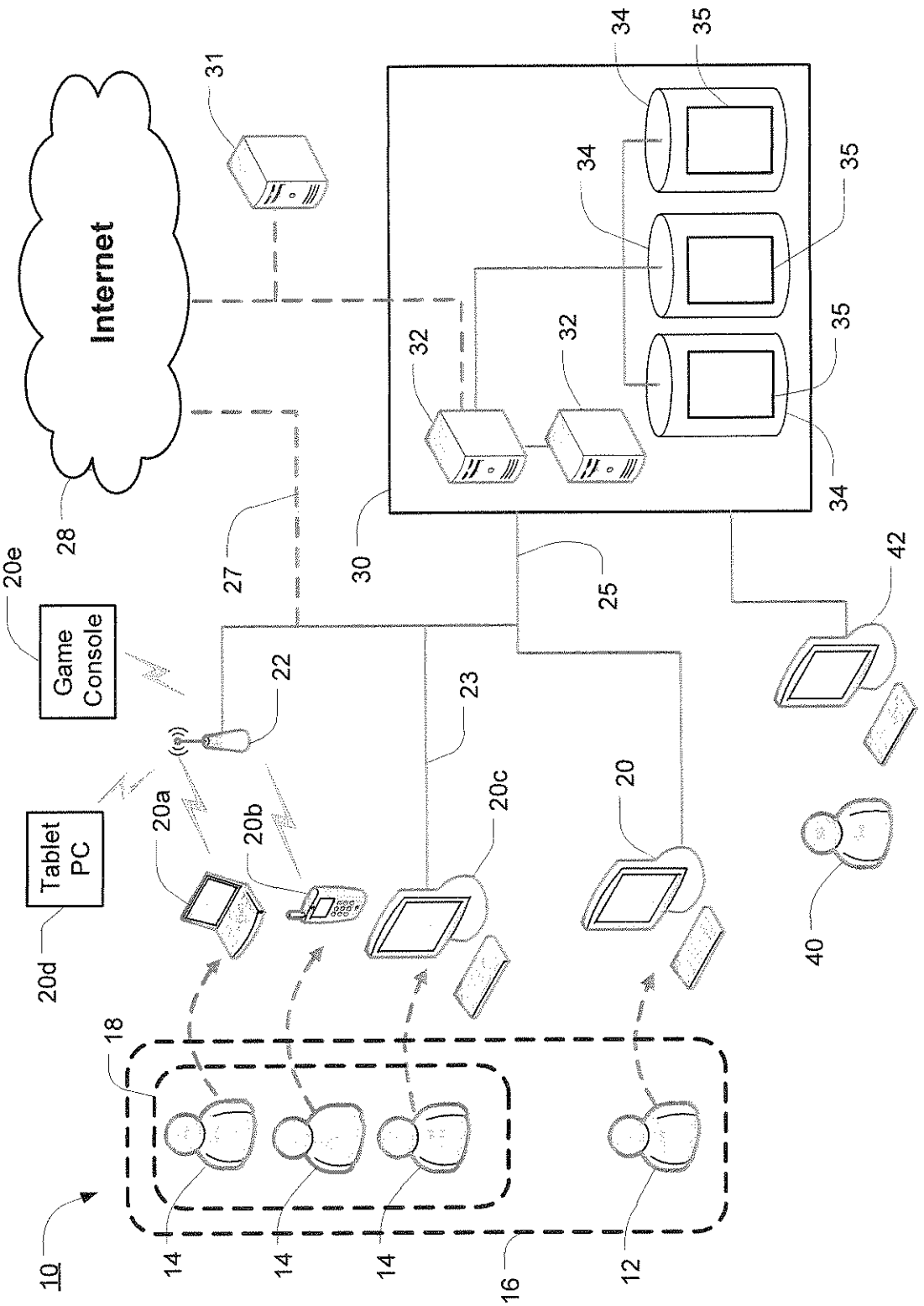
Internet
Game Console
Tablet PC
10
12
14
14
14
16
18
20
20a
20b
20c
20d
20e
22
23
25
27
28
30
31
32
32
34
34
34
35
35
35
40
42

