Case: 10x K Factor — Viral, Gamified, Supercharged Varsity Tutors *(Finalized Bootcamp Brief)*

The Challenge

Varsity Tutors has rich products (1:1 scheduled tutoring, instant on-demand tutoring, AI tutoring, live classes, diagnostics, practice, flashcards, etc.). Design and implement a **production-ready growth system** that makes learning feel fun, social, and "alive," and that **10×'s viral growth** by turning every touchpoint into a shareable, referable moment—across students, parents, and tutors.

Core Objectives

- Ship **≥ 4 closed-loop viral mechanics** that measurably increase **K-factor** *(K = invites per user × invite conversion rate)*.

  - We'll **tease example loops below**, but **you choose which 4+** to build (and you're encouraged to propose others).

- Make the platform feel *alive*: presence signals, activity feed, mini-leaderboards, and cohort rooms that show "others are learning with you."

- Convert **async results pages** (diagnostics, practice tests, flashcards, etc.) into powerful viral surfaces with share cards, deep links, and cohort challenges.

- Prove lift with a controlled experiment and a clear analytics plan.

Required Agents (minimum)

- **[required] Loop Orchestrator Agent** – Chooses which loop to trigger (after session, badge earned, streak preserved, **results page view**, etc.); coordinates eligibility & throttling.

- **[required] Personalization Agent** – Tailors invites, rewards, and copy by persona (student/parent/tutor), subject, and intent.

- **Incentives & Economy Agent** – Manages credits/rewards (AI Tutor minutes, class passes, gem/XP boosts), prevents abuse, ensures unit economics.

- **Social Presence Agent** – Publishes presence ("28 peers practicing Algebra now"), recommends cohorts/clubs, nudges "invite a friend to join this practice."

- **Tutor Advocacy Agent** – Generates share-packs for tutors (smart links, auto thumbnails, one-tap WhatsApp/SMS) and tracks referrals/attribution.

- **Trust & Safety Agent** – Fraud detection, COPPA/FERPA-aware redaction, duplicate device/email checks, rate-limits, report/undo.

- **[required] Experimentation Agent** – Allocates traffic, logs exposures, computes K, uplift, and guardrail metrics in real time.

Agents communicate via **Model Context Protocol (MCP) servers**. Each decision must include a short rationale for auditability.

Session Intelligence (Transcription → Agentic Actions → Viral)

All live and instant sessions are transcribed and summarized. These summaries power *agentic actions* for students and tutors that also **seed viral behaviors**.

Minimum agentic actions (ship ≥ 4 total)

- **For Students (ship ≥ 2) possible examples:**

  1. **Auto "Beat-My-Skill" Challenge:** From the summary's skill gaps, generate a 5-question micro-deck with a **share link** to challenge a friend; both get streak shields if friend reaches FVM within 48h.

  2. **Study Buddy Nudge:** If summary shows upcoming exam or stuck concept, create a **co-practice invite** tied to the exact deck; presence shows "friend joined."

- **For Tutors (ship ≥ 2) possible examples:**

1. **Parent Progress Reel + Invite:** Auto-compose a privacy-safe 20–30s reel (key moments & wins) with a **referral link** for the parent to invite another parent for a class pass.

2. **Next-Session Prep Pack Share:** Tutor receives an AI-generated prep pack and a **class sampler link** to share with peers/parents; joins credit the tutor's referral XP.

(All actions must be COPPA/FERPA safe, with parental gating for minors and clear consent UX.)

Core Requirements

- **Async Results as Viral Surfaces** – **Diagnostics, practice tests, and other async tools produce results pages** (scores, skills heatmaps, recommendations) that must:

  - Render privacy-safe **share cards** for student/parent/tutor variants.

  - Offer **"Challenge a friend / Invite a study buddy"** CTAs tied to the exact skill deck/class/AI practice set.

  - Provide **deep links** landing new users directly in a bite-size first-value moment (e.g., 5-question skill check).

  - Include cohort/classroom variants for teachers/tutors to invite groups.

- **"Alive" Layer** – Presence pings, study map, mini-leaderboards per subject, "friends online now," cohort rooms.

- **Instant-Value Rewards** – Credits/gems/time passes that are immediately usable (e.g., 15 minutes of AI Tutor, class samplers, practice power-ups).

- **Cross-Surface Hooks** – Web, mobile, email, push, SMS; deep links prefill context.

- **Analytics** – Event schema for invites, opens, joins, first-value moment (FVM), retention (D1/D7/D28), and LTV deltas.

Viral Loop Menu (pick any 4+; you may propose others)

Important: We are **not** prescribing which to build. Choose any 4+ that best fit your squad's thesis, and feel free to add original ideas.

1. **Buddy Challenge** *(Student → Student)* – After practice or on results pages, share a "Beat-my-score" micro-deck; both get streak shields if friend reaches FVM.

