

Rehmani, Mahmood et al.

Article

Does the traditional recruitment procedure of higher education institutions cause paper waste?

Cogent Business & Management

Provided in Cooperation with:

Taylor & Francis Group

Suggested Citation: Rehmani, Mahmood et al. (2022) : Does the traditional recruitment procedure of higher education institutions cause paper waste?, Cogent Business & Management, ISSN 2331-1975, Taylor & Francis, Abingdon, Vol. 9, Iss. 1, pp. 1-14, <https://doi.org/10.1080/23311975.2022.2151679>

This Version is available at:

<https://hdl.handle.net/10419/289382>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by/4.0/>

Does the traditional recruitment procedure of higher education institutions cause paper waste?

Mahmood Rehmani, Umer Iftikhar, Munnawar Naz Khokhar, Hafiz Ihsan Ur Rehman, Huda Irshad & Naveed Anwer

To cite this article: Mahmood Rehmani, Umer Iftikhar, Munnawar Naz Khokhar, Hafiz Ihsan Ur Rehman, Huda Irshad & Naveed Anwer (2022) Does the traditional recruitment procedure of higher education institutions cause paper waste?, Cogent Business & Management, 9:1, 2151679, DOI: [10.1080/23311975.2022.2151679](https://doi.org/10.1080/23311975.2022.2151679)

To link to this article: <https://doi.org/10.1080/23311975.2022.2151679>



© 2022 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.



Published online: 28 Dec 2022.



[Submit your article to this journal](#)



Article views: 1404



[View related articles](#)



[View Crossmark data](#)



Received: 07 October 2021
Accepted: 21 November 2022

*Corresponding author: Huda Irshad,
Department of Business
Administration, University of Sialkot,
Sialkot, Pakistan
E-mail: hudairshaad5@gmail.com

Reviewing editor:
Pablo Ruiz, Universidad de Castilla-
La Mancha, Spain

Additional information is available at
the end of the article

MANAGEMENT | RESEARCH ARTICLE

Does the traditional recruitment procedure of higher education institutions cause paper waste?

Mahmood Rehmani¹, Umer Iftikhar², Munnawar Naz Khokhar³, Hafiz Ihsan Ur Rehman⁴, Huda Irshad^{5*} and Naveed Anwer⁶

Abstract: Solid waste management has become one of the critical environmental concerns in developing countries. Information and communications technology have revolutionized traditional organizational management processes, increased efficiency, and significantly reduced paper use. The recruitment process in higher education institutes (HEIs) includes job applications and certificates of degree, and previous job-related documents. Such recruitment policies are causing paper waste and need the attention of policymakers. This study aims to provide empirical evidence for a policy shift that can have a broader impact on the environment. The current study aims to contribute to the existing research by considering the traditional recruitment approaches of public sector HEIs in Pakistan as a source of solid waste. The study highlights the previously disregarded aspect of the research on solid waste and explores the traditional practices of government-owned HEIs that lead to excessive amounts of paper waste. A mixed-methods approach is performed to confirm this hypothesis. We observed newspaper advertisements and then floated a questionnaire among employees of the HEIs. Findings confirm that traditional recruitment is one of the primary antecedents of paper waste generation. Results suggest that technology-driven recruitment reduces paper waste and leads to sustainable development.

Subjects: Waste & Recycling; Sustainability; Information Technology

Keywords: recruitment policy; waste management; information communication technology; waste reduction; sustainability

1. Introduction

Solid waste generation in Asian countries due to the abrupt increase in industrialization, population expansion, and boosted modern lifestyle of individuals has resulted in the past two decades (Guerrero et al., 2013; Sharholy et al., 2008). Scholars found that solid waste production considerably expands, and its features are altered due to enhanced economic conditions and poor management of solid waste handling (Abd Manaf et al., 2009). As a result, people who migrate either domestically or internationally significantly influence solid waste because their activities generate millions of daily waste.

Paper is responsible for 40% of all pollution in the United States, accounting for 71.6 million tons yearly. Unfortunately, many individuals who seek to reduce, reuse, and recycle end up in landfills. Paper waste is a significant issue. It's easy to overlook that paper production harms the environment. The rate of deforestation is rapidly increasing. Paper waste is a global issue that causes environmental contamination (Iftikhar et al., 2021; Razzaq et al., 2021). According to policymakers

and environmentalists, paper products are the most significant single municipal solid waste (MSW) source, accounting for 45% of total landfills (Rehmani et al., 2020). For instance, Americans use 15 billion pieces of toilet paper annually (Azam et al., 2020). More than four million tons of paper waste are generated from shopping during holidays. Hasanin et al. (2020) reported that more than 70% of office waste is paper. In developing countries, federal and provincial human resource departments maintain the files of every employee and print millions of academic documents. Several organizations in these countries follow the self-ruled style and prefer to work on paper. Firms' main agenda is climate change and sustainability (Crate & Nuttall, 2016; Wijethilake, 2017). Scholars conducted various studies on how a company can be more sustainable and responsible (Hameed et al., 2019; Landrum & Ohsowski, 2018). However, progress remains stagnant despite the high social acceptance worldwide. The present study hypothesizes that Pakistan's federal and provincial higher education institutions (HEIs) are the primary sources of solid paper waste.

By contrast, previous research suggests that HEIs are among the most ethical stakeholders and promoters of sustainable development goals (SDGs; Tejedor et al., 2018). Similarly, extant literature confirms that HEIs develop a business model shift from an unsustainable framework to a sustainable scheme and promote sustainable practices, such as ethical practices among students, e-recruitment, and email-based operations (Bhatt & Bhatt, 2018; Felgendreher & Löfgren, 2018). Moreover, environmentalists and human resource personnel agree that responsible recruitment through digital channels is not only an excellent way to solve the problem regarding solid waste but is also beneficial for firms in various aspects: decreased hiring cost, increased transparency, and improved firm performance (Aboul-Ela, 2014; Dhamija, 2012).

