

INVESTIGATING GENDER BIAS AND ROLE ALLOCATION PATTERNS IN ARCHIVAL ORGANIZATIONS THROUGH HR ANALYTICS

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Abstract

Archival organizations are important for maintaining cultural heritage and institutional memory, yet gender bias and unequal role allocation continue to influence these organizational structures. This study examines the patterns of gender-based inequities in job assignments, promotions, and leadership roles in archival organizations using Human Resource (HR) analytics. This study analyzes longitudinal HR data from several archival organizations to determine where implicit bias and structural inequities in how roles are allocated. In this study, data amalgamated from individual, longitudinal HR datasets are organized into statistical models and machine learning practices to understand the interactions of gender with job type, timelines, and performance ratings to create organizational mobility. Findings point to gendered clustering in administrative versus decision making roles along vertical and horizontal segregation. This paper provides predictive models to map decision points within HR pipeline where bias is likely to occur, describes data driven potential methods to promote equitable talent development, and to promote inclusive policy changes. The implications of this study can assist to inform bias aware, diversity based HR practices within the archival sector.

Keywords: Gender bias, Role allocation, Archival organizations, HR analytics, Workforce equity, Predictive modeling, Diversity and inclusion

INTRODUCTION

Gender bias in the workplace occurs when individuals are treated or perceived differently because of their gender. Ultimately, gender bias operates to disadvantage attraction to opportunities, roles, pay and future advancement. Gender bias can be explicit and overt or can operate on a level that is more implicit and less conscious to people. Bias can operate in recruitment and also internal decision-making processes alike, evidence is plentiful in studies that show women are less likely to be offered a role in a leadership position or may receive a lower performance rating for similar amounts of work output than her male counterpart or is underrepresented in tactical or strategic positions at key levels of the business [1]. At the same time men may experience bias in female-dominated roles or stigma against a father who takes a greater interest in childcare responsibilities. Thus, bias must also be viewed as multidirectional [2].

Gender role discrimination patterns operate in the organizational culture, work design practices, and informal networks that are difficult to ascertain without systematic analysis [4]. Gender bias costs organizations on many levels: the erosion of employee trust; inhibiting diversity; and ultimately compromises organizational effectiveness. In the last several years there has been unprecedented opportunity to leverage two technological trends - the use of data to support HR practices at scale and the emergence of analytical and machine learning tools to identify, quantify, and potentially mitigate gender bias in recruitment and promotion etc [3][12].

Although most discussions of gender discrimination concern corporate or STEM environments, little attention has been drawn to archival organizations, which are responsible for building and safeguarding the historical record. Archival organizations are critical in memory and identity building; however, they, too, carry on the legacy of antiquated gender hierarchies. Although it is typically women who are exploited in archival institutions (a rather crude term here!), they also are constructed and socially regulated to be unprofessional and unworthy on two levels: a form of undervaluation and an inferior level of professionalism in comparison to their male counterpart archivists. Most often women are relegated to work in job functions such as cataloging, instructional assistance,

information services and so forth, while men are appointed as senior archivist, digital archivist and other non-expert or managerial positions [7]. The function of women archivists and the functions associated with their work has a horizontal and vertical effect on women and other marginalized gender groups in terms of engaging in significant decision-making of an archival nature that can include deciding what histories are saved/lost and how these histories are represented [8]. Additionally, by trivializing roles performed by people who have been gendered female, an archivable destruction of gender pay inequity and recognition and so on ultimately perpetuate gender inequities in labor and normalization, either falsely or authentically embodied, to the caretaking of records [15]. The examination of gender discrimination and dominance in archival workplaces is important not only for equitable labor and employment but also for equitable and just archival products that aim to represent voices outside of the historically marginalization of the archival workforce as well as the historical record [13].

This study aims to examine the presence and extent of gender bias in role allocation in archival institutions via HR analytics. This study will use anonymized employee data from a sample of archival institutions to identify statistical and statistically driven trends from machine learned information about the intersection of gender, job title (in terms of their position) and in terms of supervisor performance reviews, seniority, and promotion history. The realization of this research is framed in three main outcomes: firstly, to map and measure the adversities of gender disparities in job categorization and levels of careers; secondly, to highlight organization variables and decision points where gender bias is most likely to arise; and thirdly, to measure predictive models and interventions organizations can apply to reduce gender bias and increase equity. This study ultimately hopes to add to the overarching conversation about diversity and equity in knowledge institutions, providing a repeatable, structured approach for bias detection and policy action in the archival community [14].

