Bureaucrats are Philanthropists: A Survey on Player Types in Germany's Public Administration

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***Abstract*—Despite the potential of game-based learning, empirical evidence regarding the gaming preferences, behaviors, and player types of public administration employees is lacking. Addressing the need to tailor the design of serious games to this target audience, this study investigates the prevalence of player types to inform the development of engaging serious games. We conducted an online survey of 231 employees across Germany's public administration, and assessed their player type using the HEXAD scale. Contrary to anecdotal evidence suggesting a reluctance toward gaming, the results reveal a workforce that is highly interested in games. The findings indicate a distinct motivational profile dominated by 19.3% Philanthropists and 18.9% Achievers, while the 'Player' (15%) and Disruptor (11.7%) types were the least prevalent. These results challenge the reliance on standard gamification mechanics, such as points, badges, and leaderboards, which appeal to extrinsic motivations that are not prioritized by this audience. Instead, we recommend that serious games for public administration prioritize elements such as purpose, contribution to society, and mastery to align with the player motivations of public administration employees.**

***Index Terms*—Serious Games, Player Types, HEXAD, Public Administration, Online Survey**

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I. Introduction

Serious games have been proposed as engaging learning environments to foster e-government competencies among public administration employees and students [1][2][3]. Although often associated with entertainment, games with an "explicit and carefully thought-out educational purpose" [4, p. 9] have their origins in military [4] and government contexts [5].

The renewed interest in serious games can be attributed to several advantages over traditional learning formats. They allow learners to engage with interdependent complexities [6], are less costly than full-scale drills or exercises [7], and can be more easily integrated into the time-constrained schedules of public administration employees [8]. Importantly, some competencies can only be acquired through experiential learning, which is difficult to facilitate in the risk-averse context of public administration. However, serious games provide a safe environment in which learners can experiment, fail, and reflect without real-world consequences [9].

However, unlike entertainment games, serious games are not necessarily intrinsically motivating [10]. This poses a central design challenge and raises questions regarding their effectiveness. Players continuously evaluate whether a game is enjoyable, interesting, and fun [11]. Higher motivation is

associated with greater engagement and willingness to spend time in the game, which in turn is linked to improved learning outcomes.

Research on player motivation suggests that individuals engage with games for different reasons and in different ways [12]. This has direct implications for game design, as different game genres and even different characteristics within the same game appeal to different player types [13]. For example, [14] showed that personality traits moderate how players respond to performance-oriented rewards. Since designers of serious games typically do not have the financial budget of large game publishers, it is particularly important to know which game elements are appealing to the target audience and should be prioritized during development.

These considerations are particularly salient in the context of public administration. Research based on the Attraction–Selection–Attrition (ASA) model suggests that public administration employees exhibit, to some degree, a distinct personality profile compared to private sector employees or the general population. This line of research contributed to the development of the Public Service Motivation (PSM) construct, which captures motives related to serving society and citizens [15]. In particular, the affective motives of PSM are associated with higher levels of fairness, tolerance, and altruism [16].

Prior research on gamification in civic engagement platforms has highlighted that public administration cannot be treated as a neutral context for game-based interventions [17]. Consequently, established design frameworks, such as the Applied Game Design (AGD) model, emphasize the importance of systematic audience analysis, including players' attitudes, abilities, (dis)likes, and contextual constraints [18]. Anecdotal evidence suggests that public administration employees are somewhat reluctant to play games [8].

Despite these considerations, empirical evidence on the distribution of player types among public administration employees is lacking. To inform the design of serious games tailored to public administration contexts, this study addresses the following research question: *What player types are prevalent among German public administration employees?*

We conducted an online survey among public administration employees in Germany, asking about their gaming preferences, behaviors, and player types using the HEXAD scale [19].

II. Player Types

Player types are classification schemes used to group players according to their motivations, play styles, and preferences in gamified systems [20]. They are primarily employed to help designers understand why players engage with games and which game elements they perceive as enjoyable. Rather than focusing primarily on pragmatic outcomes such as task completion or learning performance, player types address the hedonic dimensions of user experience, including novelty, autonomy, and self-expression [21]. Research has linked player types to underlying personality traits [22], suggesting that individuals do not belong to a single, fixed category. Instead, players typically exhibit a combination of multiple types that may fluctuate depending on the game context [23]. Nevertheless, Bartle argues that one dominant player type is often prevalent, while shifts toward other types may occur when a game fails to adequately support the primary type.