FIG. 1

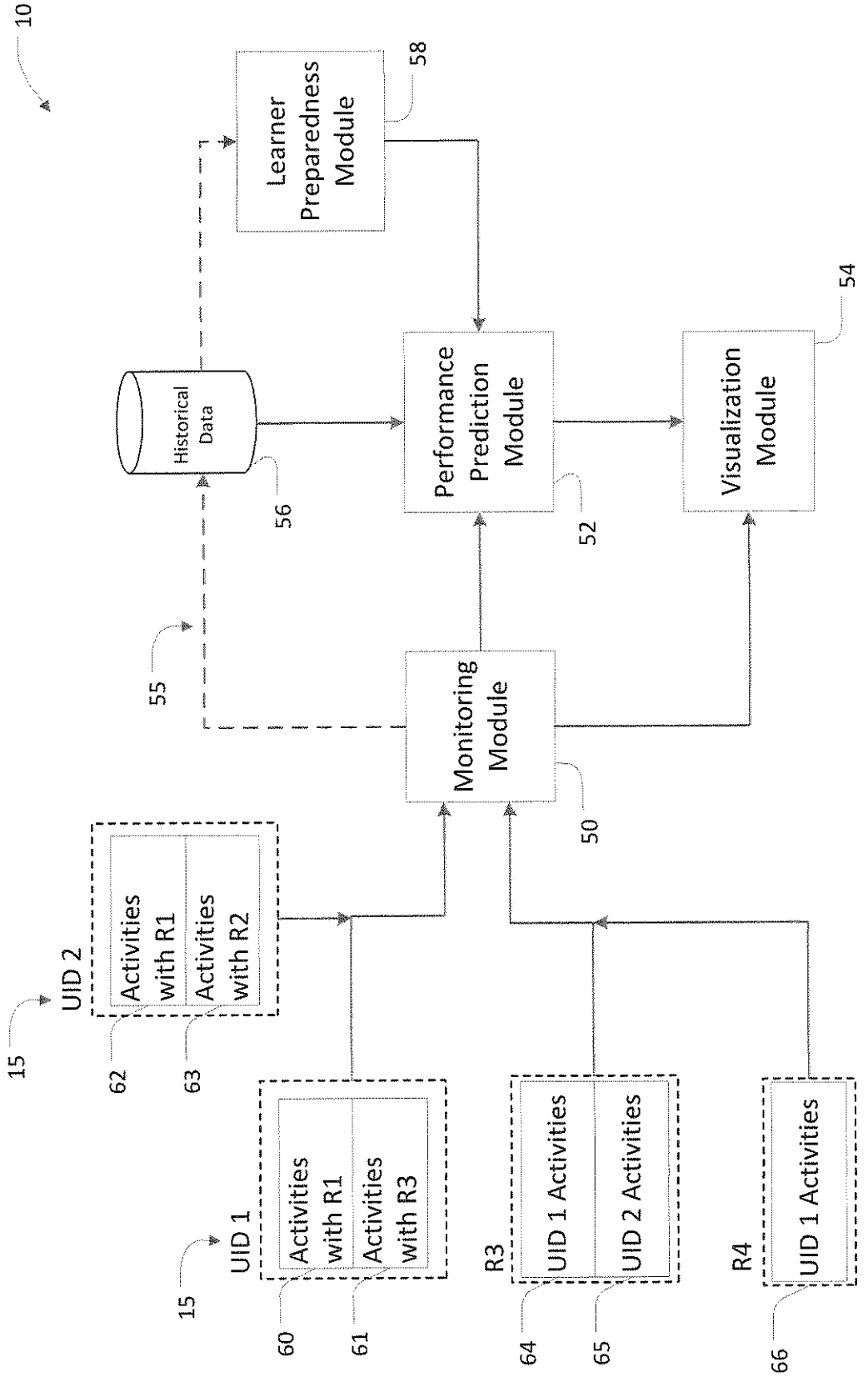
10
Learner Preparedness Module
58
Historical Data
56
Performance Prediction Module
52
Visualization Module
54
55
Monitoring Module
50
15
UID 2
Activities with R1
Activities with R2
62
63
15
UID 1
Activities with R1
Activities with R3
60
61
R3
UID 1 Activities
UID 2 Activities
64
65
R4
UID 1 Activities
66

FIG. 2

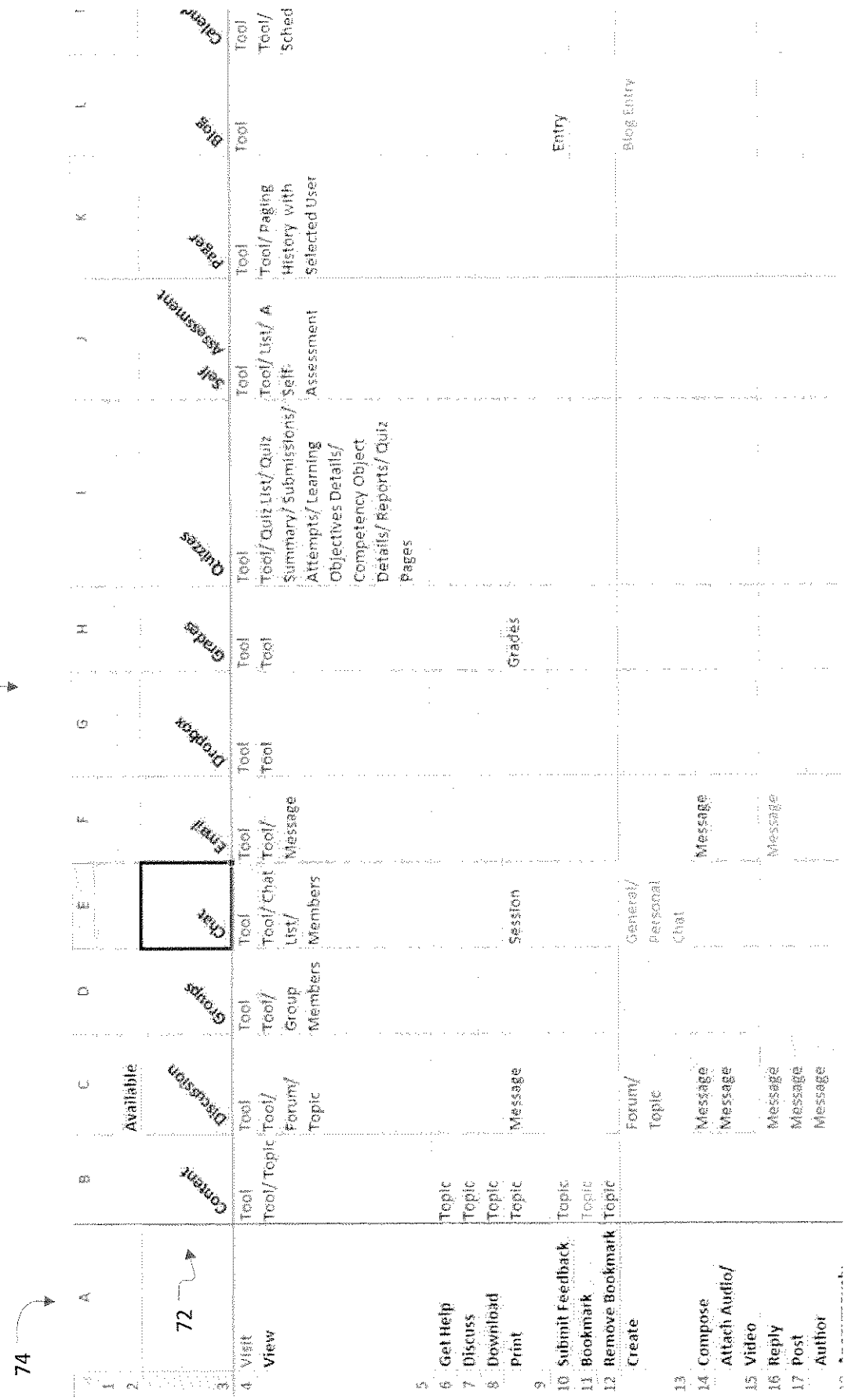
70
72
74
Available
Content
Discussion
Groups
Chat
Email
Dropbox
Grades
Quizzes
Self Assessment
Pager
Blog
Calendar
Visit
View
Get Help
Discuss
Download
Print
Submit Feedback
Bookmark
Remove Bookmark
Create
Compose
Attach Audio/ Video
Reply
Post
Author
Tool
Topic
Forum/ Topic
Message
Tool/ Group Members
Tool/ Chat List/ Members
Session
Tool/ Message
Tool/ Quiz List/ Quiz Summary/ Submissions/ Attempts/ Learning Objectives Details/ Competency Object Details/ Reports/ Quiz Pages
Tool/ List/ Assessment
Tool/ Paging History with Selected User
Tool/ Sched
Grades
General/ Personal Chat
Entry
Blog Entry

