

<sup>37</sup> WIPO Magazine, Hisamitsu Arai, *Country Focus: IP Revolution - How Japan Formulated a National IP Strategy*, June 2007, [https://www.wipo.int/wipo\\_magazine/en/2007/03/article\\_0007.html](https://www.wipo.int/wipo_magazine/en/2007/03/article_0007.html) (accessed 1 May 2020)

<sup>38</sup> Intellectual Property Strategy Headquarters, *Intellectual Property Strategy Vision - Towards a "Value Design Society"*, 12 June 2018, [https://www.kantei.go.jp/jp/singi/titeki2/kettei/chizai\\_vision\\_e.pdf](https://www.kantei.go.jp/jp/singi/titeki2/kettei/chizai_vision_e.pdf) (accessed 1 May 2020)

<sup>39</sup> Id.

<sup>40</sup> Id.

<sup>41</sup> Japan Patent Office, Asia-Pacific Industrial Property Center, Japan Institute for Promoting Invention and Innovation, *Education, Dissemination and Raising the Awareness of Intellectual Property in Japan*, <https://www.jpo.go.jp/e/news/kokusai/developing/training/textbook/document/index/Education.pdf> (accessed 1 May 2020)

<sup>42</sup> Id.

been made to integrate IP topics into the national educational curriculum from kindergarten through secondary levels of schooling.<sup>43</sup> The document also explores efforts to increase IP awareness at Japanese higher education institutions as well as the creation of an intellectual property ability test to develop IP understanding outside of the public education system.<sup>44</sup> Appendices following the IP awareness plan reproduce various student and educator training materials utilized in Japan to teach intellectual property topics.<sup>45</sup> These resources also make some use of various games and puzzles to reinforce lesson material, although they don't employ the same gamification model seen in South Korea and appear to be designed for classroom environments.<sup>46</sup>

The Handbook for IP Education in the Classroom is a very thorough collection of materials developed by the JPO to support teachers who want to introduce intellectual property topics into their classroom curriculum.<sup>47</sup> The materials, created for teachers from elementary through high school levels, feature case studies designed to help engage students in various IP topics. According to the JPO, this handbook was produced under the JPO's duty to foster human resources for a value design society as laid out by the 2018 IP strategy vision. As that policy document makes clear, meeting that duty requires the development of educational programming to foster creativity starting in elementary school by preparing teaching materials, educating teaching staffs and transmitting information on successful programs.<sup>48</sup>

In order to reach young people with educational programming on intellectual property topics, the JPO hosts an annual two-day event each summer called the Junior Innovation Festival.<sup>49</sup> During the 2019 version of the event, youth participants were encouraged to build innovative fan designs. The Junior Innovation Festival aims to introduce children to innovation through fun and engaging programming while also teaching them how to solve problems practically through invention. More resources for introducing youth to IP topics are also made available on a kids page operated by the JPO and designed to improve IP awareness and literacy in children.<sup>50</sup> The page includes links to educational content on a variety of IP topics which include invention basics, sound trademarks and design patents, according to translations provided by the JPO.

Assessments of the skill levels of Japan's workforce indicate that, despite the country's efforts to reach younger students with innovation and IP education, there may remain some work to be done in closing the IP literacy gap among Japanese adults. A Japan policy brief published in

<sup>43</sup> Id.

<sup>44</sup> Id.

<sup>45</sup> Id.

<sup>46</sup> Id.