Previous studies stated that organizations and institutes constantly affect environmental sustainability due to poor policy implementation and insufficient awareness regarding solid paper waste (Adeniran et al., 2017). For example, all federal and provincial HEIs in Pakistan recruit their academicians through traditional methods, thereby accumulating solid paper waste. Thousands of potential applicants apply for a vacancy through conventional approaches, such as submitting hard copies of resumes and educational and professional certificates. The above discussion highlights three crucial reasons why traditional recruitment in the HEIs directly or indirectly causes paper solid waste problems in Pakistan. In the past two decades, HEIs in Pakistan have witnessed tremendous growth and are considered a priority for jobs among postgraduates. Therefore, many students seek higher studies from domestic institutions and HEIs. Over 3000 Ph.D. holders and thousands of other postgraduates (MPhils/MS, Master's, and Bachelor's) are unemployed. As a result, thousands of applications are received for a single advertisement of HEIs regarding faculty recruitment. This phenomenon is a significant contributor to paper waste generation.

Pakistan has been facing severe economic challenges in the past decade, and the constant decline is noticeable in the gross domestic product. This issue increased the number of unemployed people. In addition, the coronavirus disease 2019 pandemic affected the country's economy and caused an abrupt increase in the unemployment rate. The Pakistan Bureau of Statistics reported that the unemployment rate among graduates increased from 5.3% in 2007 to 16.3% in 2018. The low economic performance of the country provides limited job opportunities to graduates and therefore pushes them to apply for a job because they are overqualified. Therefore, employers receive thousands of applications for a single vacancy. HEIs have limited resources and recruit few graduate students. Pakistan is one of the countries in Southeast Asia that experience the constant urbanization process; such a process leads to environmental, economic, and health challenges. Figure 1 shows the recruitment process

The critical determinants of solid waste, including urbanization, population, and industrialization, are extensively investigated (Adeniran et al., 2017; Das et al., 2019). However, to the best of our knowledge, no study highlighted the real-time phenomenon responsible for solid waste problems in Pakistan due to the old-fashioned recruitment policies of HEIs. Therefore, research on this context is highly scarce. Governments, organizations, and individuals consider paperless

Figure 1. Recruitment cycle.



transactions and sustainable business operations because paper waste harms the environment. The government of Pakistan is doing its best to handle solid waste issues, but the traditional recruitment procedure, which generates a considerable amount of solid waste, remains unexplored. The present study contributes to this research field in various ways. The argument that traditional recruitment procedures are the primary cause of paper solid waste is verified using a mixed-method approach. In addition, this study helps policymakers implement immediate actions and establish a law to recruit potential applicants in federal and provincial HEIs.

Through empirical support, this study proves that the prevailing practices of HEIs in Pakistan to recruit a workforce are detrimental to the environment and thus should be changed to promote the SDGs, minimize waste generation, and avoid deforestation. This study suggests that the best solution to recruit potential applicants in federal and provincial HEIs without generating excessive paper waste is by adopting information communication technology (ICT). Recruitment through ICT enhances employee performance and transparency. HEIs are perceived as the knowledge centers that transfer technologically advanced education to future generations. Therefore, these institutions are expected to adopt technology for paperless recruitment to reduce deforestation caused by the production of white printable papers and reduce the paper waste contribution to MSW.

2. Literature review

2.1. Traditional recruitment process

Appointing a competent employee is associated with effective recruitment and selection methods. Previous studies suggested that the importance of recruitment should not be disregarded because an unsuitable candidate may cause low productivity, recruitment fee, high training cost, high risk of task performance, and a high rate of client loss (Gusdorf, 2008). Organizations are extra careful in their recruitment purposes. The primary objective of organizations is to hire the right applicant and decline the wrong one (Compton, 2009). In developing countries, organizations advertise in

a famous local newspapers to increase their reach and recruit the right person (Ready, 2020). Given the increasing unemployment rate among graduate students, such advertisements serve as a stimulus that attracts applicants to apply through the traditional procedure.

Governments face the problem of managing massive amounts of MSW and depleting natural resources. In addition, deforestation is becoming a serious concern for environmental protection agencies. Adeniran et al. (2017) defined solid waste as any non-liquid and non-gaseous by-product produced by any human activity that can cause a detrimental effect on the environment. As human activity increases, the amount of generated waste rises. These activities should be held accountable for environmental concerns.

If not properly managed, waste will soon fill up the planet. The authors believe that further research on human activities that lead to waste generation is more necessary than waste management (Zaman et al., 2022). Public and private organizations, including industries and educational institutions, start their operations by recruiting a workforce. The recruitment process is the first step after all necessary planning (Rynes et al., 1991). Therefore, the organization's corporate social responsibility (CSR) also starts from this step (Adetunji & Ogbonna, 2013). The recruitment process must comply with the SDGs and the CSR guidelines and regulations, which local governments promulgate. The irresponsible behavior of corporates and individuals seriously affects the environment. Therefore, the procedures adopted by the HEIs during recruitment are the natural source of paper waste (Smyth et al., 2010).

Kawai and Tasaki (2016) reported that Pakistan generated 0.65 kg of MSW per capita, which is the third-highest generation in East Asia and the Pacific Islands after those of Maldives (2.80) and Sri Lanka (0.89). This finding is consistent with the observations of Curran (2003) on the recruitment process for nurses. Curran (2003) reported that email and the web were not prevalent in the 1980s and concluded in 2003 that hospitals would most likely utilize the web for recruitment purposes. With technological advancements, online recruitment has been a norm for organizations such as using social media platforms like Instagram (Ikhwan et al., 2022; Moraes et al., 2020). CSR is critical in recruiting, and online advertising is very helpful in improving employer attractiveness (Islam et al., 2022; Puncheva-Michelotti et al., 2018).