FIG. 3

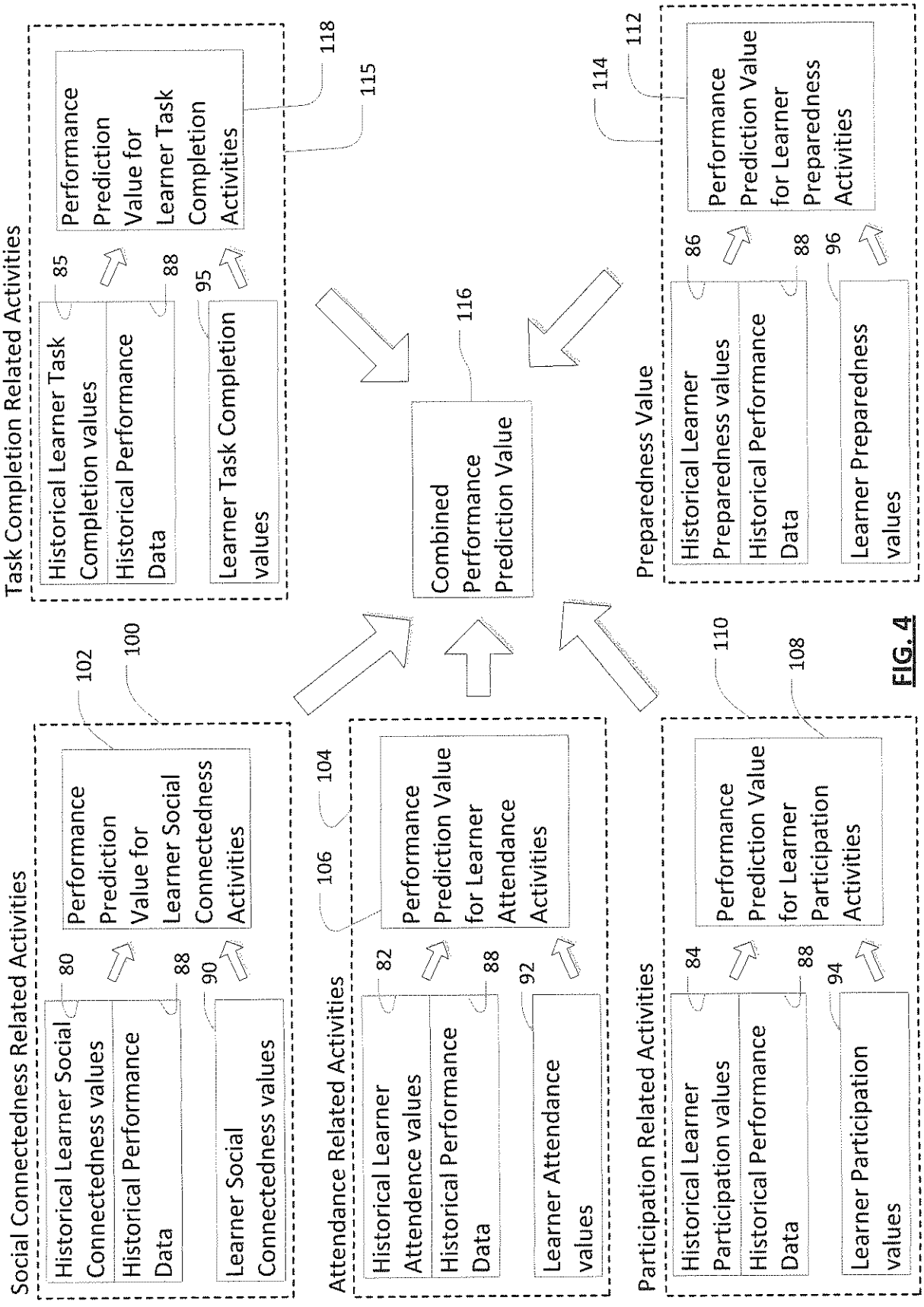
Social Connectedness Related Activities
Historical Learner Social Connectedness values
80
Historical Performance Data
88
Learner Social Connectedness values
90
Performance Prediction Value for Learner Social Connectedness Activities
102
100
Attendance Related Activities
Historical Learner Attendence values
82
Historical Performance Data
88
Learner Attendance values
92
Performance Prediction Value for Learner Attendance Activities
106
104
Participation Related Activities
Historical Learner Participation values
84
Historical Performance Data
88
Learner Participation values
94
Performance Prediction Value for Learner Participation Activities
110
108
Task Completion Related Activities
Historical Learner Task Completion values
85
Historical Performance Data
88
Learner Task Completion values
95
Performance Prediction Value for Learner Task Completion Activities
118
115
Preparedness Value
Historical Learner Preparedness values
86
Historical Performance Data
88
Learner Preparedness values
96
Performance Prediction Value for Learner Preparedness Activities
114
112
Combined Performance Prediction Value
116

