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Experimental research in the Asia-Pacific region: review and assessment of regional capacity

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ABSTRACT

Scholars of public administration are increasingly using experimental research to develop more robust causal inferences and greater methodological capacity. Against this backdrop, we examine the extent to which experimental research has taken hold in the Asia-Pacific region and assess regional capacity. Our review of 30 articles published by scholars based in the Asia-Pacific region in the public administration section of the Web of Science's Journal Citation Reports finds that the regional capacity for experimental research is concentrated in a small number of institutions and strongly supplemented through international collaboration. Topics studied reflect the advent of behavioural public administration. Although progress is being made in reporting experimental designs, much work is needed in the region to bring greater transparency to scholarship. We conclude by encouraging scholars to more robustly implement and report experimental research and by outlining future directions.

KEYWORDS

public administration; experimental research; Asia-Pacific; review; regional capacity

Introduction

As a "design science", public administration research has long sought to resolve complex, interconnected real-world problems from an interdisciplinary perceptive (Simon, 1996). In the search for valid and reliable evidence, public administration scholars have embraced new conceptual frameworks and drawn on methodological approaches across social science disciplines. Over recent decades, the field has seen the adoption of theories, concepts and methods from psychology, behavioural economics and cognitive sciences. Labelled as "behavioural public administration" (Grimmelikhuijsen et al., 2017), this latest advance brings a range of new concepts, including cognitive bias and nudging, and new insights into existing public administration scholarship on transparency, performance information use and trust (e.g., Grimmelikhuijsen & Meijer, 2014; Grimmelikhuijsen & Klijn, 2015; Walker et al., 2018). It has also enhanced the methodological repertoire of the field by introducing experimental designs (James et al., 2017).

Public administration scholars have long recognised the inherent strengths of experimental research, which offer strong internal validity for establishing causal effects that contribute

to theory development and give practical insights into real-world problems (Bouwman & Grimmelikhuijsen, 2016; Bozeman & Scott, 1992). Bozeman and Scott (1992) observed in the 1990s that experimental research had not gained traction in the field. This was attributed to the focus on bivariate relationships in experimental designs, which were not seen to be suited to addressing then prominent institutional research questions, alongside concerns about ethics and logistical barriers related to capacity. Much has changed since then. Field, laboratory and vignette survey experimental designs are now pervasive (Bouwman & Grimmelikhuijsen, 2016; Hansen & Tummers, 2020; James et al., 2017; Margetts, 2011). However, reviews of experimental research in public administration have focused predominantly on particular experimental designs (Hansen & Tummers, 2020; Walker et al., 2017) and not yet identified their use in specific regions (Bouwman & Grimmelikhuijsen, 2016).

In this article, we take stock of the extent to which experimental research in public administration has been diffused geographically, specifically to the Asia-Pacific region. Comparative public administration is a longstanding research theme, as scholars have sought to develop comparative knowledge about practices and to test the robustness of theoretical frameworks (which are typically developed in Western contexts) (Walker et al., 2019). The Asia-Pacific region is important for many reasons, with public administration undergoing a process of change resulting from the region's growing geo-political prominence, economic strength, and cultural diversity (Berman et al., 2010). Context is critical in shaping public administration; however, Asia-Pacific practices remain insufficiently studied. Experimental research is therefore one route to enhanced our knowledge of Asia-Pacific public administration.

Bozeman and Scott (1992) went to some lengths to highlight the need for the capacity to conduct experiments. The conduct of experiments requires investment in education and training and the resources to implement experimental designs. While these have been clearly developed in Western contexts (Bouwman & Grimmelikhuijsen, 2016; James et al., 2017), we are interested to understand how far they have taken hold in the Asia-Pacific region. Because capacity is a critical issue for the adoption and implementation of experimental designs by scholars, the unit of analysis in this article is scholars based in the Asia-Pacific region who have published articles listed in the Web of Science's Journal Citation Reports, focusing on the public administration category of the Social Science Citation Index (SSCI).² The research questions concern the "what, where, who and how" of experimental public administration research in the Asia-Pacific region. Specifically, who contributes to the literature, and where are they based? Where do scholars publish their work, and on what topics do they write? What types of experimental designs are implemented, and how robust are they? Throughout this discussion, we are able to generate a better understanding of the capacity in the Asia-Pacific region and seek to connect the experimental public administration scholarship in the region with other places around the world.

Data collection and analysis protocols

Data collection protocol

To locate experimental public administration research in the Asia-Pacific region, we used the Web of Science and the Public Administration subject field in the SSCI. The literature search was conducted on 1 December 2020. We used the keyword "experiment*" to search for articles using this phrase in the title, abstract or keywords. This search returned

1,308 publications from 71 countries. We then implemented a series of decision rules to arrive at our final sample. First, we searched for articles where at least one author was affiliated with an institution located in the Asia-Pacific region.³ This resulted in 167 publications. Second, we excluded studies that were commentaries, methodology papers, studies without an explicit experimental design (e.g., quasi-experiments and natural experiments) and policy-driven pieces, thus retaining only articles that included an experimental design component.⁴ This resulted in the exclusion of a further 137 articles, leaving 30 articles remaining for analysis. Figure 1 illustrates the search process and Table 1 lists the studies, topics and author country arrangements.

