Porakhela: Learn-to-Earn Gamified Education Platform

Applink AppQuest 2025 Hackathon Proposal

Team: Digital Titans | **Project:** Porakhela (পড়াশোনা আর খেলা, একসাথে মজা!)
Tagline: "Collect Porapoints, Win Prizes — Daily Study is Now Joyful"

Problem Statement

Bangladesh's primary education system serves over 20 million children but faces a critical dual crisis: a pedagogical crisis centered on rote learning that fails to develop critical thinking, and a parental crisis where anxiety about screen time creates purchasing hesitation despite recognition of technology's educational potential.

The pedagogical crisis: Bangladesh's educational framework relies on rote memorization and exam-focused instruction rather than developing critical thinking. Students experience chronic disengagement. Teachers struggle with overcrowded classrooms (60+ students per teacher), making personalized instruction impossible. The result is a systemic "learning gap"—students pass exams but lack foundational competencies in reading comprehension, mathematical reasoning, and scientific thinking. Parents resort to expensive private tutoring, representing billions of taka annually, perpetuating educational inequality where academic success depends more on parental wealth than student potential.

The parental crisis: Modern parents give children smartphones for learning (62.3% of households), recognizing technology's educational potential. However, 75.6% of parents are unaware of healthy screen time guidelines, while 68% express concern about inappropriate content. Parents experience acute "screen time guilt"—tension between leveraging technology for learning and protecting children from harm. Without transparent proof that screen time produces educational value, parents remain hesitant to commit financially to EdTech platforms.

The market gap: Ad-based apps lack engagement mechanics and profit from duration regardless of learning quality. Content-focused competitors offer curriculum-aligned material but lack extrinsic motivation systems, failing to drive consistent usage. No platform has solved both problems: engaging children through play and earning mechanisms while reassuring parents through protective controls and transparent learning proof. This is the critical market gap Porakhela addresses.

Proposed Solution

Porakhela is a gamified mobile learning platform transforming the NCTB curriculum into bite-sized, highly engaging interactive games for primary students (Grades 1-5). Our core innovation creates a closed-loop "Learn-to-Earn" ecosystem where learning generates tangible value for both child players and parent customers.

For the Child: Porakhela reimagines academic content as interactive gameplay. Instead of textbook fractions, children play "Pizza Slice Master"—cutting slices to learn division intuitively. Instead of memorizing Bangla conjugations, they play "Word Quest"—collecting letters to build vocabulary through narrative. Every completed lesson earns "Porapoints," a visible, collectible currency triggering dopamine reward pathways. Gamification mechanics include: daily streaks create habitual login behavior with bonus points; leaderboards drive engagement through friendly competition; badge progression (Bronze Scholar → Silver Mathematician → Gold Scientist) creates achievement narratives; adaptive difficulty ensures "flow state"; and story arcs wrap lessons in narrative. Offline-first capability enables lessons to download once and play completely offline—crucial for Bangladesh's low-bandwidth areas.

For the Parent: Parents subscribe for ৳60/month (৳2/day), charged directly through Banglalink's mobile balance—eliminating credit card friction that prevents adoption among 95% of Bangladesh's population. The PIN-protected Parental Control Zone features: set daily screen time limits, review detailed learning reports, approve/deny reward redemptions, filter age-appropriate content, and receive daily SMS alerts proving learning completion. These SMS alerts transform psychological experience from guilt to pride. When parents receive "Your child completed 3 lessons today and earned 50 Porapoints!," they gain objective proof that screen time produced educational output.

The Breakthrough: Porapoints are not virtual status symbols—they are real currency with tangible redemption value. A child earning 500 Porapoints over two weeks redeems them for a 100MB Banglalink data pack. A child with 1,000 points gets ৳50 talktime. This creates multiple effects: child motivation through genuine needs (data for gaming, talktime for friends), parental lock-in through loyalty wallet effects (accumulated 10,000 Porapoints represent ৳500+ forfeitable value—switching carriers means losing tangible value), and ecosystem reinforcement through self-reinforcing cycles (children download lessons → earn Porapoints → redeem for data → use data for more lessons → increased ARPU for Banglalink).

Use Case of APIs and ROI

Applink APIs are the foundational architecture enabling Porakhela's entire business model. Each API serves distinct strategic functions.