<sup>47</sup> Japan Patent Office, Handbook for IP Education in the Classroom, [https://www.jpo.go.jp/resources/report/sonota/document/zaisanken-seidomondai/2018\\_05\\_hint\\_zentai.pdf](https://www.jpo.go.jp/resources/report/sonota/document/zaisanken-seidomondai/2018_05_hint_zentai.pdf) (accessed 11 May 2020)

<sup>48</sup> Intellectual Property Strategy Headquarters, *supra* note 35

<sup>49</sup> Japan Patent Office, Junior Innovation Festival 2019, [https://www.jpo.go.jp/news/kids\\_page/kengaku.html](https://www.jpo.go.jp/news/kids_page/kengaku.html) (accessed 8 May 2020)

<sup>50</sup> Japan Patent Office, Kids Page, [https://www.jpo.go.jp/news/kids\\_page/link.html](https://www.jpo.go.jp/news/kids_page/link.html) (accessed 11 May 2020)

April 2019 by the Organisation for Economic Co-operation and Development (OECD) as part of its Better Policies Series indicated that, while Japan earned high marks for mobile and broadband connectivity as well as robotic manufacturing and cloud computing in business environments, the country faces a skills gap resulting in lower problem solving skills in technology-rich environments when comparing similar age groups in other countries.<sup>51</sup> A gap in tech skills could presage a lower understanding of the IP mechanisms incentivizing the development of that technology.

### **Major Takeaways for Japan:**

Japan has made sizable efforts to integrate the education of IP topics into the national curriculum to judge by the training materials published by the JPO. Compared to other countries in the region, it appears that Japan has pursued the most comprehensive national policy to promote both IP understanding and the importance of intellectual property to the country's competitiveness in response to economic stagnation during the 1990s.<sup>52</sup> There is much to celebrate about the impacts of Japan's IP policies as far as reaching the nation's youth, although there is some reason to consider whether the country could go further in reinforcing IP literacy among the general adult public.

### **China Makes Big Strides in IP Literacy Despite Late Start on Enforcement**

Although China's first patent law came into effect in 1985, around the same time that South Korea and Singapore were first enacting their own patent regimes, general respect for IP rights was slower to develop in the Communist-controlled nation compared to its regional counterparts.<sup>53</sup> Under the rule of President Xi Jinping, however, China has shifted sharply towards pursuing a policy of promoting strong IP rights and increasing penalties against infringers.<sup>54</sup> China has also been trying to assert its IP policies internationally and was recently frustrated in its attempt to support its own candidate for WIPO Director.<sup>55</sup>

China's change of heart in favor of stronger IP rights stems from the country's response to the 2008 global financial crisis, during which time China began to see incentivizing innovation through stronger IP protections as a means by which the nation could become much more

<sup>51</sup> Organisation for Economic Co-operation and Development, OECD Better Policies Series, Japan Policy Brief, April 2019, <https://www.oecd.org/policy-briefs/Japan-Policy-Brief-Digitalisation.pdf> (accessed 12 May 2020)

<sup>52</sup> WIPO Magazine *supra* note 35

<sup>53</sup> Bonan Lin, Jon Wood & Soonhee Jang, *Overview of Chinese Patent Law*, [https://ipo.org/wp-content/uploads/2013/04/China\\_Overview\\_ChinesePatentLaw\\_Sept20040425.pdf](https://ipo.org/wp-content/uploads/2013/04/China_Overview_ChinesePatentLaw_Sept20040425.pdf) (accessed 12 May 2020)

<sup>54</sup> IP Watchdog, *Chinese President Xi Jinping says infringers should be punished and pay a heavy price*, 23 July 2017, <https://www.ipwatchdog.com/2017/07/23/chinese-president-xi-jinping-says-infringers-punished-pay-heavy-price/id=85953/> (accessed 12 May 2020)

<sup>55</sup> The New York Times, Nick Cumming-Bruce, *U.S.-Backed Candidate for Global Tech Post Beats China's Nominee*, 4 March 2020, <https://www.nytimes.com/2020/03/04/business/economy/un-world-intellectual-property-organization.html> (accessed 12 May 2020)

economically competitive.<sup>56</sup> Despite the fact that China is still the source of much IP infringement globally, earning the country a consistent spot on the U.S. Trade Representative's Special 301 Report up to and through the administration of President Donald Trump, initiatives by the Chinese government like Made in China 2025 have advanced an awareness of the importance of IP in achieving greater levels of domestic innovation.<sup>57</sup> While China's efforts to promote intellectual property initially seems contradictory to its position as a major source of infringement, this fits a pattern exhibited by other countries in the region which transitioned from counterfeiters to nations with strong IP regimes.