Data analysis protocol

To develop our codebook, we referred to the "Recommended Reporting Guidelines for Experiments in Public Management, a Checklist" proposed by James et al. (2017). The guidelines are divided into four major categories (hypotheses and theories they are drawn from, methods, results and other information) and ten sub-categories. We made slight modifications to these guidelines. First, in line with other reviews (Bouwman & Grimmelikhuijsen, 2016), we focused on topics rather than theories examined because topics are not as multifaceted and are more readily identifiable. Second, stopping guidelines that specify the circumstances when a trial should stop because of risks to participants were dropped because it is rarely applicable to public administration inquiries. Third, we listed the statistical methods used in the studies. Fourth, we added an item on whether the study ran a power analysis to determine the sample size. Fifth, we added items on whether the study conducted manipulation checks and whether the study was pilot tested. Sixth,

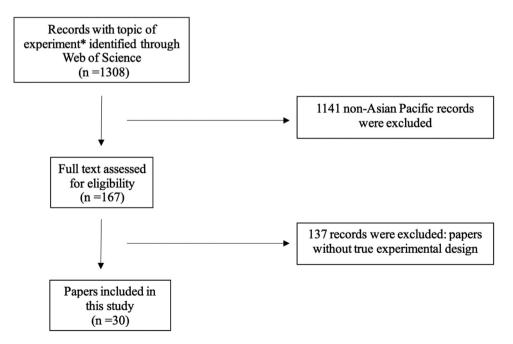


Figure 1. Literature search protocol and results.

Table 1. An overview of articles reviewed.

Year First Published					Country/Region of Author
Online	Article	Theme	Topic	Country/Region Studied	Áffiliations
2012	Qian and Zheng (2012)	Organization and	Public affairs management	China	China
2013	Christensen et al. (2013)	Organization and	Public service motivation	South Korea	South Korea; US
2013	Grimmelikhuijsen et al.	Citizen-government	Effect of transparency on trust in	Netherlands; South Korea	Netherlands; South Korea
2013	Kim and Kim (2016)	Organization and	Public service motivation	Japan; Netherlands; South	South Korea
2013	Walker et al. (2013)	management Organization and	Public ownership and performance	Korea; US China; Hong Kong; South	China; Hong Kong; South
2015	Kim and Kim (2016)	management Organization and	Public service motivation	Korea; US South Korea	Korea; US South Korea
2015	Kim and Kim (2017)	management Organization and	Public service motivation	US	South Korea
2015	Moseley and Stoker (2015)	management Citizen-government	Policy tools	UK	Australia; UK
2015	Stewart, Méhu and Salter	Organization and	Leadership	NS	Australia: Austria; US
2017	Lee, Moon and Kim (2017)	Organization and	Decision-making	Hong Kong: South Korea	Hong Kong; South Korea
2018	Christensen and Whiting	management Organization and	Task behaviours and performance	US	South Korea; US
2018	(2018) Jilke et al. (2019)	management Non-profit	appraisal Government funding and charitable	NS	Japan; US
2018	Kim (2019)	Organization and	donations Human resource strategy	US	China
2018	Ryan et al. (2018)	rifaliagement Citizen-government relationship	Representativeness of local officials	UK	Australia; Italy; UK
2018	Walker et al. (2018)	Citizen-government relationship	Performance information use	Hong Kong	Hong Kong; UK
2018	Yoo and Drumwright (2018)	Non-profit	VR technology	South Korea	South Korea; US
2019	Campbell (2020)	Organization and	Red tape	South Korea	South Korea
2019	Lim and Tanaka (2019)	Citizen-government relationship	Public support for income transfer programs	South Korea	South Korea; UK
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Year First Published					Country/Region of Author
Online	Article	Theme	Topic	Country/Region Studied	Affiliations
2019	Lu, Xu and Wang (2021)	Citizen-government relationship	Citizen and decision-making	China	China; US
2020	Cai, Liu and Wang (2020)	Social policy	Urbanisation policies	China	China; US
2020	Focacci and Lam (2020)	Citizen-government	Policy tools	UK	Hong Kong; Italy
2020	Lee and Park (2020a)	relationship Organization and	Leadership	South Korea	South Korea; UK
2020	Lee and Park (2020b)	management Organization and	Leadership	South Korea	South Korea; UK
2020	Lee and Park (2020c)	management Organization and	Leadership	South Korea	South Korea; UK
2020	Moon et al. (2020)	management Organization and	Red tape	South Korea	South Korea; US
2020	Newland and Liu (2021)	management Citizen-government	Government responsiveness to minority Taiwan	Taiwan	Taiwan; US
2020	Noda (2020)	relationship Citizen-government	citizens Citizen satisfaction	ns	Japan
2020	Park, Kim and Moon (2020)	relationship Citizen-government	Policy tools	US	South Korea; US
2020	Porumbescu et al. (2020)	relationship Citizen-government	Performance information use	US	Italy; South Korea; UK
2020	Walker et al. (2020)	relationship Citizen-government relationship	Policy tools	Hong Kong	Hong Kong; South Korea; US

we changed the title of the fourth guideline from "other information" to "transparency". Seventh, a sub-category of "transparency", experimental protocol, is renamed as preregistration. Eighth, we moved the item of survey flow (participant flow) from "result" to "transparency". All items of interest were codified into either dichotomous or categorical variables. Table 2 details the coding scheme classes, items and codes.

The 30 articles were coded by four of the authors. Initially, coding consistency reached 70% when coding four articles. Then, the remaining articles were randomly assigned to any two of the authors for coding, which resulted in an acceptable 80% inter-coder agreement level. All disagreements were reconciled by discussion until the members reached a consensus on the coding results.