The earliest and most influential player type taxonomy was proposed by Richard Bartle [23]. Bartle distinguished four player types: Achievers, Explorers, Socializers, and Killers. Subsequent research expanded this, resulting in other taxonomies such as BrainHex [24], the Gamer Motivation Model [25], and HEXAD [19]. For the present investigation into player types within the public administration context, the HEXAD taxonomy was selected [26][19]. A key advantage of the HEXAD scale is that its associated questionnaire does not presuppose familiarity with (digital) games. In contrast, items from Bartle's original questionnaire rely on domain-specific gaming knowledge, for example, asking respondents whether they prefer "talking with friends in a tavern" or "hunting orcs for experience" [23].

The HEXAD taxonomy distinguishes six player types: *Philanthropists* are motivated by purpose, altruism, and seek to help others without expecting rewards. *Achievers* are driven by mastery and competence, and they value learning, skill acquisition, and overcoming challenges. *Free Spirits* pursue autonomy and self-expression, enjoying exploration and creative freedom within the system. *Socializers* are motivated by relatedness and seek social interaction and connections. *Players* are primarily motivated by extrinsic rewards such as points, badges, or prizes. *Disruptors* are motivated by change and aim to modify or challenge the system, either constructively or destructively.

Although the HEXAD model originated in the gamification domain, [27] argues that game elements used in gamified systems can meaningfully inform serious game design, supporting the transferability of player type frameworks across domains. For the HEXAD taxonomy, recommended mappings between player types and suitable game elements exist [20].

Studies on serious games in public administration have collected data on learning styles or prior gaming experience, while overlooking player motivations. [28] incorporated game elements addressing all of Bartle's player types to increase overall appeal, but did not analyze player type distributions. [29] identified one player profile corresponding to the Achiever type, yet player types were not the primary focus of their analysis. As an exploratory reference, a survey conducted among the general population in the United Kingdom found Achievers (20%) and Philanthropists (20%) to be the most prevalent HEXAD types, followed by Free Spirits (19%), Players (18%), Socializers (15%), and Disruptors (8%).[1] Earlier studies report a similar ranking, although the Socializer and 'Player' types sometimes change in order [30][31][32][33]. There seems to be no observable difference between physical/traditional and digital games in terms of HEXAD player type distributions [31]. In a related domain to public administration, [34] re-

[1] https://gamified.uk/UserTypeTest2023/user-type-test-results.php (Accessed: 2025-10-20, based on [26])

ported that the most common BrainHex types among law students in France were Mastermind (45%) and Seeker (22.7%). The BrainHex Mastermind shares core characteristics with the HEXAD Achiever, while the Seeker aligns conceptually with the HEXAD Free Spirit.

III. Methods

A. Study Design

We conducted an online survey among employees working in Germany's public administration.

B. Recruitment and Eligibility

Participants were recruited nationwide via digital communication channels, including online forums (beamtentalk.de, forum.oeffentlicher-dienst.info), mailing lists (N3GZ - Nachwuchsnetzwerk Digitale Verwaltung, ITV.SH) and LinkedIn. Participation was voluntary and self-selected. Cases were excluded from the analysis if the HEXAD questionnaire was not filled out or if our attention check was not passed.

C. Measures

a) Demographics and Work Context: Demographic and work characteristics were collected as optional items. These included age group, gender, administrative level, location of employment (state level), tenure group, and job cluster.

b) General Interest in Games: General interest in playing games was measured using a 5-point Likert scale with a no answer option.

c) Recent Games and Media Used for Play: Recent games were captured via an optional free-text field asking participants to name games played most recently. Media used for play were assessed using an optional multiple-choice item with multiple selections allowed (physical games, smartphone/tablet, PC/laptop, console, puzzles, pen-and-paper, VR/AR).

d) Play Frequency: Weekly play time was assessed with an optional categorical item using ordered time brackets (>20h, 10-20h, 1-10h, <1h), including no games and no answer options.

e) HEXAD Player Types: Player types were assessed using the German translation of the HEXAD questionnaire [35]. The questionnaire consisted of 24 items (four per player type) rated on a 7-point Likert scale. The internal consistency for the HEXAD player types was found to be acceptable to high, with Cronbach's α ranging from Philanthropist ($\alpha = 0.893$) to Player ($\alpha = 0.698$) [33].

D. Data Analysis

a) Descriptive Statistics: We computed frequencies and percentages for the socio-demographic and gaming behavior items.

b) Job Clustering: Jobs were collected via an optional free-text field. Two authors independently clustered the entries, and resolved any discrepancies through consensus. Entries that could not be assigned were labeled "Miscellaneous." If multiple jobs were given, we selected the first as the determining one.

c) HEXAD Scoring: HEXAD player type scores were computed by summing the four items per type after reverse-coding the specified items (P3, F2). For each participant, responses were converted to numeric values (1–7) and summed per player type, yielding scores ranging from 4 to 28.

d) Statistical Analysis: To analyze whether socio-demographic or work-related characteristics have an influence on player types, we performed a multifactorial ANOVA for each player type. We reported partial eta-squared (η_p^2) as an effect size measure using Cohen's rule of thumb [36].