FIG. 4

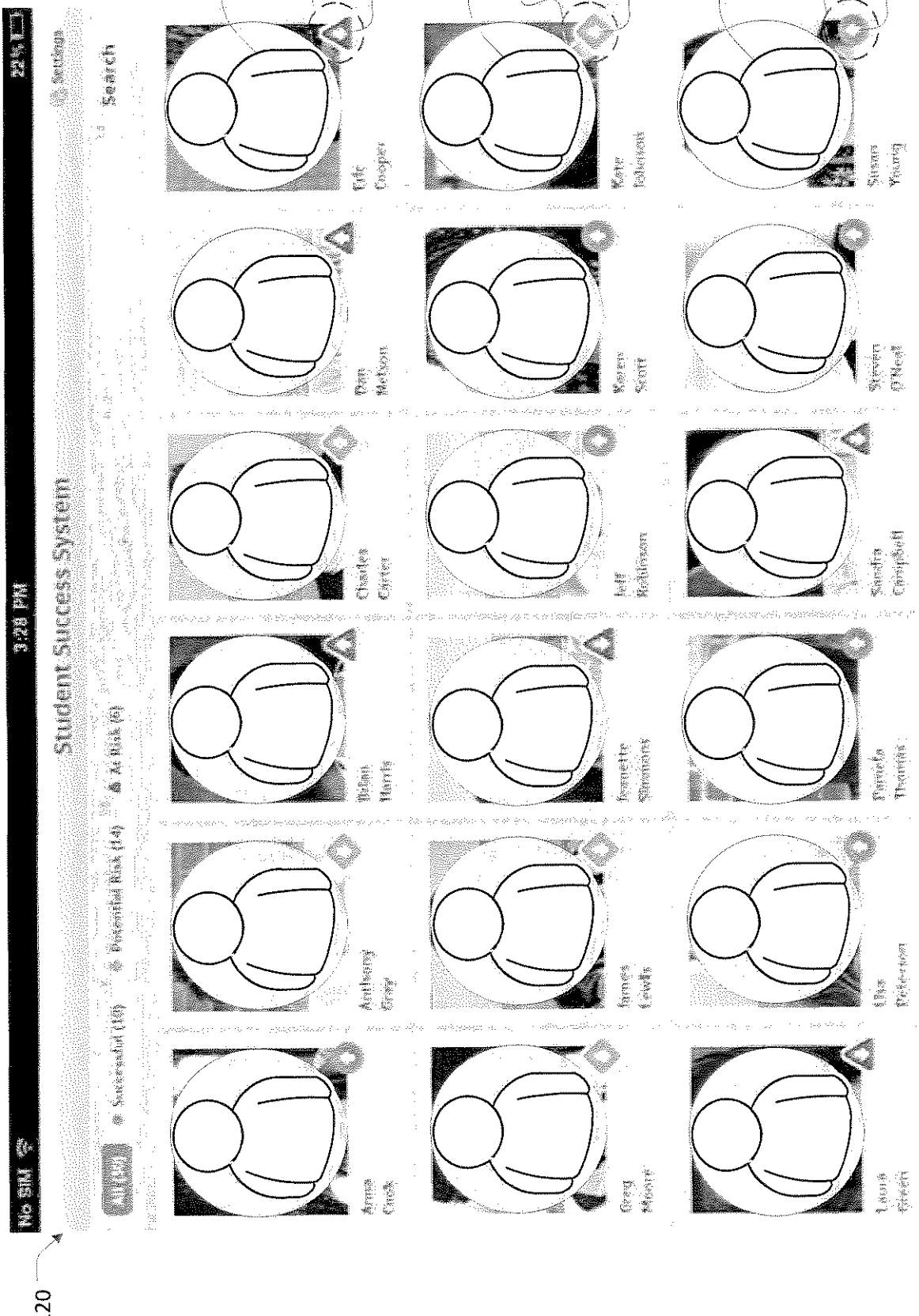
120
No SIM
3:29 PM
22%
Student Success System
Settings
Search
CLEAR
Successful (10)
Potential Risk (14)
At Risk (6)
122
124
126
128
130
132
134
136

FIG. 5

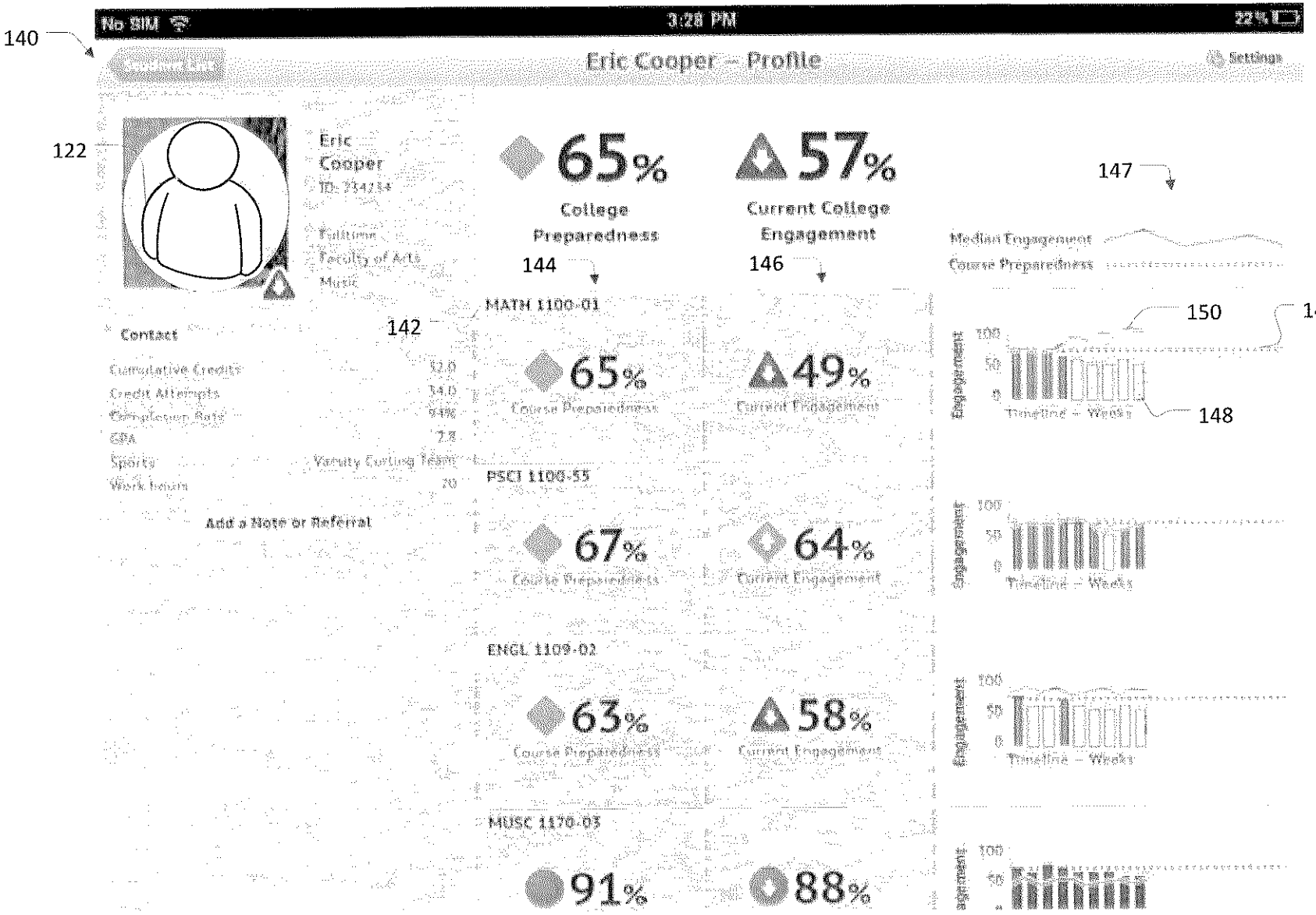
140
No SIM
3:28 PM
22%
Eric Cooper – Profile
Settings
122
Eric
Cooper
ID: 234234
Fulltime
Faculty of Arts
Music
142
Contact
Cumulative Credits 32.0
Credit Attempts 34.0
Completion Rate 94%
GPA 2.8
Sports Varsity Curling Team
Work hours 20
Add a Note or Referral
65%
College
Preparedness
57%
Current College
Engagement
144
146
147
Median Engagement
Course Preparedness
150
149
148
MATH 1100-01
65%
Course Preparedness
49%
Current Engagement
PSCI 1100-55
67%
Course Preparedness
64%
Current Engagement
ENGL 1109-02
63%
Course Preparedness
58%
Current Engagement
MUSC 1170-03
91%
88%
Timeline – Weeks