2. **Results Rally** *(Async → Social)* – Diagnostics/practice results generate a rank vs. peers and a **challenge link**; cohort leaderboard refreshes in real time.

3. **Proud Parent** *(Parent → Parent)* – Weekly recap card + shareable progress reel; "Invite a parent" for a class pass.

4. **Tutor Spotlight** *(Tutor → Family/Peers)* – After 5★ session, generate a tutor card + invite link; tutor accrues XP/leaderboard perks when joins convert.

5. **Class Watch-Party** *(Student Host → Friends)* – Co-watch recorded class with synced notes; host invites 1–3 friends; guests get class sampler + AI notes.

6. **Streak Rescue** *(Student → Student)* – When a streak is at risk, prompt "Phone-a-friend" to co-practice now; both receive streak shields upon completion.

7. **Subject Clubs** *(Multi-user)* – Join a live subject club; each member gets a unique **friend pass**; presence shows "friends joined."

8. **Achievement Spotlight** *(Any persona)* – Auto-generated milestone badges convert to social cards (safe by default); clickthrough gives newcomers a *try-now* micro-task.

Technical Specifications

- **MCP** between agents; JSON-schema contracts; **<150ms** decision SLA for in-app triggers.

- **Concurrency**: 5k concurrent learners; peak 50 events/sec orchestrated.

- **Attribution**: Signed smart links (short codes) with UTM + cross-device continuity.

- **Data**: Event bus → stream processing → warehouse/model store; PII minimized; child data segregated.

- **Explainability**: Each agent logs `decision`, `rationale`, `features_used`.

- **Failure Mode**: Graceful degradation to default copy/reward if agents are down.

Infrastructure Constraints

- **Privacy/Compliance**: COPPA/FERPA safe defaults; clear consent flows.

Ambiguous Elements (you must decide)

- Optimal **reward mix** (AI minutes vs. gem boosts vs. class passes) by persona and CAC/LTV math.

- **Fairness** in leaderboards (new users vs. veterans; age bands).

- **Spam thresholds**: caps on invites/day; cool-downs; school email handling.

- **K-factor definition** for multi-touch joins (view → sign-up → FVM).

- **Tutor incentives** and disclosures.

Success Metrics

- **Primary**: Achieve **K ≥ 1.20** for at least one loop over a 14-day cohort.

- **Activation**: +20% lift to *first-value moment* (first correct practice or first AI-Tutor minute).

- **Referral Mix**: Referrals ≥ **30%** of new weekly signups (from baseline [__]%).

- **Retention**: +10% D7 retention for referred cohorts.

- **Tutor Utilization**: +5% via referral conversion to sessions.

- **Satisfaction**: ≥ 4.7/5 CSAT on loop prompts & rewards.

- **Abuse**: <0.5% fraudulent joins; <1% opt-out from growth comms.

Deliverables (Bootcamp)

1. **Thin-slice prototype** (web/mobile) with **≥ 4** working loops and live presence UI.

2. **MCP agent code** (or stubs) for Orchestrator, Personalization, Incentives, Experimentation.

3. **Session transcription + summary hooks** that trigger **≥ 4 agentic actions** (≥2 tutor, ≥2 student) feeding viral loops.

4. **Signed smart links** + attribution service.

5. **Event spec & dashboards**: K, invites/user, conversion, FVM, retention, guardrails.

6. **Copy kit**: dynamic templates by persona, localized [en + __].

7. **Risk & compliance memo** (1-pager): data flows, consent, gating.

8. **Results-page share packs** for diagnostics/practice/async tools (cards, reels, deep links).

9. **Run-of-show demo**: 3-minute journey from trigger → invite → join → FVM.

Analytics & Experiment Design

- **K-factor tracking**: `invites_sent`, `invite_opened`, `account_created`, `FVM_reached`.

- **Attribution**: last-touch for join; multi-touch stored for analysis.

- **Guardrails**: complaint rate, opt-outs, latency to FVM, support tickets.

- **Dashboards**: cohort curves (referred vs. baseline), loop funnel drop-offs, LTV deltas.

- **Results-page funnels**: impressions → share clicks → join → FVM per tool (diagnostics, practice tests, flashcards).

- **Transcription-action funnels**: session → summary → agentic action → invite → join → FVM.

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Acceptance Criteria

- **≥ 4 viral loops** functioning end-to-end with MCP agents.

- **≥ 4 agentic actions** (≥2 tutor, ≥2 student) triggered from session transcription, each feeding a viral loop.

- Measured K for a seeded cohort and a clear readout (pass/fail vs **K ≥ 1.20**).

- Demonstrated presence UI and at least one leaderboard or cohort room.

- Compliance memo approved and **results-page sharing** active for diagnostics/practice/async tools.