II. Gendered Dynamics in Archival Work: A Review of Prior Insights

2.1 Historical Perspectives on Gender Bias in Organizations

Organizational gender bias has a long legacy that reaches back from patriarchal divisions of labor in industrial systems to contemporary corporations. Historically, women were banned from formal paid employment, or performed only "female-appropriate" jobs (e.g., clerical, caregiving, and collaborative roles) while men performed jobs associated with authority, technical skill, and important organizational decisions. Although more women began to enter the workforce towards the end of the 20th century, they were still subjected to structural barriers of unequal pay, limited advancement paths, and exclusion from informal leadership networks [6]. Academics have referred to organizational processes, power structures and power flows as institutionalized frameworks that uphold power asymmetries with labels such as the "glass ceiling" or "gendered organizations" theory. Even in the presence of formal policies like affirmative action or equal opportunity, gender bias and inequity can still exist in organizational culture and practice [9]. Social biases can also not be easily removed, without something more impactful to change the adopted institutionalized approach.

2.2 Studies on Gender Bias in the Archival Profession

Recent research on the profession of archival has begun to illuminate the issue of gender inequity regarding access to advancement in professional roles, workload allocation and even representation in leadership roles. While people often emphasize archival work as having historically been a field that was treated as "women's work" and a majority of archivists, when accounting for the traditional paths selected when entering the profession, were women, it was largely men that occupied strategic, technical and supervisory roles. Demographic surveys disseminated and reported upon by professional bodies, such as the Society of American Archivists (SAA) and the International Council on Archives (ICA), found that male archivists were over-represented in leadership roles, upper management and technological transformation roles [11]. Case studies indicate that women archivists more frequently reported experiences of being undervalued, not promoted, and also overqualified for emotional labour or routine activities. This literature reinforces the notion that gendered role hierarchies exist despite representations of diversity; it is important to research the ways and means of the persistence of bias and the original source of the bias situated in HR policy.

2.3 Role Allocation Patterns Based on Gender in Archival Organizations

The tendency to produce role distribution in archival institutions reflects social distribution in occupational gender segregation [10]. Women are commonly employed in roles that involve engaging with users, description, and metadata processing, which are significant roles but often undervalued. Although women constituted the majority of employees in an organization, there are disproportionate numbers of women in higher positions. Male-dominated, technical positions (digital archivist, IT coordinator, systems administrator, etc.) perpetuate gendered stereotypes that label female employees as unqualified for said positions [5]. Specific internal organizational practices, such as arbitrary performance evaluations, selective mentorship opportunities, or a lack of formalized promotion paths, only serve to disadvantage female employees. The exclusion of systematic tracking and accountability through human resources (HR) analytics has made recognizing and adjusting for bias difficult; this is why it is important to consider how we analyze the distribution of roles in relation to gender through empirical and data-driven means.

III. Analytical Framework for Exploring Gender Bias in Archival HR Systems

3.1 Data Collection Methods

This study employed a mixed-methods strategy that included quantitative and qualitative strategies in assessing gender bias and role divisions in archival organizations in a systematic manner. Employees from several archival organizations were asked to complete surveys in an attempt to provide structure about employee demographic characteristics, job role, career mobility, and perceptions of bias. Surveys used Likert-scale survey questions and open-ended questions designed to allow some measurable trends, but also to indicate lived experience. In addition to surveys, semi-structured interviews were conducted with a sample of employees in distinct hierarchical and functional roles. The answers resulted in more meaningful information about reactive bias, possible obstacles to promotion, and structures and practices within that institution. Researchers also recorded non-participant observations in some archival settings to document behavioral tendencies within learning settings including patterns of engagement, task allocation, and meeting behaviour. This enrollment strategy allowed for richer contextualized understandings of workplace behaviours that would not emerge from self-reported data.

3.2 Sample Selection Criteria

This study drew upon a sample from a variety of archival institutions and included the following types of archival institutions: national archives, university libraries, and private heritage organizations. The selection criteria required that participating institutions have at least 30 staff members and that human resource information had been kept in a systematic way for at least five years. These institutions were not random sample sites. Within these organizations, purposive sampling was then applied to select individuals from across gender identities, job levels (entry, mid, senior), and departments (technical, administrative, outreach, and digital). In total 412 participants were identified, of whom: 278 completed the survey, 54 completed the interviews, and 12 organizations allowed site-based observations. Male and female participants (and individuals with gender diversity) were critically included to ensure the findings reflected the full arena of gendered experiences. Approval from our respective ethics board - and ethics committee with each of the 12 archival organization - were granted for each of the data collection phases. Consent to participate was obtained from the participants ensuring confidentiality and informed volunteers participation.