2.2. Pakistani context of solid waste

As previously mentioned, Pakistan has the third-highest MSW generation rate in East Asia and Pacific Islands (Kawai and Tasaki, 2016). Municipalities with corporate sectors with large workforces generate high amounts of paper waste. The waste generated in less developed and underdeveloped economies consists of a high amount of organic content. In contrast, those produced by advanced and industrialized nations demonstrate a dominant pattern of processed and canned foods. The studies conducted in developing countries revealed that the MSW contains 30%–40% organic waste, 30%–40 % ash and fine earth, 3%–6% paper, and less than 1% plastic, metal, glass, and wood.

Physicochemical analysis of the solid waste generated in Gujranwala City (Pakistan) revealed that paper contributes to approximately 3%–15 % of waste composition (Nadeem et al., 2016). Another study in the same city reported that institutional waste (i.e., waste produced by institutions and offices) comprises 11% of paper waste. Pakistan presented at the Expert Group Meeting on Sustainable Application of Waste-to-Energy in Asian Region held at Busan, South Korea, in 2018, indicated the physical composition of MSW in Pakistan includes 6% paper with a waste generation growth rate of 2.4% per year. Pakistan generates roughly 49.6 million tons of solid waste per year. This generation increases by more than 2.4% annually (Pakistan—Waste Management, 2022). This excessive amount of paper waste goes to landfill sites. No mechanism is applied in separating the types of trash at the waste bin or collection point, thereby limiting the possibility of recycling.

2.3. Paper waste practices in HEIs of Pakistan

The amount of paper waste produced by institutions and offices in one of the major cities of Pakistan (11%) is alarming. Waste management scholars and sustainable/responsible development researchers disregard this concern. It, therefore, requires an in-depth study of paper usage in institutions. The HEIs in Pakistan is far from adopting a paperless working environment in work activities and promoting recruitment processes and procedures that require potential employees to use paper in their applications. As seen in the post-COVID-19 days, faculty members at HEIs in Pakistan are not fond of online work and prefer traditional methods (Irshad et al., 2021). Thus, it leads to two-prolonged environmental damage: increased tree-cutting activity (to produce fine paper) and dumping of the resulting paper waste to landfill sites. The present study aims to study the nature of the practices of HEIs to understand the weight of the issue and convince these institutions to adopt responsible recruitment, which involves giving considerable attention to environmental concerns and aligning the recruitment processes with the SDGs set by the United Nations. HEIs play an essential role in promoting sustainability, according to Nunoo. (2018) zero waste management system (WMS) is being implemented in Ghana. Going paperless can considerably decrease the large consumption of paper in universities and lead to better productivity among students and staff (Obiora et al., 2017).

3. Methodology

This study highlights the role of the recruitment process in the context of solid waste generation. In Pakistan, federal or provincial HEIs invite potential employees to apply by submitting hard copies to concerned offices. HEIs require one set of complete hard copies of documents for the lecturer position and three groups for the assistant professor position. For associate and professor positions, five sets are necessary. The Higher Education Commission (HEC) of Pakistan reported that approximately 3000 foreign and local Ph.D. holders are unemployed; this number is continually rising. Graduate students select the research field as a career path, given the low economic growth and few available options. Therefore, a single researcher post receives numerous applications from HEIs. The bulk applications the concerned offices receive increase manual work and error, thus aggravating environmental problems. As this exploratory study is unique, a basic-level descriptive analysis technique has been adopted to understand the gravity of the situation and provide ground for future quantitative studies on adopting environmentally responsible recruitment procedures. Descriptive statistics briefly summarize a given data set, and basic measures of frequency and percentage are employed in the study.

4. Population and sample

We used a mixed methods approach to support our argument that the traditional recruitment methods of federal and provincial HEIs are among the primary sources of paper waste generation. The present study analyzes the data of 51 vacancy advertisements published by HEIs in national newspapers during the period selected for this study, which means that 100% of ads posted during the research time horizon were included in the study. To further support the results and to understand the other side of the picture, i.e., the perceptions of the future faculty workforce working in academia, close-ended questions-based interviews were conducted with 69 faculty members. Qualitative studies require a minimum sample size of at least 12 to reach data saturation (Clarke & Braun, 2013; Fugard & Potts, 2015; Guest et al., 2008). Therefore, a sample of 69 was deemed sufficient for this study's qualitative analysis and scale.

5. Data collection procedure

We compiled the data of position announcements for the two months of 2020. The data collected from newspaper announcements included the nature of vacancy (i.e., visiting, contract, or permanent), nature of the hiring office (public or private sector), application submission requirement (email, online, hard copies, and downloadable application format from website), document requirement (CV or resume, application or cover letter, hard copies of educational testimonials, hard copies of experience certificates, national identity card, bank draft, photographs, and research publications), and the number of the required document set. The data collection period

was selected because many HEIs conduct recruitment activities before the spring semester, usually in February or March, depending on each institution's policy.

We also collected data from potential applicants and actual jobholders working at the HEIs through an online survey link to support our argument. The survey contained information regarding the number of pages of CV, educational documents, training certificates, experience certificates, and demographic information. The interview questions included gender, age, educational qualification, and years of experience to understand the paper use pattern by faculty members at different levels of education and experience. As the HEIs are demanding hard copies of the educational and qualification certificates from secondary school up to Ph.D., the number of certificates attached by applicants was also asked.

6. Results

Fifty-one faculty vacancy announcements from HEIs appeared in the two widely circulated national newspapers of Pakistan titled Daily Jang (Urdu) and Daily Dawn (English) in the first two months of 2020, among which 34 were advertised in January and 17 were posted in February. Of the 51 job posts, 31 are announcements for permanent positions, 13 for visiting, and 7 for contract options. The 30 options for hard copy compared with only six options for online and 11 options for email shows the emphasis on paper use, ultimately causing paper waste. The detailed results are presented in Table 1.