FIG. 6

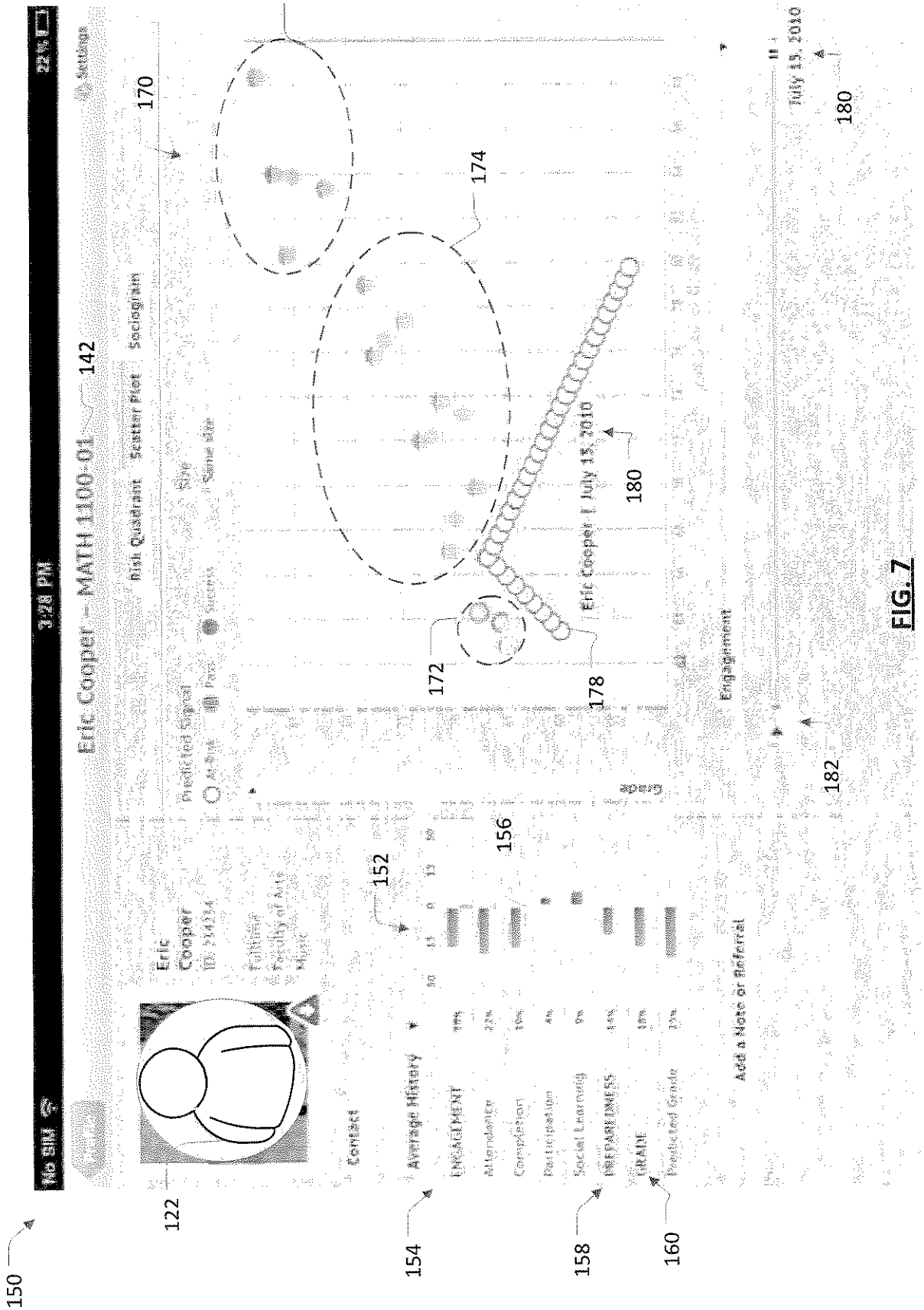
150
122
154
158
160
152
156
170
176
174
172
178
180
182
142
Eric Cooper – MATH 1100-01
Risk Quadrant
Scatter Plot
Sociogram
Predicted Signal
Engagement
Contact
Average History
ENGAGEMENT
Attendance
Completion
Participation
Social Learning
PREPAREDNESS
GRADE
Predicted Grade
Add a Note or Referral
Eric Cooper | July 15, 2010
July 15, 2010