Table 2. Coding book and result descriptions

Class	ltem	Coding
Hypothesis	1. Hypothesis	Yes = if the study laid out the hypotheses; No = otherwise
Method	2. When conducted	When was the experiment conducted?
Method	3. Country/region	Where was the experiment conducted?
Method	4. Outcome measures	Yes = if the study had a detailed description of the outcome variable; No = otherwise
Method	5. Treatments	Yes = if the study had a detailed description of the treatment; No = otherwis
Method	6. Random sampling	Yes = if the study reported the use of random sampling; No = otherwise
Method	7. Sampling method	Sampling methods used in the study, such as stratifying, clustering, and simp random sampling strategies; the non-probability sampling method refers t the convenience sampling
Method	8. Randomisation method	Randomisation methods used in the study, such as blocking and the simple random assignment
Method	9. Unit of randomisation	Unit of randomisation used in the study, such as individuals and households
Method	10. Software for randomisation	$\label{eq:Yes} \mbox{Yes} = \mbox{if the study used software to achieve randomisation; No} = \mbox{otherwise}$
Method	11. Balance group check	Yes = if the study performed balance checking; No = otherwise
Method	12. Experimental design	What kind of experimental design was used, between or within subject?
Method	13. Manipulation	$\label{eq:Yes} \mbox{Yes} = \mbox{if the study implemented a manipulation check; No} = \mbox{otherwise}$
Method	14. Type of experiment	Type of experiment, including survey, field, or laboratory
Method	15. Participant/ subject	Occupational background of the subjects in the study
Method	16. Recruited by	Who recruited or selected the subjects?
Method	17. Power analysis	Yes = if the study ran power analysis to decide sample size; No = otherwise
Method	18. Response and attrition	Yes = if the study reported the response rate or the attrition rate; No = otherwi
Method	19. Sample size	Sample size
Method	20. Pilot test	Yes = if the study conducted a pilot test; No = otherwise
Result	21. Sample mean	Yes = if the study reported sample means for all experimental conditions; No = otherwise
Result	22. Standard deviation	Yes $=$ if the study reported standard deviations for all experimental condition No $=$ otherwise
Result	23. Statistical method	What statistical methods were used in the study?
Result	24. Weighting procedure	Yes = if the study adopted weighting procedure in statistical analysis; No = otherwise
Transparency	25. Ethical approval	Yes = if the study received ethical approval from an institutional review board ethics committee; No = otherwise
Transparency	26. Pre-registration	Yes = if the study had pre-registered; No = otherwise
. ,	27. Survey Flow	Yes = if the study presented a survey flow; No = otherwise
Transparency	28. Replicable Data	Yes = if the study had a replicable data; No = otherwise

Coverage: journals and countries/regions

Table 3 lists the 15 journals in which the 30 articles were published. *International* Public Management Journal and Public Management Review published the largest number of studies featuring experimental research. Each of these two journals published 16.7% of the selected studies. Public Administration Review came third, contributing 10% of the selected studies. Each of the other 12 journals only published one or two studies over the time period of our review. This suggests that experimental research involving Asia-Pacific region scholars is still in its early stages.

With the advent of any theoretical or methodological innovation in an academic field, the number of publications rises as innovation is diffused. Figure 2 is suggestive of the diffusion of experimental research among Asia-Pacific affiliated public

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Journals	n	%
International Public Management Journal	5	16.7
Public Management Review	5	16.7
Public Administration Review	3	10
Governance	2	6.7
Journal of Comparative Policy Analysis	2	6.7
Public Administration	2	6.7
Public Performance & Management Review	2	6.7
Public Personnel Management	2	6.7
Administration & Society	1	3.3
Journal of Chinese Governance	1	3.3
Journal of Public Administration Research and Theory	1	3.3
Local Government Studies	1	3.3
Non-Profit Management and Leadership	1	3.3
Review of Public Personnel Administration	1	3.3
Social Policy & Administration	1	3.3
Total	30	100

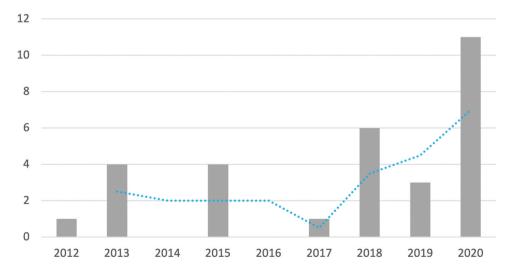


Figure 2. Number of publications by year.

administration scholars. The first article appeared in 2012; the majority (n = 20) of these articles got published in the past three years. This growth is similar, albeit at a later date, to that reported by Bouwman and Grimmelikhuijsen (2016).

The 30 experimental studies were conducted in eight jurisdictions: Hong Kong, Japan, mainland China, South Korea, Taiwan, the Netherlands, the UK and the US (Table 4). Four (13.3%) articles were cross-territorial comparative studies: Walker et al. (2013), Kim and Kim (2016a), Lee et al. (2017) and Grimmelikhuijsen et al. (2013). South Korea was investigated in each of the four comparative studies, helping the country become the most studied (34.2%). Despite not being an Asia-Pacific country, the US was studied in the second highest number of articles (26.3%), which may be attributable to its longstanding influence on public administration research (James et al., 2017). These two countries were followed by mainland China and Hong Kong.

