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AppaTeach

This PDF file consists of the entirety of the AppaTeach website, which links paid and volunteer tutors with those needing instruction. Paid tutors charge an hourly rate (billing their students directly), and must pay 7 percent of their earnings to AppaTeach. All tutoring sessions are one-on-one and usually take place in coffee shops, libraries, or high schools (Skype can be used instead of meeting face-to-face). Sessions involving students who are under 18 take place in their homes, when a parent is also at home. All tutors (and students who use the Curriculum Library) must have smartphones or tablets. Each tutor records the amount of time spent teaching each lesson at the end of each session, and also each student evaluates the tutor (on a scale of 1 to 5, overall and on various attributes) at the end of each session. Students can also record comments (customer reviews), which are accessible to other students browsing the tutor database. Under-performing tutors gravitate to the bottom of the search results.

Website

Students select their city and search for tutors, filtering by desired subject, and the tutors are sorted by experience (total minutes) or quality, based on tutor evaluations. Each tutor has an info page, including the subjects they teach, along with experience level and quality level for each subject. The info page also includes major intersection (closest to where they live) and availability times (days of week, mornings, afternoons, and/or evenings). When contacting a prospective tutor, the student selects the desired subject(s), enters an optional message, and clicks on Contact. The tutor then receives an automatic email, and logs on to the website and responds, if desired. Every lesson is delivered to the student in a form which is easily displayed on a smartphone.

Revenue and Expenses

All revenue comes from the 7 percent cut of the paid tutors' earnings. Fixed expenses include web hosting fees and Google AdWords advertising. All partners (the highest ranking of the 6 classes of users) as well as the senior developer (the founder) receive an equal share of the profits. For the first 6 months only volunteer tutors in Toronto will be recruited.

TutorML Curriculum

All curricula exists in the form of Wiki-style documents, similar to Wikipedia articles. My own Wiki-style markup language (called Tutor Markup Language, or TutorML) is used to both read and write the lessons. Content-creators use the Windows Writer App, and students use the Android/iOS Reader Apps to display the lessons. Content is encrypted to prevent plagiarism. TutorML adds support for tables, grids, and multiple columns. Grids are used for entering mathematical expressions, and adjacent grid cells may be merged to accommodate oversized characters (superscripts/subscripts are handled by adding a vertical offset of half a character).

Mentors

AppaTeach has 6 classes of users: developers like me who maintain the website, partners who decide which tutors can become mentors, mentors who are tutors which supervise content creators and other tutors, content creators who write the lessons used by the tutors, tutors who are supervised by mentors, and students. Every tutor who is not a mentor is assigned a mentor. Those tutors who have logged the most hours (in the top 20 percent) and with superior ratings as given by their students (in the top 40 percent) are eligible to become mentors. When tutors are assigned to mentors, preference is given to those mentors who have the fewest tutors assigned to them. Mentors don't have to pay 7 percent of their earnings to AppaTeach. Those mentors who have logged the most hours (in the top 20 percent) and with superior ratings as given by their students (in the top 40 percent) automatically become partners.

Competition

AppaTeach faces at least 3 competitors: KhanAcademy.org, UniversityTutor.com, and Tutoring-Beyond-Borders.com. Khan Academy has thousands of online courses, but little or no face-to-face instruction. University Tutor has over 60,000 tutors in over 7000 cities, but no curriculum library (the tutors, paid only, are on their own). Tutoring Beyond Borders is free but only operates in the Kitchener area.