Table 2 shows the percentage of options for submitting applications by candidates. Approximately 25.5% of the advertisements are for visiting faculty positions, among which 76.9% require hard copies. None of the organizations offers an online medium for application submission, whereas 15.4% prefer email submission. In addition, 13.7% of the advertisements are for contractual or tenured positions, among which 71.4% require hard copy dossiers, and 28.6% offer an online option. The most common job posts in the collected announcements are for a permanent faculty position (60.8%). Among these posts, 48.4% demand hard copy applications,

Table 1. Options for submission of application by candidates

		Options for submission					Total
		Email	Online	Hard Copy	Online & Hard Copy	Email & Hard	
Type of Jobs	Visiting	2	0	10	0	1	13
	Contract/ TTS	0	2	5	0	0	7
	permanent	9	4	15	2	1	31
Total		11	6	30	2	2	51

Table 2. Percentage of options for submission of application by candidates

		Options for submission					Total % Out of Total Ads
		Email	Online	Hard Copy	Online & Hard Copy	Email & Hard	
Type of Jobs	Visiting	15.4%	0%	76.9%	0%	7.7%	25.5%
	Contract/ TTS	0%	28.6%	71.4%	0%	0%	13.7%
	permanent	29%	12.9%	48.4%	6.5%	3.2%	60.8%
Total		21.6%	11.8%	58.8%	3.9%	3.9%	100%

29% prefer email submission, and 12.9% provide online options. Furthermore, 6.5% of the organizations ask the applicants to submit a profile online, print it, and then send it through the mail. Out of the advertisements that appeared in the press, 21.6% prefer email submission, 11.8% offer online options, 58.8% demand hard copies, 3.9% require online & hard copies, and 3.9% accept email submission and hard copies.

Table 3 shows that 56.9% of the organizations demand at least one hard copy of application documents to evaluate the candidates before the interview, whereas 33.3% have no such requirement. Approximately 9.9% of hiring organizations require more than one hard copy. 66.8% of the HEIs require one or more sets of hard document copies from the candidates. After recruitment, there is no need to keep sets of those documents which are discarded sooner or later, resulting in large-scale waste.

The demographic information of the participants is presented in Table 4. We surveyed the existing and potential HEI academicians to support our hypothesis. The data indicate the contribution of HEIs to paper waste generation. According to percentages of respondents' data, 72% are male, and 28% are female. 42.9% and 40% of respondents belong to the age bracket of 21–30 and 31–40. At the same time, 14.3% and 2.8% of respondents are 41–50 or above 50. Based on respondents' experience, 31.4% have less than five years, 34.3% have 6–10 years, 20% have 16–20 years, and 7.1% have 21 or above years of experience. The majority of the respondents have a qualification of masters, which is 64.3%, and the most negligible percentage of 1.4%, has an intermediate level of education. 18.6% of respondents have PhDs, and 15.7% have a bachelor's degree.

Around 10.1% of the participants have more than five resume pages. Most of them have a two page resume that is 37.7% and 20.3% have one page resume. 18.8% have three pages and 13% have four pages in their resumes. In addition, 43.5% of the participants have four to six education certificates. 18.8% have seven to ten, 15.9% have eleven to fourteen and 11.6% have less than three certifications. The least percentage is 10.1% having fifteen or more certificates. The experience certificates are majorly of three or less years for 50.7% of respondents. 33.3% and 14.5% have collectively four to ten experience certificates. Only 1.5% have fifteen or above experience certificates which are highly negligible.

Ph.D. students must post at least one research article before being awarded a Ph.D. degree. However, some scholars may have multiple publications seeking associate professor or professor positions, especially those with Post-Doctorate faculty experience. To qualify for an associate professor position, a candidate must have more than ten research articles published in recognized journals. Requiring printouts of publications is alarming because one set might consist of over 100 pages. Table 5 indicates that 37.3% and 62.7% of the advertisements for faculty positions are posted by public and private HEIs, respectively. The result shows that 73.7% of public universities demand hard document copies from potential candidates. Roughly 50% of private institutions have the exact requirement. Only 21.6% and 11.8% of organizations prefer applications through

Table 3. Number of hard copy sets required

		Frequency	Percent	Valid Percent
Valid	Not required	17	33.3	33.3
	One set	29	56.9	56.9
	Two sets	1	2.0	2.0
	Three sets	3	5.9	5.9
	Five sets	1	2.0	2.0
	Total	51	100.0	100.0

Table 4. Demographic Statistics

Demographic Data	Percentage
Gender	
Male	72%
Female	28%
Age	
Less than 20	0 %
21–30	42.9 %
31–40	40 %
41–50	14.3 %
50 and above	2.8 %
Experience (Years)	
Less than 5	31.4 %
6–10	34.3 %
11–15	20 %
16–20	7.2 %
21 and above	7.1 %
Qualification	
Matriculation	0 %
Intermediate	1.4 %
Bachelors	15.7 %
Masters	64.3 %
PhDs	18.6 %
No. of Pages in CV	
One page	20.3%
Two pages	37.7%
Three pages	18.8%
Four pages	13%
Five or above	10.1%
No. of Testimonials	
Less than 3	11.6%
4 to 6	43.5%
7–10	18.8%
11–14	15.9%
15 and above	10.1%
Experience Certificates	
3 or less	50.7%
4–6	33.3%
7–10	14.5%
11–14	0%
15 or above	1.5%

email and online platforms, respectively. Approximately 58.8% of the HEIs offer only the option of submitting documents in hard copy format, whereas 3.9% demand online or email submission and a hard copy. The findings reveal that 50% of the HEIs instruct the candidates to download the application form from their respective websites and send a printout, educational documents, and experience certificates. These universities have developed their online platform but are reluctant to