Table 4. Frequency of countries and regions studied.

Country	n	%
South Korea	13	34.2
US	10	26.3
Hong Kong	4	10.5
Mainland China	4	10.5
UK	3	7.9
Netherlands	2	5.3
Taiwan	1	2.6
Japan	1	2.6
Total	38	100

Authorship and co-authorship

Authors, affiliations and locations

Sixty-two scholars contributed to the 30 articles in our dataset. Twelve scholars published more than one article, of whom eight were based in South Korea. The predominance of South Korean scholars is reflected in the authors' institutional affiliations. Nearly 50% of the scholars associated with these studies were based at one of six universities. Eight scholars from Yonsei University were included in our dataset, followed by City University of Hong Kong (n = 7), Seoul National University (n = 7), Seoul National University of Science and Technology (n = 6), and two US universities – Rutgers University-Newark (n = 5) and University of Georgia (n = 4). That nearly a third of the scholars contributing to articles in our review were based at one of four Asia-Pacific universities is suggestive of a growing regional capacity to conduct experimental research. However, it also suggests that this capacity is concentrated and greater international collaborative networks are needed to strengthen capacity.

The institutional bases of the 62 scholars exhibited a broad geographical diversity that extended beyond the Asia-Pacific region. Just over 50% of the scholars were based in the US (29.2%) and South Korea (21.9%), followed by the UK (14.1%), mainland China (12.5%), Hong Kong (6.3%), Italy (6.3%), Australia (3.1%), Japan (3.1%), Austria (1.6%), the Netherlands (1.6%) and Taiwan (1.6%). South Korean and US scholars are among the most active in conducting and publishing experimental public administration studies in the Asia-Pacific region, which helps explain why five of the six aforementioned universities are located in these two countries. There is a gap between South Korea and the rest of the Asia-Pacific region in applying the experimental methodology to public administration research. These data are, again, suggestive of concentrations of expertise.

Co-authorship networks and their geographical trajectories

The above analysis suggests that knowledge and capacity in the use of experimental research is concentrated in a small number of institutions but also geographically distributed across a number of countries. One strategy to develop capacity in experimental research is to co-author with faculty with the relevant expertise. It appears that this strategy was widely used as all but three of the 30 reviewed articles resulted from scholarly collaboration (see Campbell, 2020; Kim, 2019; Noda, 2020). Through these co-authored publications, we can map out the co-authorship network with which researchers are engaged and visualise how experimental methodology has begun to develop and diffuse in the Asia-Pacific region.

Descriptively, we take the example of the network among authors (Lee, Moon and Walker) from the top two institutions mentioned previously, Yonsei University and City University of Hong Kong. It can be seen that most of the collaborations within the Asia-Pacific region were between scholars in Hong Kong and South Korea: for instance, the papers by Walker et al. (2018, 2020) and Lee et al. (2017). There was also co-authorship within South Korea, between Lee and Park (2020a, 2020b, 2020c) and between Kim and Kim (2016a, 2016b, 2017). These co-authorship networks may explain why some researchers, institutions and countries or regions have been more active than others in applying experimental research.

Next, we disentangled the co-authorship network of each article. Co-authorship provides a record of the social and professional networks of scholars (Newman, 2004) and their geographical locations (Abbott, 1997). There were demarcations of co-authorship networks. For example, in eight studies, all of the scholars were located in the Asia-Pacific region, and one study included a tripartite collaboration among Asia-Pacific, UK and US scholars (Stewart et al., 2015). In our analysis, we focused on connections between Asia-Pacific and European scholars and between Asia-Pacific and US scholars. By presenting the geographic locations of the authors' affiliations, we visualised each co-authorship network by plotting their geographical distance. In the figures, each publication is represented by a coloured disk, with different colours to differentiate publications. These disks were placed on the map based on the countries of origin of author affiliations. If a publication had multiple author affiliations located in different countries, it was represented by disks with the same colour connected by line segments of the same colour. If multiple articles were from the same country/region, they were stacked into coloured concentric circles. For example, in Figure 3, South Korea (presented in a coloured concentric circle) contributed six of the 10 experimental studies conducted by Asia-Pacific scholars, of which six collaborations were with European scholars (each collaboration is represented by a line).

Ten publications were co-authored by Asia-Pacific and European scholars (Figure 3). Institutions in the UK jointly form the biggest concentric circle, followed by those in South



Figure 3. Collaborations between Asia-Pacific and European Scholars (n = 10).

Korea. For example, scholars from City University of Hong Kong and Hong Kong University of Science and Technology collaborated with colleagues in the UK and in Italy, respectively.

Eleven articles involved collaborations between Asia-Pacific and US scholars (Figure 4). South Korean scholars mostly collaborated with their counterparts in the US (5 of the 11 studies). Researchers from City University of Hong Kong contributed two experimental studies with authors affiliated in the US, South Korea (Walker et al., 2013, 2020) and

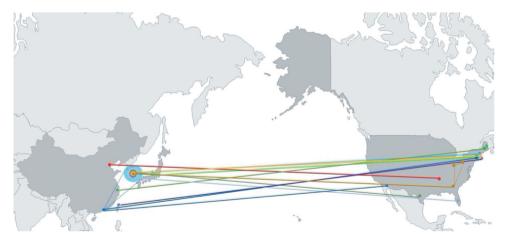


Figure 4. Collaborations between Asia-Pacific and US Scholars (n = 11).

mainland China (Walker et al., 2013). Authors based in mainland China (at Tsinghua University and Zhejiang University) established two lines of collaborations, and authors in Taiwan (National Taiwan University) and Japan (International University of Japan) each contributed one study.

