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Service Constraints and Optimization Pathways for Effective Utilization of Public Sports Facilities

— An Exploratory Study Based on Project Materials for Research on Utilization and Optimization Strategies of Public Sports Facilities in Western Guangdong

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Abstract

Spatial coverage of public sports facilities does not automatically translate into sustained resident participation. Post-construction service delivery therefore emerges as an issue to be addressed in grassroots national fitness research. Taking project application documents for Research on Utilization and Optimization Strategies of Public Sports Facilities in Western Guangdong as primary analytical materials, together with mid-term inspection reports and a business plan, this paper adopts exploratory document analysis. It distinguishes research assumptions, phased records and business forecasts, and draws on perspectives of behaviour change and public-service co-production to examine potential mechanisms through which sports guidance services may intervene in facility operations. The analysis identifies major contradictions reflected across the three documents: insufficient usage skills, mismatched service hours, discontinuous organizational links, and unclear responsibility and funding arrangements. Guidance services may improve facility-use conditions by lowering initial participation barriers, creating predictable activity schedules and supporting repeated engagement. Nevertheless, their effects hinge on facility safety, service continuity and basic open-access entitlements. Accordingly, this paper proposes an evaluation framework comprising opening compliance, activity participation, public accessibility and operating costs, as well as implementation pathways of site-specific diagnosis, tiered service provision and ongoing observation. Existing materials are insufficient to estimate intervention effects or draw region-wide conclusions. The value of this study lies in converting general proposals for "revitalizing facilities" into observable, recordable and further testable service mechanisms, providing analytical evidence for operational improvements of grassroots public sports facilities.

Keywords

Public Sports Facilities; Sports Guidance Services; Service Constraints; Effective

Utilization; Document Analysis

1. Introduction

Whether completed public sports facilities are truly integrated into residents' daily lives constitutes a key metric for assessing the effectiveness of public sports investment. For grassroots administrators, facility quantity, area and coverage radius are relatively easy to verify, yet residents' motivations for using or ceasing to use facilities cannot be derived from construction records. A basketball court may stay occupied from dusk onwards, or remain vacant throughout daytime hours; a set of fitness equipment may serve experienced users well while proving inaccessible to residents with little exercise experience. Spatial supply furnishes preconditions for participation, yet whether these conditions translate into actual behaviour depends jointly on knowledge, time, services and management.

Chinese public sports policies now treat facility supply and service supply as parallel priorities. Opinions on Building a Higher-level National Fitness Public-service System emphasizes equitable accessibility, service convenience and social-sector participation[1]. The National Fitness Plan (2026-2030) continues to focus on equity, accessibility of basic public services and science-based fitness services[2]. These requirements mean facility research must go beyond investigating "where to build" and address how existing facilities are opened, who provides usage support, and whether services can be sustained. This is particularly concrete for grassroots venues that cannot afford full-time permanent staff: one-off activities can rely on ad-hoc organization, whereas regular services demand stable human resources and funding arrangements.

International research on park-based physical activities offers relevant references. A randomized controlled study by Cohen et al. found that usage feedback, administrator training and moderate financial support improved physical-activity levels in parks[3]. However, in their subsequent study in high-poverty neighbourhoods, although free courses attracted participants, no unique increase in on-site physical activity was observed in intervention groups; implementation was further hampered by scheduling and safety concerns[4]. Chinese research on rural older adults has also noted correlations between activity guidance and sports participation, yet survey designs preclude causal inference[5]. Sports guidance therefore merits research but cannot be presumed to be a universally effective solution for all facilities.

The project analysed herein initially focused on utilization and optimization of public sports facilities, with subsequent materials progressively placing instructor-led services at the core[6-8]. This shift provides an analytical clue: why the project team moved from facility surveys to guidance services, which usage barriers these proposed services aim to address, and which prerequisites remain

unmet. This paper revolves around three research questions: what facility-usage constraints are revealed in project documents; through what processes guidance services may function; and how such services ought to be evaluated and organized. Market forecasts in entrepreneurial plans are not treated as established facts; instead, judgements are bounded by documentary evidence to produce interpretations open to future field-testing.

2. Research Design and Material Processing

2.1. Research Subject and Material Characteristics

This paper employs exploratory document analysis of a single project. Its analytical focus lies in the project team's framing of public-sports-facility-usage problems and the formation of service proposals. Individual residents or cities as a whole are not direct sampling units. Although titled "Western Guangdong", documents reference selected sites in Maoming, Yangjiang and Yunfu without a sampling frame representative of the entire region. Geographical references therefore denote the project context only; sites are not aggregated into regionally representative samples, nor are cross-city comparisons drawn.