Table 5. Cross tabulation of application submission options from HEIs

		Application Procedure					Total
		Email	Online	Hard Copy	Online & Hard Copy	Email & Hard Copy	
Sector of HEI	Public	Count	2	14	0	1	19
		% within sector	10.5%	73.7%	0.0%	5.3%	100.0%
		% of Total	3.9%	27.5%	0.0%	2.0%	37.3%
	Private	Count	4	16	2	1	32
		% within sector	12.5%	50.0%	6.2%	3.1%	100.0%
		% of Total	7.8%	31.4%	3.9%	2.0%	62.7%
Total		Count	6	30	2	2	51
		% within HEIs	11.8%	58.8%	3.9%	3.9%	100.0%
		% of Total	11.8%	58.8%	3.9%	3.9%	100.0%

adopt the online submission process for various reasons that should be further explored in this research domain.

The study's findings support the hypothesis that the traditional recruitment processes of HEIs are one of the primary causes of solid waste problems in Pakistan. With every job announcement in a year, an enormous pile of papers comprising applicants' documents was stacked. Conventional recruitment systems still encourage the excessive use of hard copies, but they can be replaced with the online system to overcome this dilemma.

7. Discussion

The main objective of this study is to highlight the previously disregarded aspect of the research on solid waste. We explore the unethical practices of federal and provincial HEIs that lead to the generation of excessive paper waste. Pakistan has the third highest MSW generation rate in East Asia and Pacific Islands (Kawai and Tasaki, 2016). The MSW contribution by paper waste is 3–6% in the country, while in major cities, it reaches up to 15%. It makes up 11% of the waste generated by offices and corporate organizations (Nadeem et al., 2016; Rehmani et al., 2022, 2020). This study focused on the sources that generate paper waste in offices and found that, in Pakistan, a significant waste source comes from the traditional manual recruitment and selection process. In addition, this study fills several research gaps. First, this work extends the existing literature on MSW by investigating and validating a hypothetical statement that incorporates the traditional recruitment practices of federal and provincial HEIs in Pakistan as one of the primary sources of paper waste. Second, this research is among the first to scientifically examine the influence of the traditional recruitment processes of federal and provincial HEIs in Pakistan.

The findings revealed that every fourth advertisement published during the research period was meant to hire visiting faculty for a 16 weeks engagement. Among those ads, up to 80% of desired applications are on paper in the shape of a dossier requiring a cover letter, CV, all experience certificates, and all academic and training certificates. The dossiers are bound to go into the bin as the rules do not permit using the same candidates' information in coming semesters. So, hiring people for a short-term assignment can generate lots of paper waste as all the candidates applying may not get the job.

Surprisingly, despite Pakistan's high internet growth rate (Rehmani & Khan, 2011), internet usage, and availability, none of the organizations hiring visiting faculty offered an online mechanism for application submission. However, only 15% accepted applications through email, which is later again printed at the HR office for scrutiny and selection.

Similarly, 71% of organizations demanded hard copy dossiers for tenured or contractual positions. The most common job posts in the collected announcements are for permanent faculty positions (60.8%). Among these posts, 48.4% demand hard copy applications, which is a too high percentage in higher education that has learned enough about SDGs and environmental sensitivities. Many have research and education projects in these areas of research.

Out of the total advertisements that appeared in the press, including visiting, tenured and permanent positions, during the study period, 58.8% demanded a hard copy dossier, while 3.9% required applicants to not only submit their interest online but also send it in hard copy format. 56.9% of the organizations demanded at least one hard copy of application documents to evaluate the candidates before the interview. Furthermore, approximately 9.9% of hiring organizations require more than one set of dossiers for scrutiny. In summary, 66.7% of the HEIs require one or more sets of hard document copies from the candidates. In a country facing the challenge of trade deficit and with a low budget for allocation to MSW collection and disbursement, this percentage is alarming for the exchequer. The additional funding spent on importing paper and waste disposal could be better utilized on other projects focusing on poverty alleviation and health and hygiene awareness to improve the lives of people in Pakistan.

Almost every fourth educational organization asks to enclose all the research articles published by the candidates in their careers. This requirement makes the dossier as big as a Master's program dissertation. And submitting multiple sets of dossiers means thousands of papers used by candidates in only application submission. At the same time, there is little chance of being shortlisted or selected at a lateral stage. This wastage could be avoided by taking CVs only. After a shortlisting, limited candidates may be asked to submit all of their professional and academic documents if the online application system is not useable for specific reasons. Such practices are more common in public sector Higher Education Institutions. Half of the public sector organizations ask the candidates to visit the website, download an editable format, fill it up, print it, and send it through courier along with all academic and professional documents.

Lastly, the findings of this study can help policymakers and stakeholders understand the underlying mechanism of bulk paper waste generation in HEIs. Given the significant contribution of traditional recruitment processes to solid waste production, policymakers, HEI bodies, and non-governmental organizations should focus on improving the recruitment processes and implementing strategies to reduce paper waste.

7.1. Managerial implications

Solid waste management is a critical issue in developing countries, specifically in Pakistan, where five million citizens die each year due to diseases caused by solid waste. Waste-related concerns increasingly threaten other species' environment, health, and well-being. Officials are tackling this problem seriously, but numerous ways continue contributing directly to the MSW generation. This study fills the research gaps and empirically proves that the traditional recruitment practices of HEIs produce paper waste. In comparison, the HEIs in western societies play a central role in improving ethical behavior, promoting sustainable development, and encouraging students to execute responsible actions. The findings of this study provide various practical implications to policymakers and HEI authorities. First, HEIs can execute immediate actions and approve the law to minimize solid waste by changing the traditional recruitment policy. HEIs must urgently implement the necessary steps to reduce the effect of conventional recruitment methods on the environment.