Before this, we checked that the assumptions were met, including an analysis of multicollinearity among the characteristics using Spearman's rank correlation for ordinal items and Cramér's V measure of association for all items. To investigate whether the job cluster (specifically the IT / Digitization role) has an influence on the preferred media or interest in games, we used Fisher's exact test and Mann-Whitney U, respectively.

e) Game Elements: For each game element e, a weighted score is computed based on the average HEXAD player type scores across the sample. The weights w are derived from [20, Table 7], where each value represents the number of studies that found a relationship between game element e and the HEXAD player type. To prevent game elements with extensive literature coverage (i.e., "points, badges, and leaderboards") from dominating the ranking solely because of their total number of mentions, each weight is normalized by the row sum $\sum w$, yielding proportional weights. The weighting approach provides an exploratory approximation of alignment, as literature frequency is used as a proxy for the strength of the association. These normalized weights are then multiplied by the player type's mean HEXAD scores (e.g., $\bar{x}_{\text{Ach}}$) and summed to produce the final score for the game element Score_e.

$$\text{Score}_e = \frac{w_{\text{Ach}}}{\sum w} \cdot \bar{x}_{\text{Ach}} + \frac{w_{\text{Dis}}}{\sum w} \cdot \bar{x}_{\text{Dis}} + \cdots + \frac{w_{\text{Soc}}}{\sum w} \cdot \bar{x}_{\text{Soc}} \quad (1)$$

IV. Results

Over two months, we counted 293 unique accesses to our survey. Of these, 49 ended the survey before the HEXAD questionnaire, and 13 did not pass the attention check. This resulted in 231 valid responses. Besides the HEXAD questionnaire, all remaining survey questions were optional; therefore, the number of valid responses could vary between items.

A. Socio-Demographic Characteristics

An overview of the socio-demographic characteristics of the sample is provided in Table I. The sample consisted predominantly of female participants (55%), followed by male participants (42%). Regarding age, the largest group was between 35 and 44 years (36%), followed by participants aged 45–54 years (23%) and 25–34 years (21%). Participants younger than 25 years (2%) and older than 65 years (0%) were less frequently represented. In terms of administrative level, most respondents worked at the state (53%) or municipal

TABLE I
SOCIO-DEMOGRAPHIC CHARACTERISTICS

Characteristics	N	Percent
Gender	231	
Female	127	55%
Male	96	42%
Non-binary	3	1%
No answer	5	2%
Age group	231	
Under 25	5	2%
25–34	49	21%
35–44	84	36%
45–54	52	23%
55–64	41	18%
65 and over	0	0%
Administrative level	230	
Municipal administration	92	40%
State administration	122	53%
Federal administration	16	7%
Location of employment (on state level)	227	
Baden-Wuerttemberg	7	3%
Bavaria	4	2%
Berlin	17	7%
Brandenburg	5	2%
Bremen	5	2%
Hamburg	6	3%
Hesse	6	3%
Mecklenburg-Western Pomerania	5	2%
Lower Saxony	64	28%
North Rhine-Westphalia	12	5%
Rhineland-Palatinate	7	3%
Saarland	4	2%
Saxony	4	2%
Schleswig-Holstein	81	36%
Work experience	227	
Less than 1 year	7	3%
1–5 years	57	25%
6–10 years	57	25%
11–20 years	56	25%
More than 20 years	50	22%
Tenure group	229	
Lower service (or E1–E4)	4	2%
Middle service (or E5–E8)	13	6%
Upper service (or E9–E12)	145	63%
Higher service (or E13+)	67	29%

level (40%), while a smaller proportion were employed at the federal level (7%). The majority of participants are located in Schleswig-Holstein (36%) and Lower Saxony (28%). Work experience within the public administration was relatively evenly distributed between the groups. Only 3% have less than one year of work experience. The majority of participants belonged to the upper service level (or E9–E12 tariff equivalent), accounting for 63% of the sample. A further 29% were assigned to the higher service level (E13 and above). The middle service level (E5–E8) represented 6%, while the lower service level (E1–E4) accounted for 2%.