Business Plan: Steps

1. AppaTeach Mandate:
    1. Link paid and volunteer tutors with those needing instruction
2. Learn Django
3. Develop much of website
4. Approach West Neighbourhood House as partner organization
5. If successful, go to Step 8
6. Approach 3 contacts who are educators (Ellen Davis, Eric Davis, Carla Silver)
7. Curriculum development done in-house
8. Hire Core Curriculum Developer (CCD)
9. CCD writes literacy curriculum at the rate of $20/hour
10. Mike or CCD writes math curriculum
11. If work done in-house, Mike pays CCD
12. Otherwise partner organization pays CCD, Mike reimburses partner organization
13. Curriculum written using Word, then converted to PDF
14. Continue developing website
15. Partner organization assists in writing funding proposal to be submitted to Ministry of Training, Colleges and Universities
16. Hire Co-Founder using Charity Village (full-time or part-time)
17. Funding proposal is submitted after website is completed and ready to launch in Step 20
18. Convert curriculum to TutorML
19. Develop TutorML Reader, an Android app (eventually develop iOS version)
20. Launch website
21. Develop TutorML Writer, a Windows app
22. If funding doesn't come through then Co-Founder position becomes part-time
23. Funding to pay salary of Co-Founder for one year
24. Funding to be renewed annually at discretion of funder
25. Co-Founder position, upon failure of annual funding to be renewed, becomes part-time
26. Mike is responsible for covering all operating expenses (except salary of Co-Founder) during the first 2 years after launch of website
27. After 2 years additional funding to pay operating expenses will be requested from the Ministry of Training, Colleges and Universities
28. Revenue Sources:
    1. Government funding (see Step 17)
    2. Mike pays operating expenses (see Step 26)
    3. Royalties: paid tutors pay royalties to AppaTeach consisting of 7 percent of the amount they charge to their students
29. Operating Expenses:
    1. Salary of Co-Founder
    2. Web hosting: $2000/year (dedicated server) rising to $7500/year and up (cloud hosting) after 5 years
    3. Google AdWords advertising: $5000/year?
    4. Remuneration of partners (see Step 30): total profits (revenue minus expenses) divided by no. of partners
    5. Calculation of partner remuneration (based on p = 100):
        1. Let k = 52 weeks/year x 7 percent = 3.64
        2. Let t = no. of paid tutors = 1000
        3. Let x1 = no. of tutors/mentor = 10
        4. Let x2 = no. of mentors/partner = 10
        5. Let p = no. of tutors/partner = (x1)(x2) = 100
        6. Let n = no. of partners = t / p = 10
        7. Let h = hrs/week = 5
        8. Let r = rate/hr = 25
        9. Let c = salary of co-founder = 50,000
        10. Let f = fixed costs = web + adv = 7500 + 5000 = 12,500
        11. Gross revenue = 5 hours/week/tutor x $25/hour x 52 weeks/year x 0.07 = $455/year/tutor
        12. Gross annual revenue/partner = $455/tutor x 10 tutors/mentor x 10 mentors/partner = $45,500

13. Assume that 1000 paid tutors exist
14. Gross revenue = $455/year/tutor x 1000 tutors = $455,000/year
15. Operating expenses = salary of full-time Co-Founder + web hosting + AdWords advertising = $50,000 + 7500 + 5000 = $62,500/year
16. Profit = $455,000/year - $62,500/year = $392,500/year
17. No. of partners = 1000 tutors x 0.1 mentors/tutor x 0.1 partners/mentor = 10
18. Adjusted no. of partners = 10 + 2 = 12 (Mike and the partner organization count as 2 partners)
19. R = Net annual revenue/partner = profit divided by 12 = $392,500 / 12 = $32,700
20. R = khrp(n / (n + 2)) - (c + f) / (n + 2)

6. Calculation of partner remuneration (based on p = 60):
    1. Let f = fixed costs = web + adv = 2000 + 5000 = 7000 (for n = 1 up to 5)
    2. And f = 7500 + 5000 = 12,500 (for n > 5)
    3. Let x1 = no. of tutors/mentor = 10
    4. Let x2 = no. of mentors/partner = 6
    5. Let p = no. of tutors/partner = (x1)(x2) = 60
    6. Let t = no. of paid tutors
    7. Let n = no. of partners
    8. Then t = pn = 60n
    9. n = (1,2,3,4,5,10)
    10. n' = n + 1 = adjusted value of n (partner org. counts as a partner)
    11. R = khrp(n / n') - (c + f) / n'
    12. R = khrp(n / (n + 1)) - (c + f) / (n + 1)
    13. khrp = 27,300
    14. R1 = (27,300 x (1/2)) - (57,000 / 2) = -14,850
    15. R2 = (27,300 x (2/3)) - (57,000 / 3) = -800
    16. R3 = (27,300 x (3/4)) - (57,000 / 4) = 6225
    17. R4 = (27,300 x (4/5)) - (57,000 / 5) = 10,440
    18. R5 = (27,300 x (5/6)) - (57,000 / 6) = 13,250
    19. R10 = (27,300 x (10/11)) - (62,500 / 11) = 19,136
    20. R1000 = (27,300 x (1000/1001)) - (62,500 / 1001) = 27,210 < 27,300 for all n
7. Calculation of part-time Co-Founder remuneration = partner remuneration:
    1. Profit = $455,000/year - (7500/year + 5000/year) = $442,500/year
    2. No. of partners = 10 + 3 = 13 (Mike, Co-Founder and partner organization count as 3 partners)
    3. R = Net annual revenue/partner = profit divided by 13 = $442,500 / 13 = $34,038
    4. R = khrp(n / (n + 3)) - (f / (n + 3))
8. Calculation of part-time Co-Founder remuneration (based on p = 60):
    1. n = (1,2,3,4,5,10)
    2. n' = n + 3 = adjusted value of n
    3. R = khrp(n / n') - (f / n')
    4. R = khrp(n / (n + 3)) - (f / (n + 3))
    5. R1 = (27,300 x (1/4)) - (7000 / 4) = 5075
    6. R2 = (27,300 x (2/5)) - (7000 / 5) = 9520
    7. R3 = (27,300 x (3/6)) - (7000 / 6) = 12,483
    8. R4 = (27,300 x (4/7)) - (7000 / 7) = 14,600
    9. R5 = (27,300 x (5/8)) - (7000 / 8) = 16,188
    10. R10 = (27,300 x (10/13)) - (12,500 / 13) = 20,038
    11. R1000 = (27,300 x (1000/1003)) - (12,500 / 1003) = 27,206 < 27,300 for all n