The three documents fulfil distinct evidential functions. The project application defines tasks including facility-utilization surveys, influencing-factor identification, evaluation-system construction and optimization-strategy research, forming the primary source for establishing research questions and analytical dimensions. The mid-term inspection report supplies self-reported phased information such as questionnaire returns, activity types and research progress. The business plan adds operational assumptions concerning rosters, fee-based courses, digital tools and partnership models. In the latter two documents, completed tasks, planned initiatives and predictive judgements frequently appear side-by-side and must be differentiated item-by-item; reliability cannot be judged by document length or rhetorical emphasis.

Table 1. Project Documents and Their Analytical Purposes

Documented Problem Clues	Potential Services	Anticipated Processes	Information Requiring Further Verification
Beginners lack concrete guidance	Demonstrations, practice trials and feedback	Reducing learning barriers to enable independent usage	Skill mastery, first-time participation and subsequent revisits
Unstable service time windows	Published rosters and adaptive scheduling	Improving predictability of participation opportunities	Schedule compliance, time-slot demand and meteorological influences
Insufficient follow-up after single-session participation	Review resources and voluntary peer activities	Enabling repeated participation and experience accumulation	Retention, dropout drivers and venue usage outside class hours
Ambiguous boundaries	Clear open-access	Mitigating exclusion and	Free-period duration,

between fee-based and public-good services	entitlements and cost-responsibility frameworks	resource crowd-out	usage complaints and actual cost-sharing arrangements

2.2. Document-analysis Procedures

Document analysis is suited for identifying how organizations define problems and design responses, yet requires simultaneous consideration of documents' intended purposes and substantive limitations[9]. First, all three documents were read in full, extracting paragraphs grouped under "facility conditions, resident participation, guidance services, operational governance". Each claim was coded as plan, process record, aggregate statement or forecast. Second, cross-document comparisons were performed for each theme to check whether later texts introduced new evidence or merely repeated earlier assertions. Finally, traceable records were juxtaposed against relevant theories to develop mechanistic explanations, while documenting remaining verification gaps.

For instance, "delivering swimming-skill guidance" is an activity documented in mid-term materials; "fixed venues and rotating rosters" belongs chiefly to planning scenarios; "improved utilization rates" constitutes an outcome claim requiring baseline and observational records. Together they illustrate the project's focus but cannot constitute a complete intervention-evaluation evidence chain. Official policies and primary studies were retrieved to define concepts, support comparative interpretations and design evaluation indicators. Literature retrieval served problem analysis and does not represent a preregistered systematic review.

2.3. Handling Numerical and Document-source Discrepancies

The mid-term inspection report records distribution of 300 questionnaires with 216 valid returns, representing a 72 % valid-return ratio against distributed questionnaires. Strictly speaking, this figure reflects valid questionnaires out of distributed copies; total response rate and valid-among-returned-questionnaire rate cannot be computed without full return counts. Over 60 % of respondents were reportedly willing to receive guidance, yet corresponding survey items, response options, respondent counts and missing-value information are absent. This statement is treated merely as a team-reported demand signal, not converted into precise headcounts nor interpreted as willingness to pay. Higher percentages appearing in the business plan are neither averaged nor prioritized.

A claim in mid-term materials that swimming-pool utilization rose by approximately 30 % lacks specification of denominators, observation periods and whether the change reflects relative growth or percentage-point increments. The business plan further generalizes this outcome to average improvements across multiple venues and adds revenue and training-performance metrics. Without supporting records, this paper does not estimate effects or economic returns. Discrepancies exist between application and mid-term report regarding project timelines and funding;

no unified timeline is reconstructed. Proposed expert consultations and analytic-hierarchy-process methods lack completion records, so expert headcounts, indicator weights and model-validation results are not reported.

3. Concept Definition and Analytical Framework

3.1. From Facility Usage Volume to Effective Utilization

Analysing facility utilization first demands clarification of what "usage" means. Visitors to a park may stroll, linger or supervise children; course enrollees may not exercise continuously throughout sessions. Visits, participant headcounts, physical-activity duration and venue-occupancy time answer distinct questions. This paper defines effective utilization as: within facility suitability and safety boundaries, residents gain fair access and activity opportunities and usage support aligned with their needs. This definition emphasizes usage quality and public attributes rather than treating full-time venue saturation as an objective.