FIG. 7

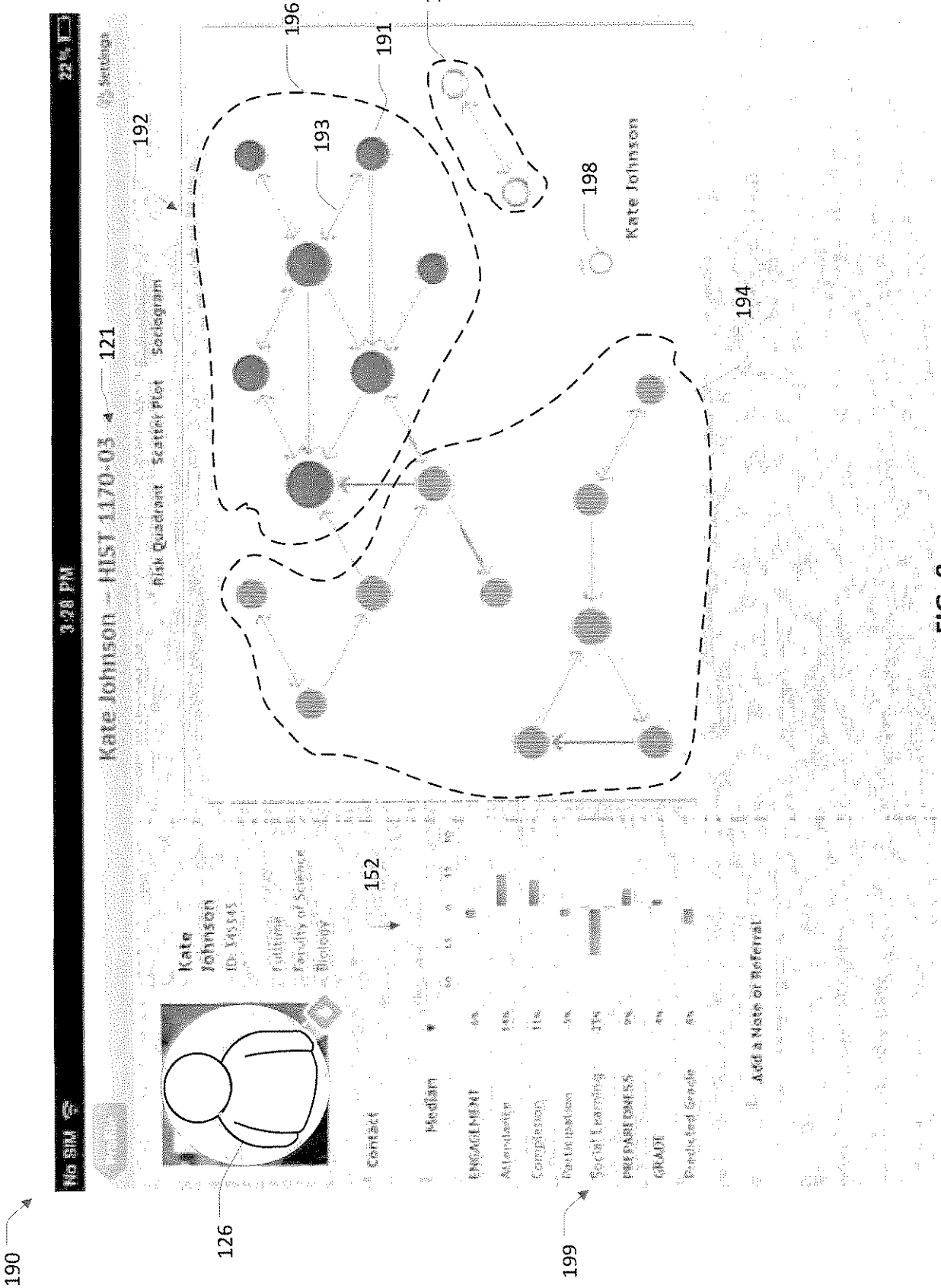
190
126
199
152
121
192
196
191
193
198
194
Kate Johnson – HIST 1170-03
Risk Quadrant
Scatter Plot
Sociogram
Kate Johnson
Contact
Median
ENGAGEMENT
Attendance
Completion
Participation
Social Learning
PREPAREDNESS
GRADE
Predicted Grade
Add a Note or Referral