Subscription API & CAAS (Charging As A Service) API – Revenue Engine: Parents subscribe through simple in-app interface with ৳2/day charged via Banglalink balance—the same mechanism for prepaid talktime and data. This proven VAS model scales across South Asia. Every subscription conversion leverages existing billing infrastructure at near-zero marginal cost. With 400,000 users generating ৳60/month, Banglalink's revenue share (30-40%) generates ৳86-115 million annual recurring revenue—pure software revenue with minimal marginal cost. For parents, this eliminates the single largest payment friction preventing EdTech adoption.

SMS API – Trust Builder: Daily SMS alerts convert screen time anxiety into parental confidence. Receiving "Your child completed 3 lessons today and earned 50 Porapoints!," parents gain objective proof that screen time produced educational output. SMS arrives on primary communication devices (95%+ penetration), builds habitual checking behavior, and provides continuous "receipts" justifying the daily ৳2 subscription fee. This alert is the conversion mechanism from screen time guilt to parental satisfaction.

Rewards API (Partnership) – Ecosystem Lock: The proposed "Rewards API" seamlessly connects Porapoints earned in-app to real Banglalink services. When a child earns 500 Porapoints and requests redemption, the Rewards API authenticates, debits points, and credits ৳50 data to their Banglalink account. This API is Porakhela's core differentiator—rewards are immediate, valuable, and keep users within Banglalink ecosystem. Competitors cannot offer equivalent redemption value without telecom partnership. The reward pool is funded through: direct allocation from Banglalink marketing budget (customer acquisition cost justification), co-funding from child-focused brand partnerships (Pran, Bata, Supreme, Meril), and revenue from school licensing and B2B offerings.

USSD API – Inclusivity Bridge: One-third of target market lives in households where only one parent owns smartphones. USSD allows parents to dial *123# from any phone (smartphone or feature phone) to manage accounts: check Porapoints balance, approve redemptions, view learning reports, and set screen time limits. This "reverse channel" ensures decision-makers can control services from any device. The child uses the Android app while the parent controls from basic phones—expands addressable market by 30% in rural areas where smartphone penetration among mothers remains low.

OTP API – Security Foundation: High-value redemptions (>1,000 Porapoints) require authentication. OTP sent to parent's registered phone authorizes redemption—child cannot drain points without parental approval, protecting accounts and building platform integrity.

ROI for Banglalink—Multi-Layered Value:

1. **New Revenue Stream:** 400,000 users × ৳60/month = ৳288 million gross ecosystem revenue; Banglalink's share (30-40%) = ৳86-115 million annual recurring revenue with near-zero marginal cost.
2. **Churn Reduction (Most Powerful ROI):** Porapoints function as loyalty wallets—a child with accumulated points locks parents into Banglalink. Switching carriers means losing tangible value. Multi-service users exhibit 40-60% lower churn rates. Estimated impact: 15-20% churn reduction among parents of school-age children = millions in preserved customer lifetime value.
3. **Increased Data Consumption (Virtuous Flywheel):** Children download lessons → earn Porapoints → redeem for data packs → use data for additional lessons and entertainment → more data usage → increased ARPU. Parents previously spending ৳150/month may spend ৳200+ through engagement cycles.
4. **Brand and Social Impact:** Porakhela addresses nationally identified educational challenges (UNESCO, World Bank). Banglalink's association provides: powerful CSR narrative, brand differentiation as education-first innovator, international media coverage, and alignment with "Digital Bangladesh" vision.
5. **B2B Expansion:** "Freemium" teacher platforms create B2B2C acquisition funnels. Schools integrate Porakhela into homework systems; teachers recommend to students/parents; school-using students face lower home adoption friction; school licenses generate additional revenue.

Technology Stack

Frontend: Native Android (Kotlin) – Selected over cross-platform frameworks (React Native, Flutter) to minimize app size (45-65MB vs. 150-250MB) for accessibility on ৳500-1000 devices; enable robust offline-first functionality where lessons download once and play offline; ensure 60fps frame rates on mid-range devices, critical for engagement. UI/UX via Figma with color-coded subjects (Mathematics: Blue, Bangla: Red, Science: Green), large touch-friendly buttons (48x48dp minimum) suitable for ages 6-11, minimal text with maximum visuals, WCAG 2.1 AA accessibility compliance, and haptic feedback for interactions.

Backend: Python Django – Rapid MVP development with built-in admin, ORM, and authentication; security middleware provides CSRF, SQL injection, and XSS protection essential for children's data; proven scalability (Instagram, Spotify, Pinterest initially used Django); Celery handles asynchronous tasks (sending 400,000 daily SMS alerts, processing point redemptions, updating leaderboards).