Our analysis indicates that articles published by scholars with Asia-Pacific affiliations were often co-authored with scholars from the US or from European countries. Given that the Asia-Pacific region adopted experimental research for public administration research later than some other regions (Bouwman & Grimmelikhuijsen, 2016), this is suggestive of capacity building in the region as Asia-Pacific scholars work with Western peers who have experience in conducting studies with experimental research. This observation informed the remainder of our analysis in this article, for which we divided the articles into two groups: one for articles with a majority of authors from within the Asia-Pacific and the other for articles of which 50% or less of the authors were from the Asia-Pacific region.

Topics studied

We identified 15 primary topics investigated by scholars in the reviewed articles (see Table 1). The list of topics was dominated by public service motivation (PSM), human resource management (HRM), red tape, leadership, policy tools, performance information use, citizen response to social policies and non-profit management. Twenty-three of the 30 articles included in our study sample dealt with these topics. The contents of the 30 articles can be divided into four themes: organisation and management (internal management), the citizen-government relationship, social policies, and non-profit management.

Nearly half of the articles examined issues associated with organisation and management. Of these, just over half examined PSM (e.g., Christensen et al., 2013; Kim & Kim, 2016a, 2016b, 2017), and leadership (e.g., Lee & Park, 2020a, 2020b, 2020c). Forty per cent of articles examined the citizen-government relationship, focusing on policy tools (Focacci & Lam, 2020; Moseley & Stoker, 2015; Park et al., 2020; Walker et al., 2020) and performance information use (Porumbescu et al., 2020; Walker et al., 2018). Other topics included the representativeness of local officials (Ryan et al., 2018), the effect of transparency on trust in government (Grimmelikhuijsen et al., 2013), how citizens' help deservingness shape discretional decision making (Lu et al., 2021), citizen satisfaction (Noda, 2020), cultural differences in perceptions of publicness and governmental performance (Walker et al., 2013) and government responsiveness to minority citizens (Newland & Liu, 2021). The studies on social policies examine public support for income transfer programmes (Lim & Tanaka, 2019) and urbanisation policies (Cai et al., 2020). The two studies of non-profits examine whether government funding affects charitable donations (Jilke et al., 2019) and the innovative use of virtual reality (VR) technology by non-profits (Yoo & Drumwright, 2018).

In terms of the topics covered, Bouwman and Grimmelikhuijsen (2016) reported that experimental topics were usually related to behavioural public administration – government performance, decision making by public servants or citizens and government information and communication (52% of studies). We found a similar but not identical pattern from the reviewed experimental studies, as most of them touched upon the topics of PSM, HRM, red tape, leadership, policy tools, performance information use, citizen response to social policies and non-profit management. A team of purely Asia-Pacific scholars (i.e., Seung Hyun Kim and Sangmook Kim) conducted three of the four PSM studies, whereas all four leadership studies were the results of cross-continental collaboration, including the ones conducted by Stewart et al. (2015) and Lee and Park (2020a, 2020b, 2020c). Overall, the topics we found in the reviewed articles, in conjunction with those identified by Bouwman and Grimmelikhuijsen, might reflect the suitability of topics for experimental research or the agendas currently being pursued by scholars in the Asia-Pacific region.

Research designs

Driven by the impetus to appraise the development and diffusion of experimental public administration research in the Asia-Pacific region, we have thus far answered the "what, where and who" questions based on existing publications. We now move to answer questions about the research designs by identifying what types of experimental designs were implemented and to what extent they conformed with best practice recommendations.

Hypotheses

We coded hypotheses to understand whether the experimental studies explicitly laid out hypotheses of directional relationships between the treatment and outcome variables. Generally speaking, hesitancy in offering hypotheses could be due to the exploratory nature of the research design (e.g., Walker et al., 2020) or conflicts and ambiguity in existing evidence (e.g., Christensen & Whiting, 2018; Jilke et al., 2019; Walker et al., 2013). Nearly all of the articles proposed hypotheses (n = 26), confirming the deductive nature of experimental studies in seeking to corroborate theoretical arguments.

Subsequently, we examined each hypothesis by asking three questions: (1) Is the hypothesis directional or nondirectional (i.e., does it indicate a direction of the effect of the explanatory variable on the outcome variable)? (2) Have all of the listed hypotheses been tested? (3) Do the experimental results support the proposed hypotheses?

Of the 26 articles with hypotheses presented, 23 (88.5%) included directional predictions of the expected relationship between variables and the remaining three had one or more nondirectional propositions. The three mixed-hypothesis articles were authored predominantly by Asia-Pacific scholars (Asia-Pacific > 50%). In nearly all of the articles (96.2%), the hypotheses were fully tested by the experiments. There were 13 (43%) studies in which the experimental results supported all of the hypotheses. The findings in 10 (38.5%) articles offered mixed support for their hypotheses, and the predictions made in the remaining three (11.5%) articles were rejected. The three articles in which all posited hypotheses were rejected had fewer Asia-Pacific affiliations (i.e., Asia-Pacific ≤ 50%). Our analysis suggests that most of the reviewed articles followed the commonly accepted guidelines for hypothesis reporting.