Efficiency further relates input to output. Higher visitor numbers alone do not prove improved operational efficiency without accounting for labour, maintenance and organizational costs. By contrast, low-attendance adaptive teaching may empower previously hesitant users. This paper therefore distinguishes facility-usage performance from operational efficiency: the former concerns opening status, participation and sustained engagement; the latter requires joint assessment of costs and public benefits. What follows is an evaluation framework rather than pre-computed efficiency rankings.

3.2. Behavioural Mechanisms of Guidance Services

The Capability-Opportunity-Motivation model proposed by Michie et al. posits that behaviour arises from interacting conditions[10]. Accordingly, facility provision chiefly modifies physical opportunity; movement demonstrations and practice feedback may augment usage capability; stable peer connections and appropriate activities can sustain motivational states. This paper adopts this perspective to interpret project materials without treating theoretical constructs as already-measured variables. Notably, one guidance session may simultaneously build skills and confidence; service labels alone cannot reveal concrete mechanisms.

This interpretation carries clear boundary conditions. Guidance barely alters usage when venues are closed or equipment damaged; promoting exercise benefits rarely yields participation if residents lack suitable time windows. Guidance services are best understood as support linking facilities to residents, whose value lies in addressing identified barriers. Organizational advantages of services materialize only when physical environments and opening arrangements permit. Attributing all low-usage patterns solely to residents' "lack of know-how" narrows problem scope and may obscure maintenance and opening-management deficiencies.

3.3. Responsibility Relations in Co-production of Public Services

The public-service co-production perspective stresses complementary inputs from service providers and users[11]. In this context, managing authorities control opening and maintenance conditions; instructors deliver teaching and organizational support; residents contribute demand information, feedback and peer networks. These resources are not interchangeable. Instructors identifying equipment faults still depend on maintenance workflows; resident self-organized activities require clear public time slots and venue order. Responsibility interfaces are therefore incorporated into analysis rather than focusing exclusively on individual teaching competence.

4. Usage Constraints and Mechanistic Interpretations Derived from Project Documents

4.1. Insufficient Skills and Information for Initial Participation

The project application repeatedly discusses imitative learning, absence of scientific instruction and flagging participation enthusiasm. Mid-term records document basic roller-skating teaching, swimming-stroke correction, warm-up and running guidance. These entries indicate the team interpreted some usage difficulties as concrete skill deficits. Proximity to facilities does not resolve beginners' uncertainty about "where to start". Unclear descriptions of fitness-equipment nomenclature, training purposes, movement amplitudes and target populations may confine residents to observing or tentative trial-use, preventing independent participation.

A testable proposition emerges: short-term, concrete and repeatable guidance may lower learning costs for first-time users. For public fitness apparatus, demonstrating starting postures, modelling movements and observing resident practice is more relevant to real-world barriers than generic science-of-fitness advocacy. Nevertheless, mid-term documents contain no movement-assessment records, so mastery of correct techniques cannot be inferred. Future work should document guidance received, capacity for independent practice and subsequent revisit behaviour to verify capability gains.

Scenarios cannot be conflated. Roller-skating demands balance, locomotion and spatial awareness; swimming instruction presupposes lifeguarding and opening conditions; running guidance often targets already-active populations. These contexts differ in participant baseline: some services onboard new users, others improve experiences for existing participants. Aggregate service-participant counts risk conflating newly-reached populations with repeat services for existing users, overstating facility-revitalization scope.

4.2. Gaps between Opening Hours and Accessible Services

Mid-term materials note low off-peak-period usage; the business plan responds with published duty rosters and differentiation between roving supervision and

booked courses. Scheduling proposals reflect a practical management reality: venue opening does not guarantee on-site support upon arrival. Without stable service windows, residents cannot reliably anticipate when demonstrations or beginner-friendly sessions will occur, hindering family-group participation. Predictable scheduling may mitigate temporal uncertainty, yet real-world impact depends on alignment with resident daily rhythms.

Low off-peak usage admits multiple explanations: weekday daytime coincides with working hours; outdoor venues are affected by high temperatures, rainfall, lighting and shade. Documents lack time-stratified meteorological and human-activity data, precluding distinction between intrinsically low demand and organizational shortfalls. Labelling all idle time as inefficient risks assigning instructors to periods when residents can least attend. A prudent approach first identifies time slots where residents would attend given adequate services, then observes whether scheduling alters visits and activity metrics.