Database: PostgreSQL – ACID compliance ensures Porapoints ledger integrity (no double-redemptions); optimized for millions of simultaneous queries; efficient relationship modeling for child-parent relationships and lesson completion history; native JSON support for flexible lesson metadata; proven at scale (Uber, Netflix, Airbnb).

API Integration: Applink APIs via REST clients – Backend-to-backend communication ensures sensitive payment data never touches frontends; comprehensive error handling for network timeouts, rate limits, service degradation; webhook listeners for SMS delivery confirmations, OTP verification results, reward redemptions.

Gamification Engine: Custom Backend Rules Engine – Base points: lesson completion (10 points), correct answers (5 points each), speed bonuses (10 points if <2min), streak bonuses (5 points day 3, 10 points day 7, 20 points day 30), difficulty multipliers (1.5x for "Hard"). Badges: Bronze Scholar (100 points) → Silver Scholar (500 points) → Gold Scholar (2,000 points) → Platinum Scholar (10,000 points). Leaderboards: weekly (reset Sundays), monthly (calendar cumulative), global vs. school, friends-only optional. Redis caches leaderboards for sub-100ms queries; eventual consistency updates every 5 minutes.

Production Infrastructure: AWS ECS for containerized Django with auto-scaling; AWS RDS PostgreSQL with Multi-AZ for redundancy; AWS CloudFront CDN with Bangladesh optimization; AWS Lambda for serverless tasks; Redis for caching; Datadog/New Relic for monitoring; Sentry for error tracking; HTTPS/TLS encryption; OAuth 2.0 for account linking; JWT tokens; rate limiting (1,000 requests/minute); GDPR and Bangladesh Children's Data Protection compliance.

15-Day Hackathon MVP: Android app with 10 sample lessons (2 Math, 2 Bangla, 2 Science, 2 English, 2 Social Studies); Python Flask backend; SQLite database; mock Applink API responses; Postman API testing; Docker containerization; AWS EC2 t3.micro deployment.

Sustainability and Long-Term Viability

Revenue Streams:

1. **B2C Micro-Subscription (Primary):** ৳60/month via Banglalink balance. Target: 400,000 users (4% of 10M SAM) = ৳240M gross Year 1 (৳86-115M Banglalink share). Price positioned as "pain reliever" not "vitamin"—parents spending ৳2,000-5,000 on tutoring view ৳60 for EdTech as trivial. Proven viability through Unacademy, Vedantu, Byju's success in India and Bangladesh.
2. **B2B School Licensing (Secondary):** Freemium teacher dashboard; premium tier ৳500/month per school. Market: 500 urban schools (৳3M/month) + 4,500 semi-urban/rural via NGO partnerships (৳13.5M/month discounted). Year 1 target: 1,000 schools × ৳400 average = ৳4.8M/month. Serves dual purposes: revenue generation and user acquisition through institutional anchoring.
3. **Brand Partnership Co-Funding (Tertiary):** Brands co-fund reward pools in exchange for in-app placements. Annual reward pool cost: ৳50M; brand co-funding: ৳30M (70%); Banglalink allocation: ৳20M (30%—justified as CAC). Result: fully funded reward pools converted from expense to revenue-neutral. Precedent in gaming and proven sustainability.

Long-Term Sustainability Mechanisms:

- **Network Effects:** Early adopters create leaderboard competition driving peer acquisition; school cohorts amplify through social groups; each user makes platform more valuable.
- **Points Accumulation:** Children with 10,000+ Porapoints represent forfeitable value—strongest retention lever, more powerful than habit or brand loyalty.
- **Content Moat:** 500+ gamified NCTB lessons become defensible asset—competitors cannot easily replicate across subjects and grades.
- **Ecosystem Depth:** Banglalink infrastructure integration creates partnership defensibility—competitors need equivalent telecom partnerships.
- **International Expansion:** Nepal (4M primary students), Pakistan (35M students), Indonesia (45M students)—validates model while scaling platform investments.

Risk Mitigation: User acquisition via direct Banglalink distribution (near-zero cost); content through curriculum expert partnerships; retention via multiple engagement levers (no single failure points); regulation within existing VAS framework; monetization through diversified streams; competition through Applink defensibility where equivalents unavailable without telecom partnership.