In terms of gender, the distribution closely mirrors the public administration as a whole [37], with women representing 55% of participants compared to approximately 59%. The age structure also aligns well with the core workforce, with 36% of participants aged 35–44 years and 23% aged 45–54 years, which corresponds to the largest age cohorts reported in the statistics. Similarly, the distribution across administrative levels is comparable, with respondents primarily employed

TABLE II
JOB CLUSTERS

Cluster	N	Percent
IT / Digitization	92	39.80%
Specialized administration	33	14.30%
Administration (not further specified)	23	10.00%
Budgeting	10	4.30%
Science administration	7	3.00%
Dual student / Apprentice	6	2.60%
Human resources	6	2.60%
Police	6	2.60%
Archives	4	1.70%
Information security / Data protection	3	1.30%
Justice	1	0.40%
Procurement	1	0.40%
No answer	34	14.70%
Miscellaneous	5	2.20%
Overall	231	100.00%

at the state (53%) and municipal levels (40%), reflecting the dominance of these levels within the German public administration.

While IT and digitization roles represent only a small fraction of the public administration workforce overall ($\sim$10%), approximately 40% of respondents in the present study reported working in those roles. 92% of the present sample were assigned to the upper (E9–E12) or higher service level (E13+), indicating an over-representation of higher-tenure personnel (56% in the workforce statistics). This distribution is plausible, as the typical tenure group for IT-related roles after three years professional experience is the upper service level (E12) [37]. Participants were predominantly located in Schleswig-Holstein (36%) and Lower Saxony (28%), while more populous states such as North Rhine-Westphalia or Bavaria were comparatively underrepresented. The strong representation of northern states may be caused by network effects, such as sharing the survey via our personal LinkedIn accounts or the ITV.SH network, whose members are located in Schleswig-Holstein.

B. Job Clusters

The clustered distribution of occupational roles is shown in Table II. The most prominent cluster was IT / Digitization, accounting for 39.80% of all participants. This was followed by specialized administration (14.30%) and not further specified administrative roles (10.00%). Further notable clusters included budgeting (4.30%), science administration (3.0%), and dual students or apprentices (2.60%).

C. Interest in Games

Participants' interest in playing games is illustrated in Figure 1. 35.1% described themselves as very interested and 34.6% as rather interested. A further 21.6% selected a neutral stance. Only a small proportion indicated low interest, with 6.5% reporting being rather not interested and 1.7% not interested at all.

D. Play Frequency

Weekly play frequency results are presented in Figure 2. Most participants reported playing games at least occasionally.

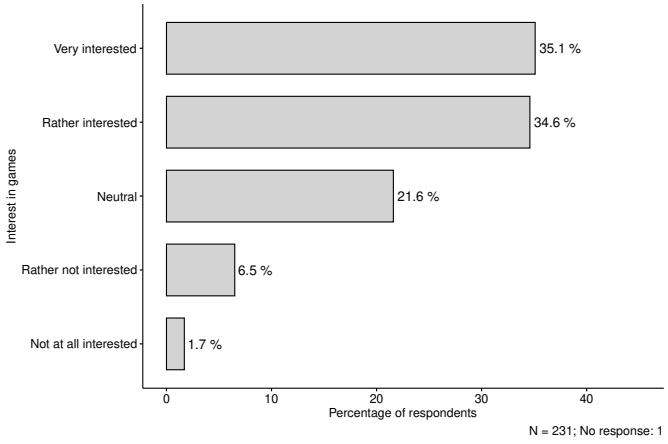

Fig. 1. Interest in games.

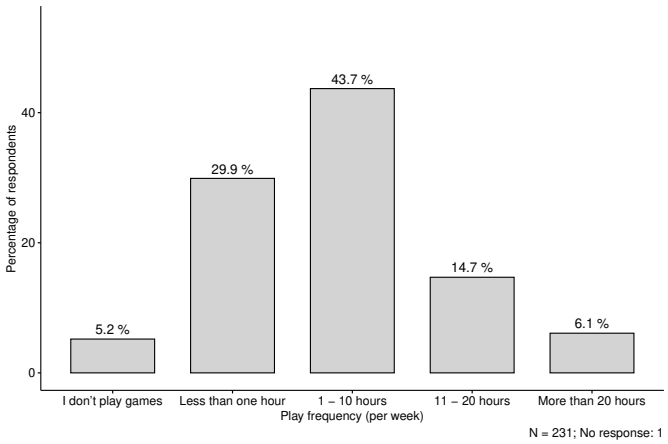

Fig. 2. Play frequency.

The largest group played between 1 and 10 hours per week (43.7%), followed by participants playing less than one hour per week (29.9%). A substantial subgroup reported intensive play frequency, with 14.7% playing 11–20 hours per week and 6.1% playing more than 20 hours per week. Only 5.2% stated that they did not play games at all.