FIG. 8

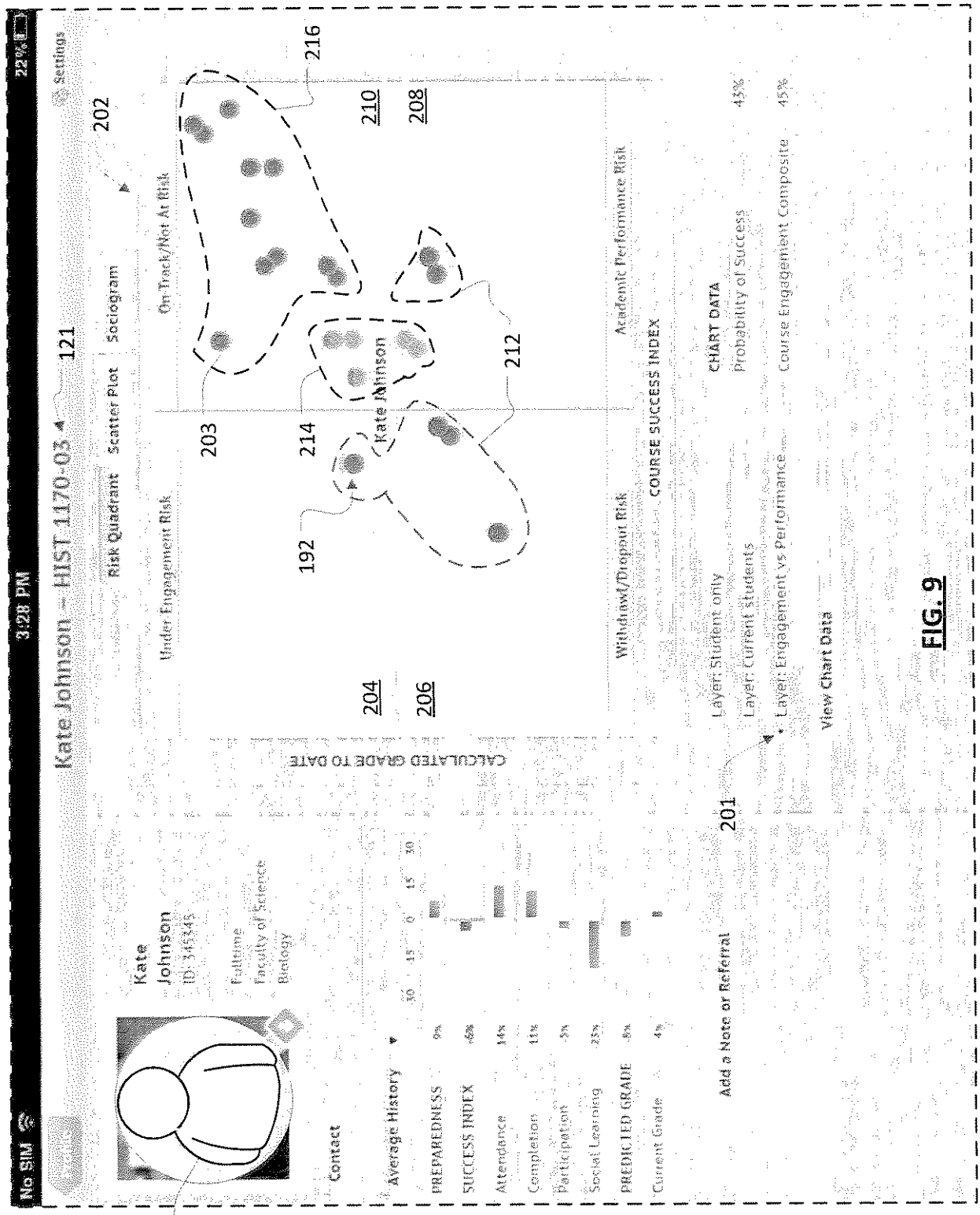
200
126
No SIM
3:28 PM
22%
Kate Johnson – HIST 1170-03
121
202
Settings
Risk Quadrant
Scatter Plot
Sociogram
Kate Johnson
ID 345345
Fulltime
Faculty of Science
Biology
Contact
Under Engagement Risk
On Track/Not At Risk
203
216
192
214
Kate Johnson
212
204
206
210
208
CALCULATED GRADE TO DATE
Average History
50 45 0 15 30
PREPAREDNESS 9%
SUCCESS INDEX 45%
Attendance 14%
Completion 11%
Participation 3%
Social Learning 23%
PREDICTED GRADE 8%
Current Grade 4%
Withdrawl/Dropout Risk
Academic Performance Risk
COURSE SUCCESS INDEX
Add a Note or Referral
201
Layer: Student only
Layer: Current Students
Layer: Engagement vs Performance
View Chart Data
CHART DATA
Probability of Success 43%
Course Engagement Composite 45%

FIG. 9

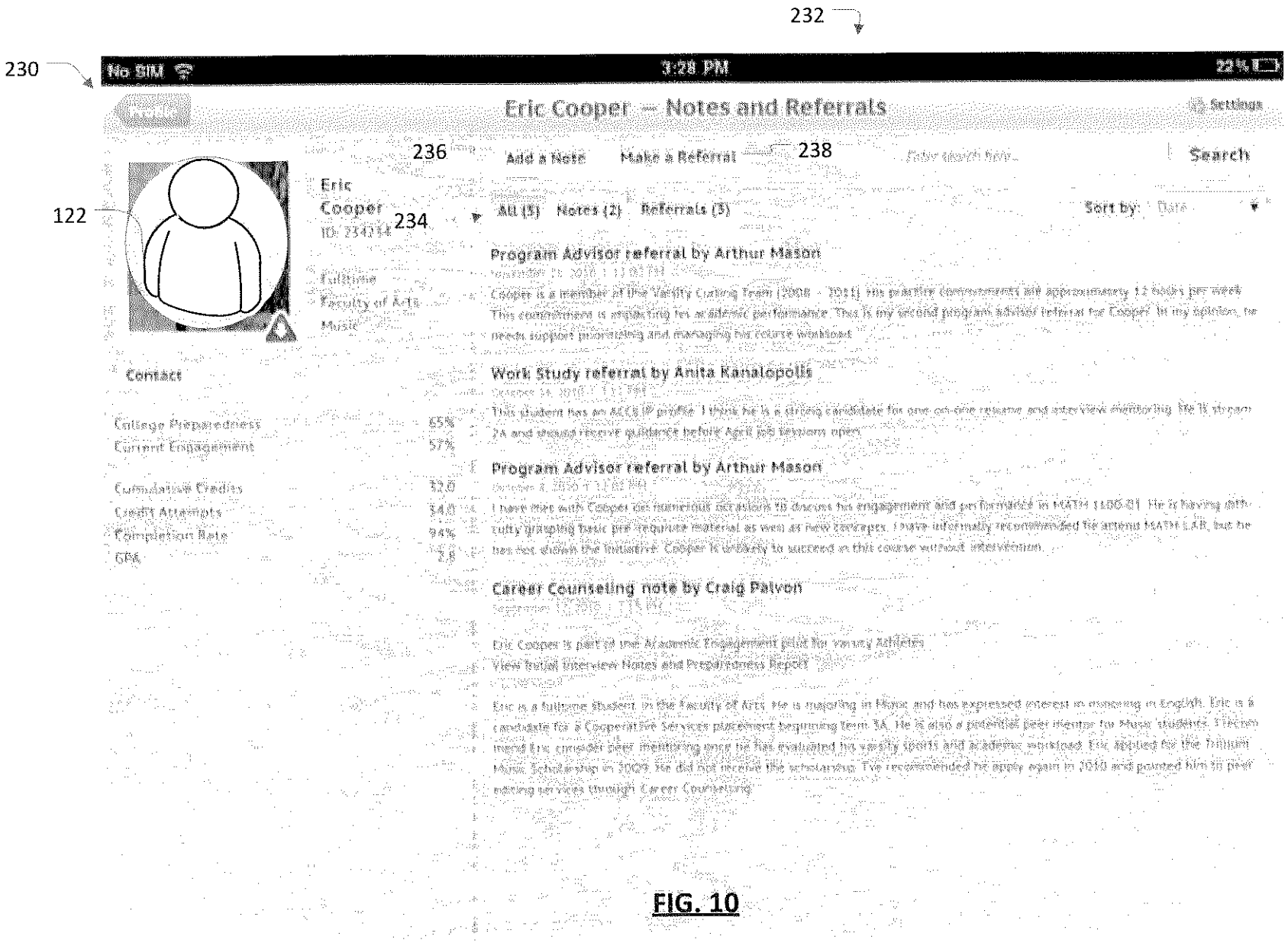
232
230
No SIM
3:28 PM
22%
Eric Cooper – Notes and Referrals
Settings
236
Add a Note
Make a Referral
238
Search
122
Eric
Cooper
ID: 234234
234
All (5)
Notes (2)
Referrals (3)
Sort by:
Date
Program Advisor referral by Arthur Mason
Work Study referral by Anita Kanalopolis
Program Advisor referral by Arthur Mason
Career Counseling note by Craig Palvon
Full time
Faculty of Arts
Music
Contact
College Preparedness
65%
Current Engagement
57%
Cumulative Credits
32.0
Credit Attempts
34.0
Completion Rate
94%
GPA
3.8