While China has a high-tech sector with several renowned IP owners like Huawei and ZTE, a 2019 study of China's agricultural industry makes it clear that the country still has work to do in developing IP awareness and literacy in some sectors. While China's Ministry of Agriculture has promulgated an IP policy since June 2010 which encompasses many forms of agriculture-related IP in patents, trademarks and geographical indications, the country continues to face obstacles in commercializing agricultural R&D developed at research institutes.<sup>58</sup> The study recommends the development of an IP platform that, in part, improves the social awareness of agricultural IP and strengthens training programs for IP management professionals in the agriculture sector.<sup>59</sup> Increasing the popularity of intellectual property in rural agriculture is discussed as a practical measure for improving scientific progress within the sector and eliminating poverty among the rural farming class.<sup>60</sup>

One way that the Chinese government has been working to increase public access to the world of intellectual property is through the country's court system, which has been reformed in recent years to better handle IP disputes. Specialized IP courts were active in the Chinese cities of Shanghai, Beijing and Guangzhou by the end of 2014 and since then, 18 IP tribunals and a specialized IP appellate court have also been established in China.<sup>61</sup> While China is not known for encouraging public access to government records, the nation's IP courts will conduct public hearings in important cases. For example, the Supreme People's Court held a two-hour public hearing in April 2018 in an appeal from a rejected trademark application filed by French luxury firm Christian Dior.<sup>62</sup> A report on IP protection in Chinese courts issued by the Supreme People's Court discusses the country's efforts to use cases in the court system to improve the

<sup>56</sup> Deloitte, *Rising Innovation in China: China Innovation Ecosystem Development Report 2019*, September 2019, <https://www2.deloitte.com/content/dam/Deloitte/cn/Documents/innovation/deloitte-cn-innovation-china-innovation-ecosystem-report-en-191101.pdf> (accessed 12 May 2020)

<sup>57</sup> Congressional Research Service, *The Made in China 2025 Initiative: Economic Implications for the United States*, 12 April 2019, <https://fas.org/sgp/crs/row/IF10964.pdf> (accessed 12 May 2020)

<sup>58</sup> American Journal of Industrial and Business Management, Vol. 9, No. 4, Xue Zhang, 8 April 2019, *Research on the Development of Agricultural Intellectual Property and the Strategies of Enriching in Rural China*, [https://www.scirp.org/Html/2-2121416\\_91628.htm](https://www.scirp.org/Html/2-2121416_91628.htm) (accessed 12 May 2020)

<sup>59</sup> Id.

<sup>60</sup> Id.

<sup>61</sup> IPLink Asia, AFD China Intellectual Property Law Office, Xia Zheng & Mengmeng Yu, *Updates on China's Specialized IP Courts and Tribunals*, 28 December 2018, <http://www.iplink-asia.com/articles/16> (accessed 12 May 2020)

<sup>62</sup> China Daily, Cao Yin, *Court ruling on bottle seen as 'significant' for IP protection*, 27 April 2018, <https://www.chinadaily.com.cn/a/201804/27/WS5ae25e4ba3105cdcf651ac64.html> (accessed 12 May 2020)

public's legal education.<sup>63</sup> This portion of the IP protection report discusses activities organized by regional courts to educate businesses and the public on IP law as it develops in China, including inviting industry representatives and scientists to observe important proceedings and increasing media outreach by producing articles and live streams of court hearings. During 2019, the Zhejiang High People's Court published 85 articles on IP protection topics and made 26 court hearings available for live streaming.<sup>64</sup> Those live streams were accessed a total of 900,000 times last year according to the Supreme People's Court.<sup>65</sup>