Divergent institutional objectives also exist: managing authorities may seek balanced venue load; service teams prioritize easily-filled class times; residents favour convenient familiar slots. Scheduling thus involves negotiation among competing needs rather than mere manpower allocation. For popular venues, conflicts between classes and free informal activity should be recorded; for under-used venues, accessibility and safety conditions must be audited. Different venue types require distinct strategies rather than uniform “increase session count” performance metrics.

4.3. Discontinuity between One-off Engagement and Sustained Usage

Project documents reference community-building, appointment systems and instructional videos, signalling awareness of post-activity follow-up gaps. Single guidance sessions create exposure opportunities but do not guarantee return visits. Participants may forget techniques, lose peer contacts or disengage due to temporary service suspensions. Guidance offering review materials, explicit upcoming-session information and appropriate feedback may convert one-time experiences into repeated participation. However, no longitudinal follow-up data in documents confirm stable realization of this process.

The public-service value of community ties hinges on content and participation modalities. Groups dominated by enrolment pitches, gear sales and referral incentives may alienate residents seeking basic guidance; channels featuring movement Q&A, venue announcements and voluntary peer activities better support sustained usage. Access to free baseline services should not be conditional upon joining social-media groups. Digital tools facilitate organization yet on-site consultation and paper notices must remain available for residents with limited smartphone access.

Inconsistencies in international research highlight the need to distinguish

"appealing courses" from "improved overall venue activity"[3,4]. A course may merely concentrate existing users into class hours or draw participants from adjacent venues without raising aggregate physical activity. Sustained-usage validation therefore requires examining not only on-site session vibrancy but also non-class hours, pre-existing user groups and newly-recruited participants, avoiding misclassifying temporal-spatial displacement as net public gains.

4.4. Tensions between Commercial Incentives and Public Access

The application and business plan propose sustaining services through paid courses, competitions, partnerships and sponsorships. These proposals address insufficient public-activity funding yet realign team incentives. When revenue depends primarily on conversion to paid offerings, personnel may prioritize families able to purchase lessons, while public venue time may be persistently occupied by scheduled classes. Steering free participants toward consumption pathways does not automatically improve public-service efficiency; revenue growth and delivery of basic resident services are separate outcomes requiring discrete documentation.

Emphasis on low venue costs in documents underestimates real-world inputs. Public facilities entail fiscal construction and maintenance costs; classes add cleaning, coordination, consumables and safety-management burdens. Zero-rent occupancy for a team does not equate to zero social cost. Without recording these inputs, claims of low-cost replicability resist comparison. Robust analyses should specify cost-bearing parties, service coverage, potential displacement of informal activity and verifiable public returns on public investment.

Measures for Social Sports Instructors Administration defines social-sports instructors as volunteer-service personnel[12]. This paper adopts the umbrella term "sports guidance services" for project-related support activities, distinguishing at operational levels volunteer public-service instructors, agency-commissioned service contracts and independent fee-based teaching. The same individuals may participate in multiple modalities, yet identities, qualifications, responsibilities and funding arrangements should be separately verified; "certified-instructor" status alone cannot confirm competence across specialized teaching and emergency-response scenarios.

Table 2. Mechanistic Interpretations Derived from Project Clues

Documented Problem Clues	Potential Services	Anticipated Processes	Information Requiring Further Verification
Beginners lack concrete guidance	Demonstrations, practice trials and feedback	Reducing learning barriers to enable independent usage	Skill mastery, first-time participation and subsequent revisits
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Insufficient follow-up after single-session participation	Review resources and voluntary peer activities	Enabling repeated participation and experience accumulation	Retention, dropout drivers and venue usage outside class hours

Ambiguous boundaries between fee-based and public-good services	Clear open-access entitlements and cost-responsibility frameworks	Mitigating exclusion and resource crowd-out	Free-period duration, usage complaints and actual cost-sharing arrangements

Note: Mechanisms in this table represent research propositions generated via document analysis rather than empirically validated intervention outcomes.

5. Designing Evaluations for Effective Utilization

5.1. Defining Observation Objects and Statistical Units

Evaluations should commence with replicable recording protocols. Grassroots venues may be divided into observation zones, with counts of users, dominant activities and opening status logged on comparable weekdays and weekends at fixed times. The System for Observing Play and Recreation in Communities (SOPARC) offers systematic-observation inspiration[13], though untrained casual counting should not be labelled standardized measurement. Observers require unified protocols, inter-rater calibration exercises, and separate coding for temporary closures, event-related venue occupation and adverse weather.