Methods

We coded 20 items for methodological elements integral to experimental research designs (see Table 1). All of the studies reviewed in this article described in detail the measurement scales and operationalisation strategies adopted for the explanatory (treatment) and outcome variables. In terms of the sample selection, nine studies used a random sampling frame, such as probability (Kim, 2019), representative (Porumbescu et al., 2020) and stratified (Cai et al., 2020; Lee & Park, 2020a, 2020b) sampling. The sampling approaches used in the remaining 21 studies were coded as non-random due to their explicit mention of having used a nonprobability (e.g., Kim & Kim, 2016a, 2016b), unrepresentative or convenience (Stroik et al., 2019) sampling method.

When investigating the approaches through which subjects in the studies were randomly assigned to different groups so that their pre-existing differences could be controlled, we discovered that the majority of the studies (n = 23) relied on simple random assignment, six used blocking (e.g., Kim & Kim, 2016a, 2016b; Ryan et al., 2018) and one used stratified clustering (Jilke et al., 2019). Moreover, while the majority of articles (n = 28) randomly assigned individuals to various groups, one study was randomised at the household (Cai et al., 2020) and one at the cluster (Jilke et al., 2019) level.

None of the studies mentioned the specific software used for randomisation. Nonetheless, to ensure the success of their randomisation, 12 studies conducted statistical tests to examine the level of homogeneity across all randomised groups, while the others (n = 18) did not report any balance checks. The majority of the experimental studies (n = 26) used between-subjects designs to explore between-group differences, while one study examined within-group disparities (Walker et al., 2020). The remaining three studies were designed to examine both within- and between-group variations (e.g., Newland & Liu, 2021). This distribution resembles the finding of Bouwman and Grimmelikhuijsen (2016, p. 119) who noted that between-subjects design seems to be the default option for experimental public administration. The majority (n = 21) of articles reported on survey experiments, three on field experiments (Jilke et al., 2019) and the other six on laboratory experiments.

There were also a number of differences between articles by scholars predominately located in Asia-Pacific and those in which these authors were in the minority. Of the 15 articles primarily authored by scholars with non-Asia-Pacific affiliations (i.e., Asia-Pacific ≤ 50%), more than half used a random sampling approach for data collection (n = 8) and conducted balance tests to examine the effectiveness of randomisation (n = 9). In contrast, of the 15 articles with most authors affiliated with institutions in the Asia-Pacific region (i.e., Asia-Pacific > 50%), only one used a random sampling technique and three reported balance tests.

Subjects

The background of research subjects varies significantly across the reviewed articles: 14 studies recruited citizens, nine sampled students, and the remaining seven focused on civil servants. To access participants, half of the studies used survey companies that reached out to subjects from their existing pool of participants, whereas the other half directly recruited participants, typically college students. It appears that scholars working in the Asia-Pacific region are more likely to collect data on their own, whereas their Western-based counterparts are more likely to use a private firm. Nine of the 15 studies written primarily by scholars affiliated with Asia-Pacific institutions (Asia-Pacific > 50%) relied on self-collected data; in contrast, nine of the 15 studies authored predominantly by

scholars without Asia-Pacific affiliations (Asia-Pacific ≤ 50%) used data gathered by firms

The adequacy of sample size helps a study establish true relationships between variables and reduces the likelihood of false findings. Large sample size means greater statistical power (loannidis, 2005). Thus, it is crucial to report statistical power and its calculation strategy to help readers assess the validity of the conclusions obtained. Only five articles in our analysis used a power analysis to determine the intended sample size (e.g., Park et al., 2020; Walker et al., 2013), yet the others did not adopt this practice. Power analyses were infrequently used across studies, irrespective of the institutional origins of their authors.

Finally, the total number of subjects recruited for the experiments also significantly differed across individual studies. Half of the articles (n = 15) solicited participation from fewer than 500 subjects; of the remaining half (n = 15), nine articles reported that over 1,000 subjects participated in their experiments. There were no discernible differences in this respect between studies that featured predominantly Asia-Pacific authors and those that did not.

Pilot testing

Pilot testing is an essential element of a good experimental design. Pilot testing involves conducting complete experimental sessions to check what is and is not working as expected. Nearly a quarter of the reviewed studies (n = 7) conducted pilot testing and reported related information in their studies. Of the articles that conducted pilot testing, most used interview or focus-group methods, and very few used a survey method. Six publications dominated by Asia-Pacific authors (Asia-Pacific > 50%) applied pilot testing in their studies, compared with only one with mostly non-Asia-Pacific authors (Asia-Pacific ≤ 50%).

Reporting results

We examined the reporting of results against the recommended reporting guidelines for the sample mean, standard deviation, statistical method and weighting procedure. The conventional practice requires an experimental study to report statistical differences between the treatment and control groups to indicate the experimental effect. Of the 30 articles in the Asia-Pacific region, the majority reported the sample mean (83.3%, n = 25) and standard deviation (77.3%, n = 22). For the sample mean, standard deviation and weighting procedure, we did not find a significant difference between Asia-Pacific authors and non-Asia-Pacific authors. OLS regression was used in one-third of the articles (n = 10), followed in order of frequency by ANOVA (n = 8), t-test (n = 7), logistic regression (n = 5), chi-square (n = 3) and ordered logit/probit (n = 3). Other statistical tools, such as ANCOVA, MANCOVA, z-test, McNemar's test, likelihood ratio test, correlation, Kendall's t and Spearman's r, were used by one or two of the reviewed studies. More than half of the studies used two different statistical methods, but none adopted a weighting procedure in their statistical analyses.