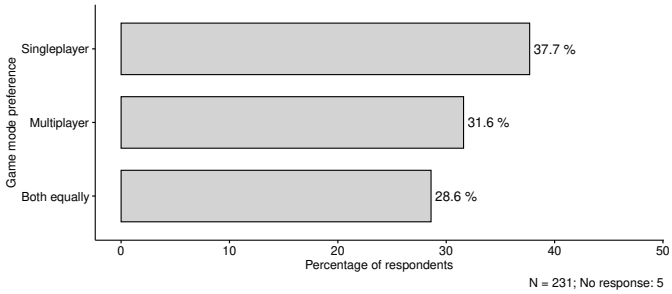

Fig. 3. Preferred game mode.

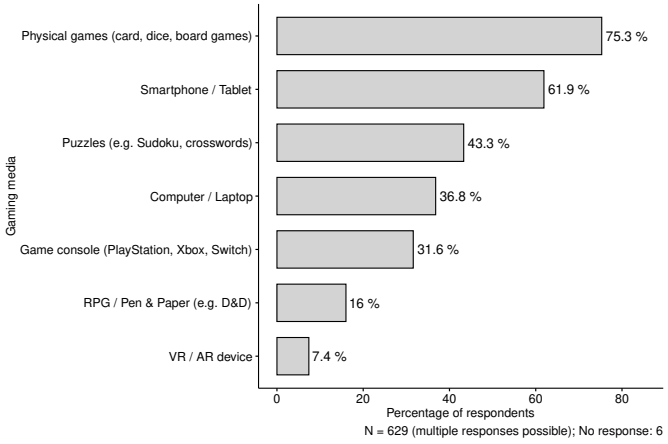

Fig. 4. Media used for play.

E. Game Modes and Recently Played Games

As shown in Figure 3, preferences regarding game mode were relatively balanced, with a slight tendency toward single-player (37.7%) compared to multiplayer (31.6%), while 28.6% of participants reported no clear preference between the two.

Information on recently played games was collected using an optional free-text field. Among the reported entries, board and card games were mentioned most frequently, such as *Uno* (11), *Hitster* (8), and *chess* (6). Among the current blockbuster video games were *Arc Raiders* (3), *Baldur's Gate 3* (3), and *Cyberpunk 2077* (3). The most mentioned mobile game was *Candy Crush* (2).

F. Media Used for Play

Figure 4 shows the distribution of media used for playing games. Physical games such as cards, dice, or board games were the most common, reported by 75.3% of the participants. Mobile devices (smartphones or tablets) were also widely used (61.9%). Puzzle games (e.g., Sudoku or crosswords) were reported by 43.3% of participants. Games on computers or laptops (36.8%) and game consoles (31.6%) played a moderate role. Pen-and-paper role-playing games were used by 16.0% of respondents, while VR or AR devices were the least common (7.4%). The distribution indicates that many participants use multiple game media in parallel.

G. HEXAD Player Types

After completing the survey, mean scores were calculated for each HEXAD player type and displayed as percentage values to allow for comparison with other samples. The highest values were observed for the Philanthropist (19.3%) and Achiever (18.9%) types, followed by the Socializer (17.8%), and Free Spirit (17.4%) types. The 'Player' type showed a moderate score (15.0%), while the Disruptor type exhibited the lowest score (11.7%). The average HEXAD player type is visualized in Figure 5.

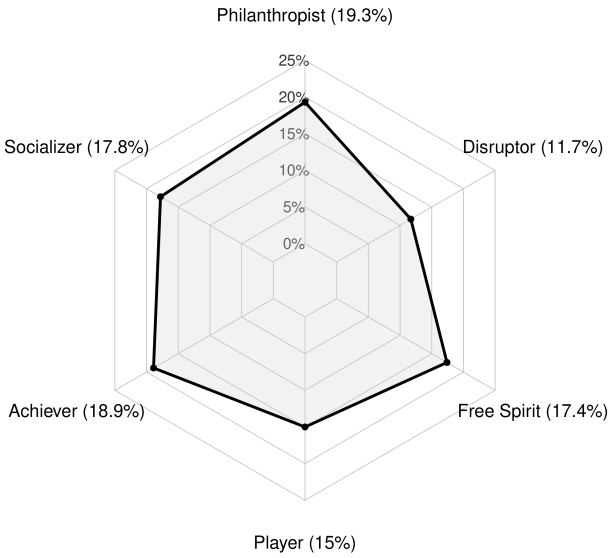

Fig. 5. HEXAD player types.