Second, this study recommends using ICT to Pakistan HEC in recruiting potential candidates. Engaging with HEC is ideal for implementing responsible recruitment in the HEIs in Pakistan. This study also provides comprehensive guidelines to the HEC regarding responsible recruitment and proof that this recruitment scheme is suitable for HEC and HEIs in terms of quality aspects. HEC is continuously adopting quality measures to improve the HEI ranking. HEC can force HEIs to change their recruitment policies to encourage HR recruitment and shortlisting technology as a monitoring body. Pakistan HEC recently implemented a 100% shift by utilizing online portals in managing their operations, including documentation, Ph.D. central depository dissertation system management, scholarships, and journal recognition. Online systems efficiently evaluate candidates, shortlist interviews, and reduce paper usage. For instance, HEC maintains an online Ph.D. directory where the credentials of Ph.D. candidates are checked in compliance with the rules and policies after going through a hectic process. Ph.D. holders are required to list their names in the Ph.D. country directory. This directory is available to the general public.

Third, online recruitment channels (e.g., LinkedIn, <https://www.rozee.pk/>, and <https://www.jobs.ac.uk/>) improve the potential reach probability of hiring good human capital and thus guarantee an enhanced performance. Local reputed private HEIs fulfill their CSR and hire faculty digitally. This approach provides the perfect business model and guidelines for federal and provincial HEIs to engage faculty members. The abovementioned practices can reduce carbon footprints and minimize paper waste. Suppose the online portal is unavailable for specific reasons. In that case, the concerned department can allow potential candidates to submit necessary certificates and documents in portable disk or CD format, which causes minor damage to the environment than printed paper. Lastly, recruitment through traditional methods raises ethical issues and financial challenges. For instance, the Pakistani government imported more than \$506.34 worth of paper in 2019. Pakistan is under substantial debts and has had a trade deficit for the past two decades, and

thus should take measures to cut the import bill. The wastage of paper due to a flawed recruitment system contributes to the severe implications of this bill. It forces the government to allocate extra funds to collect and dump waste and construct landfill sites.

8. Conclusion

The main challenge faced by provincial and federal HEIs in Pakistan is the inadequate knowledge of the effectiveness of responsible hiring of quality academicians through digital means. This study adopts a scientific approach to confirm that traditional recruitment procedures are among Pakistan's natural causes of solid waste problems. The results suggest responsible online link recruitment will drastically decrease solid waste. Moreover, online recruitment systems are highly suitable for potential applicants because Pakistan's mobile penetration and adoption among millennials are higher than in other Asian countries. Responsible recruitment through digital means plays an essential role in increasing the environmental performance of HEIs, and, thus, is a promising research area. This work contributes to solid waste management and practices and helps HEIs change their traditional recruitment procedure. The findings further indicate that adopting responsible hiring can reduce the harmful effects on the environment.

The study findings can be a breakthrough for academic stakeholders and policymakers to improve recruitment processes to ameliorate massive paper waste. This study highlights the poor practices of HEIs that cause solid waste problems in developing countries. The results show that Pakistan's federal and provincial HEIs encourage applicants to apply through proper channels and bring certificates for academics and experience. Pakistan is one of the cheapest countries that provides information technology solutions. Therefore, the findings of this study can guide HEIs in transforming their traditional recruitment systems to digital approaches and reducing paper waste. Previous research suggests that digital transformation significantly influences the performance of firms and improves transparency among different departments, especially sales, recruitment, and audit departments. The results of the present study are consistent with this inference. Digital shift reduces solid waste, decreases manual costs, diminishes fatigue in preparing the recruitment list, and increases transparency. Several private HEIs have adopted online recruitment systems to adhere to their CSR correctly. This research provides guidelines for the immediate shift of HEIs to online recruitment through ICT to rapidly decrease paper waste generation.

Funding

The authors received no direct funding for this research.

Author details

Mahmood Rehmani¹
ORCID ID: <http://orcid.org/0000-0003-0968-8588>
Umer Iftikhar²
ORCID ID: <http://orcid.org/0000-0002-4149-7071>
Munnawar Naz Khokhar³
ORCID ID: <http://orcid.org/0000-0002-0196-3867>
Hafiz Ihsan Ur Rehman⁴
ORCID ID: <http://orcid.org/0000-0002-5015-0125>
Huda Irshad⁵
E-mail: hudairshad5@gmail.com
ORCID ID: <http://orcid.org/0000-0001-5671-5601>
Naveed Anwer⁶
ORCID ID: <http://orcid.org/0000-0002-6774-3752>

¹ Department of Management Sciences and Economics, Grand Asian University Sialkot, Sialkot, Pakistan.

² Leadership and Management Studies Department, FCS at National Defence University (NDU), Islamabad, Pakistan.

³ Department of Management Sciences, COMSATS University, Islamabad, Pakistan.

⁴ Department of Business Administration, University of Punjab, Gujranwala Campus, Lahore, Pakistan.

⁵ Department of Business Administration, University of Sialkot, Sialkot, Pakistan.

⁶ Lahore Business School, The University of Lahore, Lahore, Pakistan.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Data availability statement

The data that supports the findings of the study is available from the corresponding author upon reasonable request.

Ethical statement

The research was reviewed from the perspective of ethics and approved by the Departmental Research and Review Committee (DRRC) of Department of Business Administration, University of Sialkot, Pakistan (DRRC-USKT-21) on 15 April 2021. The participants gave informed consent to take part in the research and the ethics committee approved the verbal consent.

Citation information

Cite this article as: Does the traditional recruitment procedure of higher education institutions cause paper waste?, Mahmood Rehmani, Umer Iftikhar, Munnawar Naz Khokhar, Hafiz Ihsan Ur Rehman, Huda Irshad & Naveed Anwer, *Cogent Business & Management* (2022), 9: 2151679.