3.3 Data Analysis Techniques

We analyzed the data using a mix of statistical and machine learning to identify patterns and predictors of gender bias in roles allocation. With respect to the focus on quantitative survey data in the study, the data were analysed by SPSS and R, and employed descriptive statistics, cross-tabulation of variables, and logistic regression analysis, to consider the relationship between gender and job roles, promotion rates, performance ratings, and tenure. Chi-square tests and ANOVA were performed to consider if any significant differences between groups were present. For qualitative data generated in the interviews, a thematic analysis approach was implemented and undertaken using NVivo software. This technique provides the advantage of allowing notes and other generated researcher memos to be included also in the thematic analysis. The child code, or the thematic nodes documented in NVivo, facilitated the identification of repeated themes of interest found around perceived discrimination, mentorship approaches, and workplace culture. Observational data was manually coded and triangulated with outcomes in surveys and interviews to enhance this validity. In addition, a decision tree classifier was applied to the datasets from the employer's HR, to identify the variables that predict the best chances of being promoted, and conversely being stagnated in promotion, which could help determine bias points within the HR pipeline. This multi-layered analysis framework provided depth and breadth to examine systemic gender bias in archival agencies.

IV. Uncovering Gender-Based Patterns in Archival Role Distribution

4.1 Quantitative Data on Gender Distribution in Archival Organizations

Analysis of HR data from twelve archival institutions exposes troubling gender imbalances across functions and hierarchies. Although women represent 63% of the archival labor force, they are predominantly concentrated in entry and administrative categories—records assistants, cataloguers, and user-service roles. Men, by contrast, occupy the scarce technical and managerial roles, including digital archivists, IT coordinators, and senior curator positions. Although women constitute the larger segment of the profession, they occupy merely 22% of top leadership positions, indicating a troubling drop from entry-level numbers. The gap largely represents extremely unequal promotion rates: after five years from their start date, 41% of men receive some form of a visible promotion, whereas only 27% of women received one. Even controlling for years of service, realizing credentials, and observable performance, the findings still indicate that gender, by itself still is an important and independent phenomenon for who rises through occupations. This finding highlights an ongoing dynamic, and suggest that women and men have fundamentally different career paths that perpetuate an unjust and inequitable gap — that, clearly, the profession's structures as they exist do not effectively represent the barriers and parameters that still restrict women in how they are able to move through and beyond entry-level positions within the profession of archiving.

4.2 Qualitative Data on Experiences of Gender Bias in the Workplace

A thorough examination of the interviews uncovered widespread perceptions of gender bias at both everyday and critical junctures of women's careers. Many respondents shared experiences of being overlooked for senior and/or technical positions when their credentials were at least equally compelling, if not better than their male colleagues. Fundamental to their descriptions was a glaring lack of advocacy; regular exclusion from strategic

conversations/engagements; and the expectation that they would absorb the relational labour—conflict resolution, deliverable tracking—associated with the roles without any official recognition. Several ones expressed an implicit tendency for people in positions of authority to direct them to outreach and education assignments, while the technical and systems work seemed to remain implicitly reserved for men. Non-binary and genderqueer individuals reported having more exposure to exclusion because corporate policies rarely acknowledged their identities and colleagues derided their contributions without consideration. These narratives illustrate that bias is interlaced with both continued formal processes and the informal hierarchies and enduring cultural scripts that shape the culture of archival work.

4.3 Analysis of Role Allocation Patterns Based on Gender

A close examination of the interviews confirmed that perceptions of gender bias are ubiquitous across every stage of women's careers; in small, daily interactions, as well as in the defining moments women experience in terms of promotion and tenure. Interviewees described being passed over so many times for senior and technical roles despite having equivalent or superior qualifications to men. However, situated at the core of their experiences are omissions of active, visible sponsorship; omission from rooms where opportunities are discussed and decided; and the unstated expectation they would perform relational work—conflict engagement, checking deadlines—without title, pay, or verbal acknowledgment of their work; or the dissociation of relational work from technical work altogether. Many women spoke to collegially assertive expectations to transition from development and research and engagement to outreach and teaching (with the expectation that the technical and systems' work are still defined and framed as male and experienced men). Non-binary and genderqueer colleagues similarly described feelings of not belonging, identifying, in some instances, as invisible; pointing to HR systems, policies, and practices not registering their identities and colleagues who failed to validate their technical contributions. Collectively, these narratives indicate that bias is entrenched not only in official rules but also in the subtler, everyday interactions that shape professional identity. A comparative grid of title, task, and departmental affiliation across the gender spectrum revealed marked segregation. Women entered "service-facing" units—public engagement, donor relations, educational programming—while men were oriented toward "infrastructure-facing" areas, including data curation, digitization, and system administration.

Examination of year-end performance summaries and departmental task logs showed that women's work was consistently praised for its teamwork and organization, while men were credited more often for technical fixes and long-range strategy. Cross-referencing corpus data from HR, I found that gender, department classification, and prior review score together reliably predicted both area of assignment and pace of promotion. These patterns amount to horizontal segregation—pushing women and men into different functional zones—and vertical segregation—squeezing women from advancing leadership grooves. The record suggests that archival settings, although superficially gender-mixed, reiterate inequity via predictable and electronically logged personnel actions. Over and above formal rules, entrenched culture scripts and informal chains of influence continue to contour everyday archival practice.