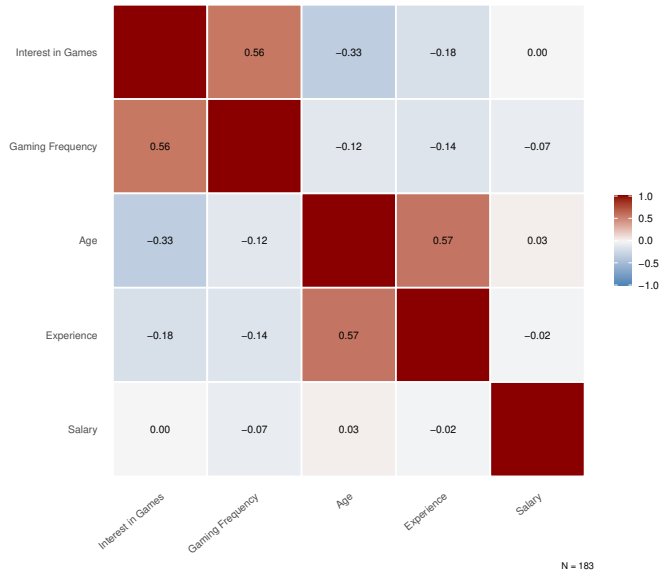

Fig. 6. Directed correlations between ordinal items.

H. Influence of Socio-Demographic, Work-Related Characteristics, and Gaming Behavior on Player Types

Assumption checks confirmed some multicollinearity among the characteristics and gaming behavior. For ordinal-scaled items, we calculated Spearman rank correlations as depicted in Figure 6. There was a moderate positive correlation between interest in games and gaming frequency, as well as between age and experience. Also, age negatively correlates with interest in games. For all items, we calculated their categorical associations using Cramér's V in Figure 7. We see a strong association between location and federal level, which could be explained by the concentration of the federal government in Germany's capital, Berlin.

We further investigated the distinctions between IT and non-IT jobs. First, we categorized dedicated gaming media (computers/laptops, consoles, and VR/AR devices) and observed that 59.8% of public administration employees in IT-related roles use these devices, compared to 51.0% of non-IT personnel. A Fisher's exact test indicated that this difference was not statistically significant ($p = .2975$). Second, we conducted a one-sided Mann-Whitney U test to determine whether IT-related roles possessed a higher interest in gaming. While 41.4% of IT personnel reported being 'very interested' in games compared to 35.4% of non-IT personnel, the test revealed no significant difference ($p = .1284$). In summary, no remarkable associations exist between gaming-related traits (interest, play frequency, game mode, media) and the socio-demographic and work-related items.

To examine which characteristics were associated with the HEXAD player types, we conducted six separate multifactorial ANOVAs (one per player type), as shown in Figure 8. We removed any non-responses, resulting in 183 complete cases. Given the reduced number of complete cases after list-wise deletion and the small size of some subgroups, the multifactorial ANOVA results should be interpreted as exploratory.

The ANOVA results indicated five statistically significant effects. Scores for the *Socializer* player type differed significantly based on three factors: gaming frequency ($p = .001, \eta_p^2 = .124$), with heavy gamers (>20 h/week) scoring lower (18.10) than light or non-gamers (22.0—23.5); multiplayer preference ($p = .008, \eta_p^2 = .070$), where multiplayer-oriented respondents scored highest (23.15–23.5) and singleplayer-oriented respondents lowest (21.4); and gender ($p = .010, \eta_p^2 = .067$), with women scoring higher (23.1) than men (22.1). Significant differences were also observed in the *Disruptor* type based on gender ($p = .002, \eta_p^2 = .093$), where men scored substantially higher (16.1) than women (13.7) or non-binary individuals (10.33). Finally, *Free Spirit* scores varied by age ($p = .026, \eta_p^2 = .079$). Respondents aged 35–44 scored highest (22.9) and the less than one year group lowest (19.50).

Notably, none of the work-related variables——federal level, location, work experience, salary, or job cluster—reached significance for any player type.

I. Game Elements

Based on the average HEXAD player type, weighted scores for the individual game elements were calculated (see Formula 1). The results are summarized in Table III. The highest-ranked game elements were Strategy, Social Pressure, Gifting, Choice, and Signposting.