Statistical units must match research questions. Visits quantify exposure but cannot substitute for unique-individual counts; cumulative tallies from snapshot sampling represent visit-equivalent observations rather than unduplicated people. Estimates of activity-person-hours demand continuous logging or pre-specified time-sampling and weighting schemes. Re-entering users risk double-counting under simple summation. Anonymous voluntary identifiers may track course-attendance; fully open informal activity relies on zone-based observation to avoid unnecessary personal-data collection.

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5.2. Simultaneously Measuring Opening Status, Participation and Equity

Facility evaluations ought to answer three interrelated questions: whether promised services are delivered, whether residents participate, and whether participation opportunities become more equitable. A national park-observation study documented disparities in usage patterns linked to neighbourhood conditions[14], cautioning against exclusive reliance on aggregate metrics. Increased visit numbers driven chiefly by a small stable cohort do not demonstrate expanded public reach. Assessments should incorporate pre-existing user bases and monitor access for first-time participants, older adults and other underserved groups.

This paper recommends presenting disaggregated indicators rather than prematurely computing composite scores. Although the project application proposed expert consultation and analytic-hierarchy-process weighting, weights reflect value judgements as much as mathematical computation. High weight assigned to revenue and headcounts may deprioritize service for vulnerable populations; mechanical equal weighting may poorly fit heterogeneous venues. Presently more informative reporting covers opening compliance, usage changes, repeated participation and entitlement safeguards, documenting both improvements and shortfalls.

Table 3. Recommended Evaluation Indicators for Guidance Services in Public Sports Facilities

Dimension	Recommended Indicator	Operational Definition	Interpretation Caveats
Opening Compliance	Planned-opening fulfilment rate	Actual opening hours divided by scheduled opening hours	Report both planned and actual duration to prevent schedule-downgrading
Service Delivery	Guidance-roster fulfilment rate	Completed guidance hours divided by publicly announced guidance hours	Record cancellation reasons, substitute staff and make-up sessions
Venue Usage	Time-stratified activity headcounts	User counts in fixed zones at standardized snapshot times	Hold observation conditions constant; does not equal unique-individual counts
Sustained Participation	Four-week repeat-participation proportion	Share of participants from week one who return at least once over the subsequent three weeks	Voluntary identifiers; applicable only to trackable cohorts
Public Accessibility	Free-access hours and usage-related complaints	Duration of free opening; venue-occupation incidents and access-denial records	Complaint volumes are affected by reporting-channel accessibility
Safety Maintenance	Issue-resolution status	Risk-or-fault reports, resolution lead times and case closure status	Incident counts must be interpreted against exposure duration
Operating Costs	Unit-service cost	Total operating costs divided by corresponding service-person-hours	Clarify cost scope and person-hour-estimation methodology

5.3. Incorporating Costs and Sustainability into Judgements

Full-cost accounting minimally includes guidance labour, staff training, coordination, incremental maintenance, consumables and essential safety expenditures. Volunteer hours should be documented as service volume and not treated as zero-cost inputs; arbitrary monetary valuation without supporting evidence is discouraged. Fee revenues, grants and sponsorships should be itemized by source; gross operating turnover must not be conflated with profit. Improved efficiency is plausible only when equivalent inputs deliver broader stable coverage or more appropriate services.

Sustainability assessment requires observation beyond project-activity cycles. The RE-AIM framework, which addresses Reach, Effectiveness, Adoption, Implementation and Maintenance, provides a reference for avoiding short-term-outcome-only evaluation[15]. Drawing on its implementation-and-maintenance perspectives, this paper recommends post-intervention audits of rosters, resident self-organized activities and maintenance responsiveness. Immediate service collapse upon project-staff departure indicates reliance on temporary mobilization. Continuity of basic arrangements justifies further sustainability discussion, which still requires long-term cost and staff-turnover documentation.

6. Optimization Pathways for Grassroots Facilities

6.1. Diagnose Venues before Deploying Services

Prior to service interventions, concise venue profiles should be compiled, including ownership-management entities, actual opening hours, primary user groups, existing problems and feasible activity types. Barriers should first be differentiated into equipment failure, access barriers, time-slot conflicts and capability gaps before guidance services are considered. Faulty facilities require priority repair or suspension; venues with robust informal activity may receive targeted consultation; sites with large beginner populations may receive basic demonstrations. Guidance-service deployment should respond to real-world barriers rather than prioritizing photogenic or easily-event-organized venues.