References

Abd Manaf, L., Samah, M. A. A., & Zukki, N. I. M. (2009). Municipal solid waste management in Malaysia: Practices and challenges. *Waste Management*, 29

- (11), 2902–2906. <https://doi.org/10.1016/j.wasman.2008.07.015>
- Aboul-Ela, G. M. B. E. (2014). Development of a scale to measure the perceived benefits of e-recruitment from the viewpoint of the recruiter. *Journal of Business & Retail Management Research*, 9(1). <https://doi.org/10.24052/JBRMR/181>
- Adeniran, A., Nubi, A., & Adelopo, A. (2017). Solid waste generation and characterization in the University of Lagos for a sustainable waste management. *Waste Management*, 67, 3–10. <https://doi.org/10.1016/j.wasman.2017.05.002>
- Adetunji, O. J., & Ogbonna, I. G. (2013). Corporate social responsibility as a recruitment strategy by organisations. *International Review of Management and Business Research*, 2(2), 313. https://www.irmbrjournal.com/paper_details.php?id=99
- Azam, M., Jahromy, S. S., Raza, W., Raza, N., Lee, S. S., Kim, K.-H., & Winter, F. (2020). Status, characterization, and potential utilization of municipal solid waste as renewable energy source: Lahore Case Study in Pakistan. *Environment International*, 134, 105291. <https://doi.org/10.1016/j.envint.2019.105291>
- Bhatt, A., & Bhatt, S. (2018). Can personality affect ethical behavior of business school students? *International Journal of Business Insights & Transformation*, 12(1). <https://www.proquest.com/openview/ea82737b4d21d817fe3f1ad07cec23df/1?pq-origsite=gscholar&cbl=2068965>
- Clarke, V., & Braun, V. (2013). Successful qualitative research: A practical guide for beginners. *Successful Qualitative Research*, 1–400. https://api.pageplace.de/preview/DT0400.9781446281024_A24016291/preview-9781446281024_A24016291.pdf
- Compton, R. L. (2009). *Effective recruitment and selection practices*. CCH Australia Limited.
- Crate, S. A., & Nuttall, M. (2016). *Anthropology and climate change: From encounters to actions*. Routledge.
- Curran, C. R. (2003). Nurse recruitment: A waste of postage, paper, and people. *Nursing Economics*, 21(1), 5–8.
- Das, S., Lee, S.-H., Kumar, P., Kim, K.-H., Lee, S. S., & Bhattacharya, S. S. (2019). Solid waste management: Scope and the challenge of sustainability. *Journal of Cleaner Production*, 228, 658–678. <https://doi.org/10.1016/j.jclepro.2019.04.323>
- Dhamija, P. (2012). E-recruitment: A roadmap towards e-human resource management. *Researchers World*, 3(3), 33. <https://bit.ly/3F0q2N0>
- Felgendreher, S., & Löfgren, Å. (2018). Higher education for sustainability: Can education affect moral perceptions? *Environmental Education Research*, 24(4), 479–491. <https://doi.org/10.1080/13504622.2017.1307945>
- Fugard, A. J., & Potts, H. W. (2015). Supporting thinking on sample sizes for thematic analyses: A quantitative tool. *International Journal of Social Research Methodology*, 18(6), 669–684. <https://doi.org/10.1080/13645579.2015.1005453>
- Guerrero, L. A., Maas, G., & Hogland, W. (2013). Solid waste management challenges for cities in developing countries. *Waste Management*, 33(1), 220–232. <https://doi.org/10.1016/j.wasman.2012.09.008>
- Guest, G., & MacQueen, K. M. (2008). Reevaluating guidelines in qualitative research. *Handbook for team-based Qualitative Research*, 205–226. <https://bit.ly/3XXxYav>
- Gusdorf, M. L. (2008). *Recruitment and selection: Hiring the right person* (pp. 1–15). Society for Human Resource Management.
- Hameed, Z., Islam, T., Ullah Khan, I., Sheikh, Z., & Liang, X. (2019). The impact of Green HRM practices on EOCB: The mediating role of green employee empowerment. *Academy of management proceedings*.
- Hasanin, M. S., Hashem, A. H., Abd El-Sayed, E. S., & El-Saied, H. (2020). Green ecofriendly bio-deinking of mixed office waste paper using various enzymes from *Rhizopus microsporus* AH3: Efficiency and characteristics. *Cellulose*, 1–11.
- Iftikhar, U., Zaman, K., Rehmani, M., Ghias, W., & Islam, T. (2021). Impact of green human resource management on service recovery: Mediating role of environmental commitment and moderation of transformational leadership. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.710050>
- Ikhwan, K., Giovanni, A., & Rahardjo, B. (2022). Online recruitment: Does social networks characteristic matter? A systematic review of literature. *Proceedings of the 4th international conference on economics, business and economic Education science, ICE-BEES 2021*, 27–28 July 2021, Semarang, Indonesia. <https://doi.org/10.4108/eai.27-7-2021.2316887>
- Irshad, H., Umar, K. M., Rehmani, M., Khokhar, M. N., Anwar, N., Qaiser, A., & Naveed, R. T. (2021). Impact of work-from-home human resource practices on the performance of online teaching faculty during coronavirus disease 2019. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.740644>
- Islam, T., Khan, M., Ghaffar, A., Wang, Y., Mubarik, M. S., Ali, I. H., Shahid, Z. A., Rehmani, M., & Sharma, A. (2022). Does CSR influence sustained competitive advantage and behavioral outcomes? An empirical study in the hospitality sector. *Journal of Global Scholars of Marketing Science*, 1–26. <https://doi.org/10.1080/21639159.2022.2098157>
- Kawai, K., & Tasaki, T. (2016). Revisiting estimates of municipal solid waste generation per capita and their reliability. *Journal of Material Cycles & Waste Management*, 18(1), 1–13.
- Landrum, N. E., & Ohsowski, B. (2018). Identifying worldviews on corporate sustainability: A content analysis of corporate sustainability reports. *Business Strategy and the Environment*, 27(1), 128–151. <https://doi.org/10.1002/bse.1989>
- Moraes, R. R., Correa, M. B., Daneris, Å., Queiroz, A. B., Lopes, J. P., Lima, G. S., Cenci, M. S., D'Ávila, O. P., Pannuti, C. M., Pereira-Cenci, T., & Demarco, F. F. (2020). Email vs. Instagram Recruitment Strategies for Online Survey Research. <https://doi.org/10.1101/2020.09.01.20186262>
- Nadeem, R., Manzoor, Q., Iqbal, M., & Nisar, J. (2016). Biosorption of Pb (II) onto immobilized and native *Mangifera indica* waste biomass. *Journal of Industrial and Engineering Chemistry*, 35, 185–194.
- Nunoo, E. K. (2019). *Sustainable waste management systems in higher institutions: Overview and advances in*. Central University Miotso.
- Obiora, S. C., Bamisile, O. O., Dodge, K., & Dagbasi, M. (2017). Identifying corporate socially responsible, cost minimizing, management, and energy saving techniques to be implemented on a university campus, through a paperless initiative. *IOSR Journal of Business and Management*, 19(2), 55–66. <https://doi.org/10.9790/487X-1902025566>
- Pakistan - Waste Management. International trade administration | trade.gov. (2022, January 27) <https://www.trade.gov/country-commercial-guides/pakistan-waste-management>
- Puncheva-Michelotti, P., Hudson, S., & Jin, G. (2018). Employer branding and CSR communication in online recruitment advertising. *Business Horizons*, 61(4), 643–651. <https://doi.org/10.1016/j.bushor.2018.04.003>