Transparency

The transparency of research designs and reporting has become a more prevalent concern in recent years. This is associated with the open science movement, which aims to ensure that research (including publications, data, samples and software) is accessible to all levels of an inquiring society - amateurs and professionals (Hales et al., 2019). Transparency helps to increase the openness, integrity and reproducibility of scholarly research. In this review, we measured the extent to which four transparency practices were adopted in the 30 experimental articles: ethical approval, pre-registration, survey flow and replicable data (see Table 5).

Table 5. Transparency Practices.

	Yes		No	
ltem	n	%	n	%
Ethical Approval	7	23	23	77
Pre-registration	2	7	28	93
Survey Flow	3	10	27	90
Replicable Data	1	3	29	97

Ethical approval reporting

To protect the interests of their participants, scholars need to obtain ethical approval from an institutional review board before conducting any human-related research. Nearly a guarter of the reviewed studies (n = 7) reported ethical approval information. Most of these only reported the name of the institution from which they obtained approval through an ethical review. Very few reported the ethical approval number, which would allow for more detailed scrutiny into the nature of the ethical approval. Of the seven studies that reported ethical approval, five were primarily authored by non-Asia-Pacific scholars and two by Asia-Pacific scholars.

Pre-registration

Progress in science relies in part on generating hypotheses from existing observations and testing these hypotheses with new observations. This distinction between postdiction and prediction is appreciated conceptually but is not widely put into practice. An effective solution is to define the research questions and devise a plan for analysis before observing the research outcomes - a process called pre-registration. Among the 30 reviewed studies, only two reported pre-registration information. For example, Jilke et al. (2019) pre-registered their field experiment at the American Economic Association's registry for randomised controlled trials (AEA RCT registry), where they posted their project abstract and experimental details. Both of the studies reporting pre-registration information were authored primarily by non-Asia-Pacific scholars.

Survey flow

A clear and detailed survey flow is needed to facilitate readers' access to the study and understanding of the research design. A good survey flow should include the sample information, participant allocation, randomisation process and measures used for key variables. Only three of the reviewed articles provided a survey flow to show the total number of subjects, the number of subjects in each treatment group, intervention name or content, randomisation process and outcome measures. Of these three studies that reported a survey flow, two had mostly non-Asia-Pacific authors.

Replicable data

Providing access to research data can help other researchers to verify, replicate and synthesise empirical findings. Among the 30 reviewed studies, only one provided supplementary data on the journal website, and over 50% of the authors of that article were from non-Asia-Pacific regions. However, the data provided were aggregated and thus not convenient for replication.

Overall, scholars conducting experimental studies in the Asia-Pacific region have started to engage in transparency practices, such as ethical approval reporting. However, very few of the reviewed articles provided information on pre-registration, survey flow and replicable data. Scholars with affiliations outside of the Asia-Pacific region seem to have embraced transparency practices slightly more than those within the region. We thus strongly encourage scholars to consider adopting these transparency and open science practices in their future experimental studies.

Discussion

As the use of experimental research in public administration has clearly advanced in Western contexts, the current study was conducted to investigate how far the practice has taken hold in the Asia-Pacific region. Through an enquiry into the "what, where, who and how" of 30 experimental articles published in SSCI journals, we generated a comprehensive picture of which Asian-Pacific scholars have contributed to the literature, the institutional backgrounds of the collaborators with whom these scholars conducted their experiments, the topical coverage and the types of experimental designs used. Our notable findings are: (1) 27 of the reviewed studies were conducted by international collaborative teams of scholars; (2) 19 of these experimental studies were conducted in at least one Asian country or region; (3) the majority were survey experiments (n = 21), and most used a between-subjects design (n = 26); and (4) virtually every study reported basic research design and data, but few reported experimental design practices relating to transparency and open science, such as ethical review, preregistration and replicable data.

A few parallels and distinctions can be drawn between our findings and those of Bouwman and Grimmelikhuijsen's (2016) review of public administration experiments from 1992 to 2014. We found, for instance, a greater use of survey experiments (70%) and thus fewer laboratory and field experiments than reported by Bouwman and Grimmelikhuijsen (36%). Both studies found extensive use of between-subjects experimental design (90% in Bouwman and Grimmelikhuijsen's review and 87% in the present study). Akin to Bouwman and Grimmelikhuijsen's observation, we also found the overall sample sizes to be moderate to large, averaging 1,443 participants.

Our review suggests that experimental public administration research in the Asia-Pacific region is at a nascent stage but has started to take hold. Our findings also suggest ways to grow the use of experimental methods in the region. First, although the tendency of Asia-Pacific scholars seeking inter-continental collaboration suggests they may lack capacity, several hubs for experimental research have been established successfully, among which Yonsei University and City University of Hong Kong are two cases in point. These hubs facilitate research synergies and lead the way in developing and disseminating experimental research in the Asia-Pacific region. Meanwhile, scholars in some other countries in the region, such as Australia, Japan and Taiwan, are also receptive to this new research tool. Our data suggest that their interest in using experimental methods is on the rise. With these favourable developments, experimental research is likely to flourish in the region over time.