V. Discussion

A. Gaming Preferences and Behavior in the Public Administration

The results challenge the frequently implied assumption that public administration constitutes a largely game-averse context [8]. The present sample exhibited a generally high level of interest in games, with nearly 70% reporting being rather or

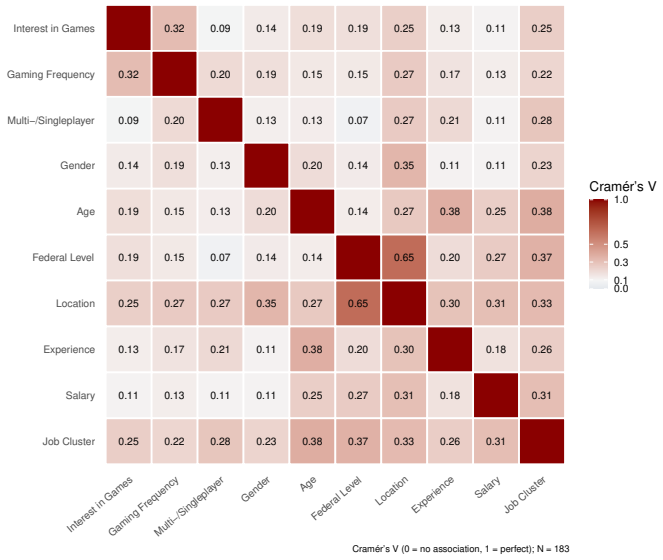

Fig. 7. Associations between demographics, work-related items, and gaming traits.

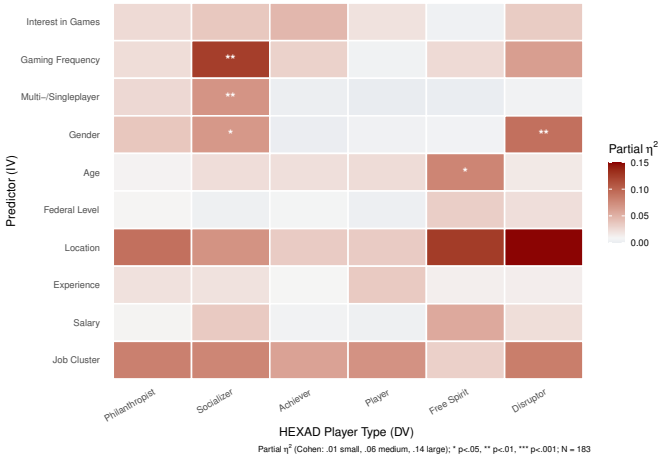

Fig. 8. Multifactorial ANOVA for each predictor–player type combination.

very interested and only a marginal share indicating no interest at all.

However, the observed gaming behavior is notably heterogeneous. Gaming frequency ranges from occasional engagement with well-established games to intensive weekly play of 'Triple A' games. Hence, interest in games was a strong predictor of play frequency. Preferences include physical games, mobile games, puzzles, and video games. This diversity cautions against designing serious games based on a narrow understanding of gaming as primarily digital. The prominence of physical games, puzzles, and low-threshold formats points to a broader conception of play. We found no significant differences between employees in IT and non-IT roles regarding their interest in games and hardware for digital games. Frequent mentions of commercial video games also

TABLE III
WEIGHTED GAME ELEMENTS BASED ON MEAN HEXAD PLAYER TYPE

Game element	Weighted score
Strategy	24.20
Social Pressure	23.93
Gifting	22.89
Choice	22.60
Signposting	22.27
Guild	22.24
Social Discovery	22.24
Feedback	22.07
Social Network	21.86
Social Status	21.56
Level	21.52
Exploration	21.48
Anonymity	21.44
Learning	21.34
Meaning	21.29
Easter Egg	21.25
Unlockable	21.20
Challenge	21.18
Narrative	21.09
Consequence	20.53
Collection	20.44
Customization	20.21
Leaderboard	20.18
Point	20.01
Virtual Economy	20.01
Prize	19.88
Lottery	19.83
Competition	19.83
Voting	19.69
Badge	18.79
Anarchy	18.25

hint at their potential use for serious purposes, as has been shown with strategy games [38].

Preferences for game modes further reinforce this interpretation. The relatively balanced distribution between singleplayer, multiplayer, and mixed preferences suggests that social play is relevant but not dominant.

B. Player Types in the Public Administration

The HEXAD results revealed a clear motivational profile characterized by high scores for Philanthropists (19.3%) and Achievers (18.9%), followed by Socializers (17.8%). This constellation aligns closely with the theoretical expectations derived from PSM research. Philanthropist motivations resonate with affective PSM dimensions such as compassion and self-sacrifice [16]. Furthermore, Achiever motivation, such as mastery and competence, maps well to legalistic administrative cultures (such as Germany), where commitment to the public interest (PSM dimension) is often understood as the professional, neutral, and lawful execution of tasks [39].

Importantly, the relatively low scores for the Player (15%) and Disruptor (11.7%) types suggest that extrinsic rewards and system-challenging motivations are less salient for this audience. This finding complicates the widespread reliance on points, badges, leaderboards, and competitive mechanics in gamified systems [14]. While such elements are not necessarily rejected, they appear to unlikely function as primary motivational drivers.