V. Reimagining HR Practices for Equitable Archival Workplaces

5.1 Implications of the Findings for HR Practices in Archival Organizations

When you zoom in on how jobs get doled out at archives, it's obvious that the HR systems we rely on still trip us up. Whether it's hiring, doling out assignments, checking how well someone's doing, or choosing who gets the next promotion, the numbers tell the story. Even though managers like to point to these HR steps and call them fair and color-blind, they still miss the subtle biases hiding under the surface, and that's what keeps women and gender-diverse staff from moving ahead. These biases show up both in official rules we forget to question and in the everyday attitudes that assign women to support and outreach tasks while pushing men toward technical and leadership slots. This analysis pushes HR teams in the archives to stop treating diversity as a box to tick and start building strategies that center on true equity. It also calls on human resources experts to weave data analysis into their daily work, so they can spot, measure, and respond to gender imbalances as they happen. If we fail to make these changes, the archives won't just repeat old inequalities—we'll also weaken our credibility and our claim to be truly inclusive.

5.2 Recommendations for Addressing Gender Bias and Promoting Gender Equality

To truly tackle gender bias, archives ought to launch a three-part plan that combines campus-wide fixes, culture shifts, and savvy tech spot-checks. First up, hiring and promotion rules should fold in gender audits, blind resume scans, and appoint hiring teams that really reflect a mix of perspectives. This way, every job in the archive gets an even chance. Step two: launch leadership programs that specifically support people of underrepresented genders so they can rise through the ranks. Step three: rewrite job descriptions and review sheets to include emotional labor, mentoring, and team-building—skills that push the archive forward but often get overlooked. Then, create HR analytics dashboards that demonstrate number of female employees by department and number at each job stage; they can reveal inequalities before they expand. Finally, train managers to identify and intervene with unconscious bias in meetings and decisions. With these steps, you can transition from capturing issues in the archives to fostering true, lasting equity.

5.3 Suggestions for Future Research on Gender Bias in the Workplace

This work establishes a potential framework for understanding how gender aversion filters down into the assortment of archivist positions, but there are still many holes. Future research could perhaps map out the

relationship between gender and intersectional identity factors- for example, race, age, disability, income, etc.- and explore how layers of the disadvantages then compound. Researchers could track archivists over the years using longitudinal studies to see if careers plateau, accelerate, or divert once resources or programs intended to provide support are made available. Expanding study across different contexts- libraries, museums, government agencies, digital curation- and different actors in the space may shed light on how bias manifests differently in each context. Employing sophisticated AI to analyze the sentiments in performance evaluations or meeting minutes may help researchers identify pernicious patterns in harmful organizational cultures. Frankly, continued research into the foundations of oppression is imperative in developing sound, data-informed strategies that liberate archival spaces (and beyond) into true equity and justice.

CONCLUSION

In an effort to investigate whether job assignments in preservation organizations were equitable, researchers identified definitive and persistent patterns that undermine diversity and restrict the capability of the entire institution. By reviewing personnel data and interviews, the research team documented two connected forms of inequality. First, women are consistently more likely to occupy visitor-facing and administrative positions, a form of horizontal segregation. At the same time, a narrow majority of men occupy leadership and specialized technical positions, a form of vertical segregation. When controlling for experience level, degree level and evaluation scores, these divisions remained, demonstrating that allocation of roles is a result of deep-rooted policies and behaviors—not of talent or effort on the part of the individuals. For archive organizations, the (albeit heroic) stewards of the world's shared memory, the immediate task is to confront and dismantle these spaces of inequity. A staff below representational equity cannot credibly enact the inclusive ideals these institutions profess. Furthermore, misrepresentation in key spaces excludes equitable opportunity for marginalized cohorts and limits the range of perspectives and expertise the organization can draw on. The impact spreads outward, dulling the quality of decisions made, narrowing the extent of innovation, and limiting the impact of collections for the communities for which archives are intended to support. In order to move forward archives must be responsible for equity as they are with records, with data in place for every decision. They should begin with reimagining hiring and promotion, analyzing HR data for implicit bias, and establishing mentorship and training specifically for those from underrepresented populations. They also need to foster a culture of continual honesty, accountability and desire for growth. These findings do two jobs: they show where the gaps are and they lay out the steps to close them. The evidence is clear: bias in which genders hold certain archive positions is both real and fixable. The message is straightforward: archives must put equity on the same level as mission statements, not as an afterthought. This shift is the only way they can do two jobs well-guard yesterday's records and help design a fairer tomorrow.

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