30. Partner Definition:
    1. Mentors are tutors who supervise content creators and other tutors
    2. Content creators write the lessons used by the tutors
    3. Partners decide which tutors can become mentors
    4. Those tutors who are in the top 20 percent of hours logged, and in the top 40 percent of the ratings given by students, are eligible to become mentors
    5. Those mentors who are in the top 20 percent of hours logged, and in the top 40 percent of the ratings given by students, automatically become partners

Business Plan Background

Mike is currently a volunteer computer tutor at West Neighbourhood House, and was a volunteer tutor at Fred Victor for 5 years, teaching math, computers, and literacy. West Neighbourhood House also employs volunteer tutors who teach math and literacy.

Mike's contacts who are educators are: his cousin Ellen Davis, a retired ESL teacher; his cousin Eric Davis, a senior administrator at the University of the Fraser Valley; and Carla Silver, a high school music teacher.

Roles of West Neighbourhood House

The 1st role is to assist Mike in hiring the Core Curriculum Developer (CCD), giving that temporary employee access to your math and literacy curricula. The CCD writes literacy lessons (and optionally math lessons) based on your curricula, but does not plagiarize that curricula. In other words, the lessons are similar to your curricula but not identical to it. The CCD is paid approximately $20/hour. Mike reimburses West Neighbourhood House for the wages of the CCD plus 10 percent to compensate WNH for its overhead expenses.

The 2nd role of WNH is to assist Mike in applying for funding to the Ministry of Training, Colleges and Universities. The 3rd role of WNH is to give their tutors the option of becoming AppaTeach tutors, and recruiting those AppaTeach tutors who live in Toronto and wish to become WNH tutors.

Benefits to West Neighbourhood House

1. West Neighbourhood House receives the same amount of money that each partner receives. Please see Business Plan: Steps (Steps 29.5 thru 29.8) for approximate values.
2. When tutors and students log in to the AppaTeach website, a link to the Learning Programs web page at westnh.org is displayed, assuming that the person logging in lives in Toronto. All users can click on "Donate to Partner", which displays info about West Neighbourhood House and a link to its donation web page.
3. All WNH tutors have the option of becoming AppaTeach tutors/content-creators, and all AppaTeach tutors/content-creators who live in Toronto have the option of becoming WNH tutors.

Co-Founder Position

AppaTeach is currently seeking a business-savvy and tech-savvy individual who will become the Co-Founder. The person hired can work on either a full-time or part-time basis. If full-time, the Co-Founder will run the day-to-day operations of AppaTeach, and Mike's main role will be the Chief Technology Officer. If part-time, the role of the Co-Founder (who is allowed to work full-time for someone else) will be to provide Mike with business advice from time to time. The remuneration of the Co-Founder will take the form of an annual salary (if full-time), or a share of the profits equal to each of the partners as indicated in Steps 29.5 thru 29.8 of the Business Plan (if part-time). Note that the annual salary of a full-time Co-Founder is actually the minimum amount of remuneration. If the salary of that Co-Founder would be less than the remuneration of one of the partners in any given year, then the Co-Founder would actually earn the same amount as one of the partners. Also the sample annual salary amount quoted in Step 29.5.9 bears no relation to the actual salary amount (it's just a sample figure) negotiated between Mike and the Co-Founder.

TutorML Format

Heading	`==, ===, ...`
Bold/Italics/both	`'', ''', ''''`
Numbered List	`#, ##, ...`
Bulleted List	`*, **, ...`
Container Tag	`{ ... | ... }`
Table/Grid/Tag	`{ ... }`
Open Row	`{row` `{row fld=val`
Close Row	}

Open Column	`||`
	`|fld=val|`
	`|f1=v1;f2=v2;...|`

Vert. Grid Line	`|`
Horiz. Grid Line	underscore (_)
Grid Intersection	plus (+)
Escape Char.	backslash (\)

Tags:

- table, row, grid, point, polygon, label, meta
- super, sub, text, pre, br, hr, img, a, ch
- input, radio, checkbox
- styles, include, h1..h5, b, i, u, ol, ul

Fields:

- width=50/0.5 (pixels/ratio)
- pad=50/0.5
- x, y = 50/0.5
- height = n (pixels)
- topb=1 (pixels)
- bottomb, leftb, rightb, midb = 1
- color=FF00FF (rgb)
- fcolor=00FF00 (text)
- bcolor=000000 (borders)
- colspan, rowspan = n
- just="L/C/R"
- b, i, u (bold, italics, underline)
- same (same as previous)
- vis (visible)
- coldefs
- rows, cols = n (grid size)
- id="mynode", id="mytag"

Subjects

- Basics
  - Math
    - Arithmetic
    - Percentages
    - Fractions
    - Linear Equations
    - Probability
  - Literacy
    - ESL
    - Phonics
    - Grammar
    - Writing
  - Computers
    - Windows
    - MS Office
      - Word
      - Excel
      - PowerPoint
    - Internet
      - Search Engine
      - Email
      - Job Search
- Math
  - Trigonometry
  - Algebra
  - Calculus

  (etc.)
- English
  - Composition
  - Literature
  - Research Papers
- Computers
  - MS Office
    - Access
    - Publisher
  - Graphics
    - Windows Paint
    - Photoshop
    - Adobe Illustrator
  - Internet
    - Web Design
    - Blogs
    - Facebook/Twitter
  - Computer Science
    - Languages
    - Data Structures
    - Compilers
    - Operating Systems
    - Tech Support
  - Gaming
    - Genres
    - Game Design
  - Mac
  - Linux
  - iOS
  - Android
- Science
- Humanities
- Engineering
- Art
- Sports
- Trades
- Business
- Politics
- Health
- Education
- Society
- Daily Life (for women)
  - Men's Issues
- Religion

Database Tables

Users

UsrId
FirstName
LastName
Email
Phone
Cell
Password
StartDate
^EndDate
^IsActive: Y/N
Addr1, Addr2
CtyId

Tutors

TutId
UsrId
MentorId
Intersection
Rate: $ amt.
PayPal info
StartDate
^EndDate
IsPartner: Y/N

ContentCreators

CreId
UsrId
Rate: $ amt.
PayPal info
StartDate
^EndDate
^IsEmp: Y/N
^IsAdmin: Y/N

Skills

SklId
UsrId
SubId
StartDate
EndDate
Rating: percent
Exper: hours

TutEval

TevId
TutId
UsrId
MtgId
AttrNo
Value: btwn 1 and 5

Sessions

SsnId
TutId
UsrId
DayOfWeek
Time
Length: Default = 60 mins.

Meetings

MtgId
SsnId
Date
Time
Length

Items

ItmId
MtgId
LsnId
Length

Subjects

SubId: body = <SubId>.SUB
ParId
NextId
ChildId: zero for courses (leaf subjects)
RefCount:
  -ve: child = main record; +ve: main record
Name: folder name/course no.
Title
IsDept: Y/N

Lessons

LsnId: body = <LsnId>.LSN
SubId
CreId
ParId
NextId
ChildId
LsnNo
Title
Length: +ve: test length (minutes)
AnsKey: Y/N
Date
ModifId
ModifDate

City

CtyId
ParId
City
State
Country

Marks

MrkId
UsrId
SubId
LsnId
Grade: percent
Passed: Y/N

Edits

EdtId
UsrId
EmpId
EditDate
EditTime
Date
Flag
EditType:
  Dates/Flags preceded by caret (^)

Prereqs

PreId
SubId
PreSubId: zero for OR group
ParId: PreId of OR group

Implementation Steps

1. User Authentication
2. Classes of Users
3. Subject Tree
4. Skills Table
5. Lesson Table
6. Scheduling
7. Tutor Search
8. Tutor-Student Messaging
9. Tutor Evaluation/Timekeeping
10. Misc. Tables:
    1. Cities
    2. Prerequisites
    3. Grade Scores
    4. Table Edits
11. Tutor Royalties
12. Partner Remuneration
13. User Hierarchy
14. TutorML Reader App
15. TutorML Encryption
16. TutorML Writer App
17. Convert Reader to iOS

About Me

I am Mike Hahn, the founder of AppaTeach. On August 9, 2014 I began working on AppaTeach, and then I started a different project called Lyvathon on January 4, 2015. On January 24, 2015 I resumed working on AppaTeach. I was previously employed at Brooklyn Computer Systems as a Delphi Programmer and a Technical Writer (I worked there between 1996 and 2013). Just prior to starting Lyvathon I quit my job as a volunteer tutor at Fred Victor on Tuesday afternoons, where for 5 years I taught math, computers, and literacy. I'm now a volunteer computer tutor at West Neighbourhood House. My hobbies are reading the news at cbc.ca and going for walks in my neighbourhood. About twice a year I get together with my sister who lives in Victoria. She comes here or I go out there usually in the summer. At those times I'm much more active, but most of the year I tend to lie on the couch a lot, and not be very active. I do, however, visit my brother once a month or so and listen to or visit my disabled friend (she has schizophrenia and talks to me on the phone).

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