Demand assessment must also consider non-participants. Surveying only on-site users tends to yield positive feedback for existing programmes yet cannot explain non-attendance. Communities may administer brief voluntary questionnaires regarding preferred time windows, desired activities and attendance barriers. Complex scales are unnecessary at initial stages; clear questions and preserved item-response framing suffice. Formal surveys, if subsequently undertaken, should define sampling and instruments according to research objectives rather than collecting large datasets to seek publishable correlations post hoc.

6.2. Tiered Arrangements: Baseline Support and Specialized

Instruction

Baseline support focuses on equipment familiarization, simple warm-ups, activity rules and on-site consultation, characterized by brevity, intelligibility and repeat availability. Specialized instruction requires appropriate instructors, group-size controls and venue conditions aligned with programme requirements. Older adults, children and exercise-novice populations demand fuller explanation and observation; service quality should not be judged by maximum class size. For participants with uncertain health status, general fitness guidance must respect competence boundaries, recommending formal professional assessment where necessary instead of substituting for diagnosis or rehabilitation therapy.

Personnel organization should adopt stable service-point protocols and hand-over procedures. University students may participate in volunteer or practical placements, yet academic calendars, vacations and graduations threaten continuity. Managing authorities should retain roster supervisors, substitute-staff lists and essential records; hand-overs cover ongoing activities, equipment faults and pending user requests. Personnel assessment should extend beyond satisfaction ratings or class-enrolment numbers to include schedule adherence, instructional appropriateness, baseline-access safeguards and fault reporting. Low isolated satisfaction scores trigger root-cause investigation rather than direct quality judgements.

6.3. Clarify Mandates and Public-opening Responsibilities

Cooperative agreements should specify service zones, time windows, activity scope, daily-management contacts and adjustment procedures. Free public-access boundaries require clear on-site notification; independent fee-based classes are separately publicized. Access to baseline open-venue services must not be conditional upon course purchase, group-membership or commercial pitches. For capacity-constrained venues, coordination mechanisms between bookings and free informal use should be established so residents know usable periods and reporting channels for conflicts.

Traceable accountability interfaces must operate during implementation. Instructors deliver teaching and on-site organization within their competence scope; managing authorities undertake equipment inspection, maintenance and opening coordination; safety protocols are venue-specific. Swimming-pool safety cannot be presumed merely because teaching staff are present. Incident-risk records should be analysed alongside exposure and activity profiles to drive timely adjustments. Insurance and disclaimers serve as supplementary safeguards and cannot replace facility maintenance, reasonable instruction and emergency preparedness.

6.4. Leverage Digital Tools to Reduce Communication Burdens

QR-code-linked short review-focused instructional videos should match actual

on-site equipment, stating applicability constraints and common errors, with periodic link-validity checks. Videos should avoid universal quick-health-improvement claims and cannot monitor individual movement execution. On-site in-person support and clear signage must remain available for users with unresolved questions after viewing digital materials. For low-usage venues, simple functional notification channels outperform premature complex-platform development.

Service records should adhere to necessity-and-proportionality principles. Bookings collect minimal contact details; repeated-participation observation employs anonymous identifiers. Comprehensive commercial-style archives containing detailed health histories and household information are unnecessary. Activity photos, group feedback and research data must be segregated by purpose; unauthorized publicity or secondary redistribution is prohibited. Longitudinal participant-tracking, if pursued, should pre-disclose recorded content, purposes and opt-out procedures, complying with institutional ethical-review requirements.

6.5. Test Feasibility through Small-scale Sequential Pilots

Pilots should initially select a small number of venues with clear-management relationships and baseline safety conditions, logging pre- and post-intervention observations across equivalent time windows while retaining non-class periods for comparison. Where feasible, add demographically and facility-type-matched comparison sites to examine whether changes occur in non-intervention locations. Community interventions are susceptible to holidays, weather and concurrent events; these confounding factors must be documented. Baseline and follow-up durations should reflect activity rhythms; one quiet baseline snapshot cannot be contrasted against one concentrated event.