Second, research capacity can be enhanced by providing specialist research training to doctoral students, broadening access to literature on experimental methodology, and building complementary partnerships with exponents and scholars trained in experimental designs from closely related disciplines, such as psychology. Inexperienced researchers may familiarise themselves with experimental methods by replicating existing studies. Furthermore, to make experiments more feasible and manageable, researchers can also consider using students as easily accessible participants.

Finally, to build lasting value for experimental research, Asia-Pacific scholars are advised to engage with contextually relevant questions using robustly designed studies. Because administrative behaviour is typically embedded in a broader institutional context, the utility of behavioural public administration hinges on the ability to provide behavioural insights into systemic challenges and on being able to integrate macro-(institutional) and micro- (behavioural) levels of research in public administration (Grimmelikhuijsen et al., 2017). While much of the current research focus is centred on organisation and management, there is a need to extend the scope beyond the management of agencies and programmes (Roberts, 2021).

Although issues that merit investigation are manifold, the effects of regime and culture type are among the most important questions to answer in the Asia-Pacific region. Peters (2021) argues for comparative studies because of the wide range of political systems, from thriving democracies to authoritarian regimes. Regime diversity begs the question of the extent to which public administrative theories derived from the mature democracies of the West can be applied to various Asia-Pacific settings. To take accountability, for example, stringent hierarchical controls and sanctions are more prevalent here than in the West and in authoritarian than democratic regimes. Could non-democratic practices as such change what we know about public administration?

The effect of culture is another area that experimental research could address. Public administration is a value-laden human activity (Ongaro, 2021), and our knowledge will remain incomplete if we overlook the cultural roots of administrative behaviour. For thousands of years, Asia-Pacific cultures have steered how people think and behave in their respective societies. Many of them prioritise the common good over individual interests, making citizens more submissive to government authorities than their Western counterparts. The effect of culture in the Asia-Pacific region is evident yet remains an underexplored issue of behavioural public administration. One recent example is Moon et al.'s (2020) use of experimental research to study the effects of Confucian values on red tape perception. To fill the void, scholars are encouraged to follow suit to elucidate how culture, which can take forms of religion, philosophy or social norms, has shaped day-to-day administrative operations and effectiveness in this region.

Many of the topics studied in the reviewed articles, such as PSM and red tape, are originated in Western settings. While we see examples of studies testing the validity of a concept in a different setting, relatively few studies are comparative. Comparative studies within Asia-Pacific and between Asia-Pacific and other regions can shed light on the generalisability of these concepts and advance knowledge in public administration. Replication is a methodology that could be useful to pursue such an agenda (Walker et al., 2018).

Finally, although we have yielded valuable information for the development and diffusion of experimental public administration research in the Asia-Pacific region, there are several caveats to the findings presented in this article. First, additional relevant studies may have been published since the data were collected for this article. The present work should thus be treated as a snapshot. Second, after identifying all of the relevant literature published in SSCI journals, several experimental studies were removed from the collected data because they did not meet our search criteria. In addition, four of the authors analysed the collected data in accordance with the predetermined coding scheme. As meticulous as we were, the miscoding or omission of studies (notably grey material) and the effects of the "file drawer problem" - referring to studies with weak or null findings being not submitted for publication - cannot be ruled out. Due to the likelihood of human error, care is advised in interpreting the findings.

Conclusion

Our review of the publication of articles using experimental research by public administration scholars affiliated with institutions in the Asia-Pacific region points towards the emergence of new methodological tools in this region. In keeping with the experiences in other parts of the world, we identified a growing number of articles using this method. Capacity is being built in the region through concentrations of expertise at particular institutions and through collaborations. Although there is still progress to be made in the reporting of experimental research designs in published articles, authors are clearly seeking to provide a range of information on their research designs that will allow for the internal validity of the articles to be understood. One area in which improvement is required is transparency and open science, and we encourage authors to embrace this movement.

The topics studied in the reviewed articles by and large suggest a growing interest in behavioural public administration. Such research represents an important addition to the field of public administration, bringing particular attention to citizen-government relationships and delving more deeply into questions about organisation and management in Asia-Pacific and comparative contexts. Because experimental research offers scholars the opportunity to examine causal relationships with strong internal validity, we encourage others in the region to embrace this methodology for its potential to provide insight into the theory and practice of public administration in the Asia-Pacific region.

Notes

1. Bouwman and Grimmelikhuijsen's (2016) review of experimental public administration studies between 1992 and 2014 identified 42 articles, of which three were authored by scholars in the Asia-Pacific region.



- 2. The SSCI database contains publications predominately in English. Driven by speculation that Asia-Pacific scholars could publish experimental research in domestic journals, we employed the same protocol to select and review publications in *Chinese Public Administration* (in Chinese), *Journal of Public Management* (in Chinese) and *International Review of Public Administration* (formerly known as *Korean Review of Public Administration*). We found six studies in total, which suggests the infrequent use of experimental research methodology in the region.
- 3. The Asia-Pacific region is the vast geographical area that contains Australia, Bangladesh, mainland China, Hong Kong, India, Indonesia, Japan, Malaysia, Nepal, New Zealand, Russia, Singapore, South Korea, Taiwan and Vietnam.
- 4. The following policy journals were included in the Public Administration field of the SSCI at the time of the study: Contemporary Economic Policy, Climate Policy, Canadian Public Policy, Journal of Accounting and Public Policy, Policy Sciences, Policy Studies, Policy Studies Journal and Journal of Policy Analysis and Management. We examined all articles with an experimental research design in these journals to identify whether they included public administration or management concepts.

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