Compared to other countries in the region, China appears to be in the early stages of developing IP education programs for children. As of December 2018, China's Ministry of Education and the China National Intellectual Property Association (CNIPA) had certified a total of 112 IP education pilot demonstration programs in primary and secondary schools across the country.<sup>66</sup> However, China has increased its promotion of IP education and in 2019, the National College Entrance Examination, also known as the Gaokao, featured questions on the economic importance of IP protection and the legal framework surrounding IP rights.<sup>67</sup>

### **Major Takeaways for China:**

Because China has a highly centralized national government, the country has been able to make great strides on promoting intellectual property awareness in a relatively short amount of time. While intellectual property is expected to remain an area of focus for Chinese economic policymakers for the foreseeable future, the country's gains in IP literacy depend upon the stability of the national government, making any potential of regime change a bigger risk to literacy efforts than in countries with more democratic governments. Educational programs and other efforts at improving IP understanding in China are still at a very nascent stage and it could take a few decades for China's general public to reach the levels of IP literacy currently enjoyed elsewhere in the region.

### **Conclusion**

The rapid development of IP regimes over the past 30-40 years in developed Asian economies, notably Singapore, South Korea, Japan and China, and the efforts made at a national level to encourage education in IP topics, show a serious commitment to improving IP literacy among key audiences within each of the nations surveyed in this report. Of particular note are the efforts of national governments to introduce intellectual property into the national curriculum to reach students at a young age in both Singapore and South Korea. This approach provides a

<sup>63</sup> The Supreme People's Court of The People's Republic of China, *Intellectual Property Protection by Chinese Courts in 2019*, 21 April 2020, <http://www.court.gov.cn/zixun-xiangqing-226501.html> (accessed 13 June 2020)

<sup>64</sup> Id.

<sup>65</sup> Id.

<sup>66</sup> China National Intellectual Property Administration, Statistics, <http://english.sipo.gov.cn/specialtopic/tbar/> (accessed 12 May 2020)

<sup>67</sup> China Daily, Wang Jinhui, *New exam questions show growing role of IPR in the classroom*, 20 June 2019, [http://www.chinadaily.com.cn/cndy/2019-06/20/content\\_37482760.htm](http://www.chinadaily.com.cn/cndy/2019-06/20/content_37482760.htm) (accessed 12 May 2020)



contrast to other countries with strong IP systems, like the U.S., where such efforts to reach students of various ages in public schools with IP topics exists but is not currently a priority or policy issue.

Elements of these IP literacy initiatives are remarkable for their uniqueness, demonstrating a willingness among some countries to try new forms of outreach and underscoring the importance of IP literacy to policymakers in those countries. Of particular note are the mobile gamification techniques employed in South Korea and the potential such games have for increased engagement and self-directed learning. Other elements of these literacy efforts seem to reflect programs that have been popular in other education systems for a long time, such as student innovation festivals which mirror science fairs popular in the U.S. and other countries.

Perhaps the greatest takeaway from this report is the positive impact that concerted government effort can have on IP literacy within particular nations. Except for Japan, which passed its first patent laws in the late 19th century, each of the nations profiled in this report have very young IP systems. South Korea and Singapore have both been able to change global perceptions on their respect for IP rights in that short time and although Chinese IP theft continues to be a major international concern, China could easily show the same turnaround within a decade or two. Finally, national IP offices clearly play a large role in coordinating IP literacy efforts and collaborating with other institutions. This suggests that increased investment in the education and outreach budget for their national IP offices offers a good return in terms of encouraging IP literacy, which in turn facilitates innovation, value and respect for IP law.

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This report was prepared for the Center for Intellectual Property Understanding (CIPU) by Steven Brachmann, a journalist and law student focusing on intellectual property matters. CIPU is an independent, non-profit organization devoted to increasing IP awareness and its impact. For more information, visit [www.understandingip.org](http://www.understandingip.org).