Furthermore, gender demonstrated a significant, medium-sized effect on player type—something [20] and [26] previously showed. While women exhibited a stronger inclination towards the Socializer type and men towards the Disruptor type, both groups adhered to the same overall hierarchy, prioritizing Philanthropist first and Achiever second.

The moderate presence of Socializers (17.8%) and Free Spirits (17.4%) indicates that relatedness and autonomy remain relevant. Social interaction seems to be valued when it supports collaboration, shared purpose, or mutual support rather than status competition. Similarly, autonomy is appreciated in terms of meaningful choice and exploration, not unrestricted freedom or sandbox-style experimentation detached from institutional goals.

Compared to the publicly available HEXAD data from the UK general population, the overall ranking of player types was remarkably stable. While Philanthropist (19.3% vs. 20%) and Achiever (18.9% vs. 20%) shares are nearly identical across samples, Socializers are more prevalent in public administration (17.8% vs. 15%), whereas 'Players' are less pronounced (15.0% vs. 18%). Free Spirit motivations are slightly lower in public administration (17.4%) than in the UK sample (19%), aligning with the institutional constraints typical of bureaucratic environments. Disruptors were the least prevalent group in both samples (11.7% vs. 8%). A comparison with French law students shows a shared mastery motivation through the Achiever / Mastermind type [34].

These similarities suggest that public administration employees are not, per se, different from the general population, contradicting narratives that portray public administration employees as categorically game-averse or incompatible with gamified approaches.

C. Recommendations

The results have several implications for the design of serious games in public administration.

First, designers should prioritize game elements that support purpose, contribution to society, and mastery. Game elements such as *strategy*, *social [citizen] pressure*, and *gifting [sharing]* align well with the Philanthropist and Achiever motivations. Rather than framing progress purely in terms of scores or rankings, serious games should emphasize how player actions contribute to public value, organizational goals, or citizen outcomes.

Second, extrinsic rewards should be used cautiously, and not as central engagement mechanisms. While *points*, *badges*, or *prizes* may serve as orientation aids or feedback, overemphasizing them risks demotivating players. The results reinforce the notion that serious games in public administration should avoid mechanics that could be perceived as trivializing public tasks or instrumentalizing their motivation.

Third, social elements should enable cooperation without coercion. Game elements such as *guilds*, *social networks*, or *social status* can support Socializer motivations, but mandatory multiplayer modes or competitive leaderboards may alienate players who prefer a singleplayer experience (37.7%).

Fourth, *choice* and *signposting* are critical design elements. Allowing players to make meaningful decisions while clearly communicating goals, rules, and consequences respects both autonomy and institutional constraints. This balance is especially important in public administration, where ambiguity without guidance can be perceived as a risk rather than an opportunity.

Taken together, serious games should be designed as credible extensions of administrative practice, leveraging game elements to simulate complexity, support reflection, and enable safe experimentation. The present results suggest that public administration employees are not opposed to games, but are sensitive to whether games take their work, values, and responsibilities seriously.

D. Limitations and Future Research

This study is subject to self-selection bias due to voluntary participation, which may have resulted in a relatively high proportion of respondents with an affinity for games. Yet, we showed that there was seemingly no association between workplace characteristics and interest in games. We also found evidence for gaming-interested individuals in public administration, implying that serious games (although not suitable for all employees) might constitute a promising addition to vocational training offerings, especially in routine topics with generally low interest (e.g., data protection, occupational safety).

While key demographic characteristics (gender, age) resemble the German public administration workforce, the sample is not fully representative in terms of location, tenure groups, and job clusters. Concerning location, we do not expect our sample to skew the results markedly, since neither our analysis nor PSM research identified within-country differences in motivations. Concerning IT-dominated roles, similar results have been produced with programmers outside the public sector [30], indicating that our results may not be solely driven by the lack of administrative roles. Future research could expand the sample by aiming for more regional balance or by collecting a comparative sample from another country, potentially showing the influence of different administrative systems.

The weighted ranking of game elements is based on exploratory aggregation that uses literature frequency as a proxy for association strength. Accordingly, the results should be interpreted as indicative rather than as predictive.

Player types were assessed in a general gaming context, not explicitly in a professional or work-related setting, which may limit the direct transferability of the findings to serious games in public administration contexts. Future studies should examine whether player type profiles differ when explicitly assessed in professional contexts.

Finally, our study does not allow for causal conclusions regarding the effectiveness of specific game elements in serious games for public administration. Therefore, further research should employ (quasi-)experimental designs to examine how

different game mechanics influence the usability, motivation, and learning outcomes of public administration employees.

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