- Razzaq, A., Sharif, A., Najmi, A., Tseng, M.-L., & Lim, M. K. (2021). Dynamic and causality interrelationships from municipal solid waste recycling to economic growth, carbon emissions and energy efficiency using a novel bootstrapping autoregressive distributed lag. *Resources, Conservation and Recycling*, 166, 105372. <https://doi.org/10.1016/j.resconrec.2020.105372>
- Ready, P. (2020, January 28). *What are the advantages of latest jobs in newspapers?* <https://www.ready.pk/news/what-are-the-advantages-of-latest-jobs-in-newspapers-200>
- Rehmani, M., Arshad, M., Khokhar, M. N., Anwer, N., Adnan, M., Naveed, R. T., & Irshad, H. (2022). Covid-19 repercussions: Office and residential emissions in Pakistan. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.762746>
- Rehmani, M., Islam, T., Khokhar, M. N., Iftikhar, U., & Shahzad, M. (2020). Tariff determination for municipal waste management power projects in Pakistan. *Waste Management & Research*, 38(8), 851–856. <https://doi.org/10.1177/0734242x20916510>
- Rehmani, M., & Khan, M. I. (2011). The impact of E-media on customer purchase intention. *International Journal of Advanced Computer Science and Applications*, 2(3). <https://doi.org/10.14569/IJACSA.2011.020317>
- Rynes, S. L., Bretz, R. D., Jr, & Gerhart, B. (1991). The importance of recruitment in job choice: A different way of looking. *Personnel Psychology*, 44(3), 487–521. <https://doi.org/10.1111/j.1744-6570.1991.tb02402.x>
- Sharholi, M., Ahmad, K., Mahmood, G., & Trivedi, R. (2008). Municipal solid waste management in Indian cities—A review. *Waste Management*, 28(2), 459–467. <https://doi.org/10.1016/j.wasman.2007.02.008>
- Smyth, D. P., Fredeen, A. L., & Booth, A. L. (2010). Reducing solid waste in higher education: The first step towards 'greening' a university campus. *Resources, Conservation and Recycling*, 54(11), 1007–1016. <https://doi.org/10.1016/j.resconrec.2010.02.008>
- Tejedor, G., Segalàs, J., & Rosas-Casals, M. (2018). Transdisciplinarity in higher education for sustainability: How discourses are approached in engineering education. *Journal of Cleaner Production*, 175, 29–37. <https://doi.org/10.1016/j.jclepro.2017.11.085>
- Wijethilake, C. (2017). Proactive sustainability strategy and corporate sustainability performance: The mediating effect of sustainability control systems. *Journal of Environmental Management*, 196, 569–582. <https://doi.org/10.1016/j.jenvman.2017.03.057>
- Zaman, K., Iftikhar, U., Rehmani, M., & Irshad, H. (2022). Embracing biodegradable bags: Effects of ethical self-identity on consumer buying behavior. *Social Responsibility Journal*. <https://doi.org/10.1108/SRJ-03-2021-0099>



© 2022 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.

You are free to:

Share — copy and redistribute the material in any medium or format.

Adapt — remix, transform, and build upon the material for any purpose, even commercially.

The licensor cannot revoke these freedoms as long as you follow the license terms.

Under the following terms:

Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made.

You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.

No additional restrictions

You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.



Cogent Business & Management (ISSN: 2331-1975) is published by Cogent OA, part of Taylor & Francis Group.

Publishing with Cogent OA ensures:

- Immediate, universal access to your article on publication
- High visibility and discoverability via the Cogent OA website as well as Taylor & Francis Online
- Download and citation statistics for your article
- Rapid online publication
- Input from, and dialog with, expert editors and editorial boards
- Retention of full copyright of your article
- Guaranteed legacy preservation of your article
- Discounts and waivers for authors in developing regions

Submit your manuscript to a Cogent OA journal at www.CogentOA.com