For further effectiveness research, primary outcomes, sample requirements and analytical approaches should be pre-specified. Multiple venues and repeated observations require accounting for within-site data correlation; comparison-group designs must address cross-site participant mobility and information spill-over. Absence of random assignment does not invalidate research, yet results must be interpreted according to study-design strength. Rather than launching multiple sites while collecting only promotional material, priority should be given to documenting replicable service workflows, identifying successful components and pinpointing adjustment needs.

7. Discussion

7.1. Translating “Facility Revitalization” into Testable Questions

The primary advance of this study over the original project lies in unpacking “under-utilized facilities” into multi-layered constraints. Though the project application acknowledged interdependence among facilities, services and

management, its methodologies and operational visions remained broad. This paper further demonstrates how skill gaps, temporal mismatches, discontinuous connections and accountability gaps map onto distinct recording and evaluation requirements. Guidance services are thereby re-conceptualized not as generic manpower inputs but as targeted interventions with defined targets, implementation prerequisites and expected processes. Their effectiveness requires component-wise observation and cannot be inferred solely from activity delivery.

This interpretation also facilitates dialogue with international scholarship. Built-environment studies investigate accessibility and environment-participation links[16]; service-delivery research focuses on real-world implementation of organized activities. Grassroots public sports facilities encompass both dimensions: accessible physical premises together with support enabling diverse residents to make use of them. The mechanistic proposition advanced herein is that given adequate baseline conditions, sustained appropriate guidance may increase the likelihood of facilities translating into participation opportunities. This emphasizes conditional combinations rather than representing statistically validated universal laws.

7.2. Public Value and Boundaries for Scaling

Social-sector and professional-team involvement in public-facility operations is permissible, yet evaluation must centre on resident-delivered services. Fee-based programmes can supplement funding yet risk selective service provision and time-slot crowd-out. Scalability therefore depends jointly on service coverage, free-access entitlements, personnel stability and full-cost accounting. Lower-income geographies with dispersed venues may demand greater public-financial support; sites with pre-existing vibrant grassroots organization may require external teams chiefly for training and coordination. Uniform commercial-replication assumptions cannot explain such heterogeneity.

International references reside primarily in problem-identification methods, time-stratified observation, user feedback and accountability negotiation rather than direct transplantation of particular government-collaboration or fee-charging models. Variations exist in public-facility ownership, volunteer-service institutions and personnel-qualification standards across regions; community swimming pools, open plazas and sports parks possess distinct usage boundaries. Starting from venue conditions, transparently documenting services and costs better informs transferability assessments than inferring replicability merely from geographical proximity or resident-population size.

7.3. Study Limitations and Future Directions

All source materials originate from one single project, with sequential document inheritance precluding independent cross-source triangulation. Documents were

generated for proposal-writing, progress-reporting and business-design purposes, potentially biased toward positive outcomes, and lack independent narratives from residents and managers. Without access to raw questionnaires, field logs and verbatim interviews, proportions cannot be recomputed, measurement quality assessed or causal analyses performed. Incomplete geographical coverage restricts generalizability to the broader region.

Future research should prioritize completing questionnaire, activity and venue-observation records, clarifying sample origins, exact activity timelines and indicator definitions before selecting quantitative, qualitative or mixed-methods designs. Interviews with non-participants and drop-outs would especially help test present interpretations. With sustained observations and comparison-site data, researchers may further investigate whether guidance services generate genuinely new participation, improve quality for existing users, or chiefly produce cross-venue participant displacement. These possibilities carry divergent policy implications and should be discussed separately.

8. Conclusions

Drawing on project materials from Western Guangdong, this paper argues that effective utilization of public sports facilities requires simultaneous attention to physical conditions, resident usage capabilities, service timing and operational accountability. Guidance services may lower initial participation barriers, deliver predictable arrangements and foster repeated engagement, yet their implementation depends on safe facilities, sustained staffing and clear public-access boundaries. Existing documents support problem identification and mechanistic proposition-building but cannot substantiate specific magnitude-of-improvement estimates, business-revenue figures or region-wide effects.

Optimization priorities include diagnosing usage barriers prior to service deployment, configuring context-appropriate services, and conducting continuous evaluations covering opening compliance, time-stratified participation, repeat usage, public accessibility and full operating costs. For grassroots public sports facilities, the worthy objective is long-term reliable access to suitable activity opportunities for residents. Discussions of scalability and efficiency gains are justified only when service processes are documentable, public entitlements are verifiable, and inputs prove sustainable.

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