FIG. 10

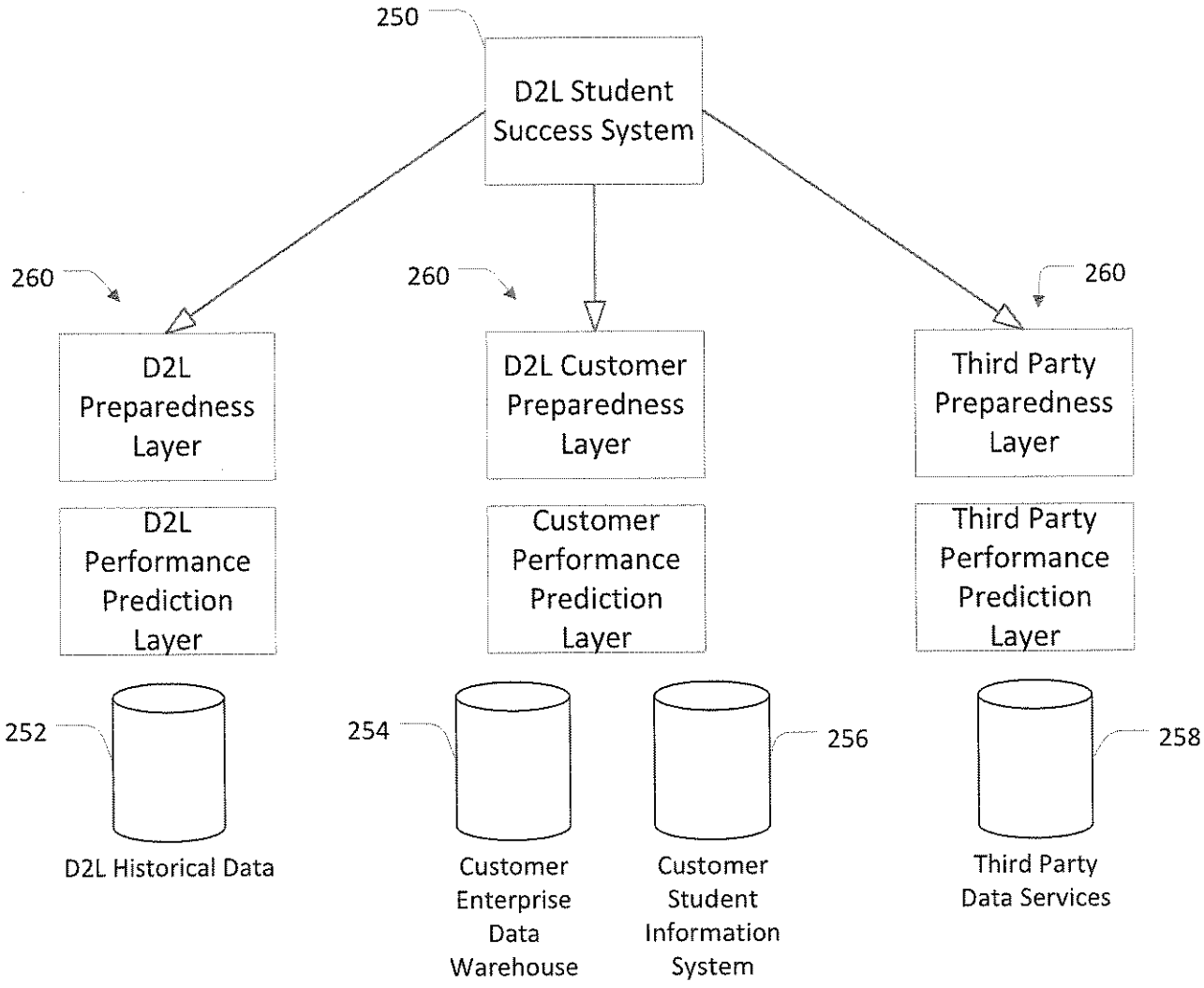
250
D2L Student Success System
260
260
260
D2L Preparedness Layer
D2L Customer Preparedness Layer
Third Party Preparedness Layer
D2L Performance Prediction Layer
Customer Performance Prediction Layer
Third Party Performance Prediction Layer
252
254
256
258
D2L Historical Data
Customer Enterprise Data Warehouse
Customer Student Information System
Third Party Data Services

FIG. 11

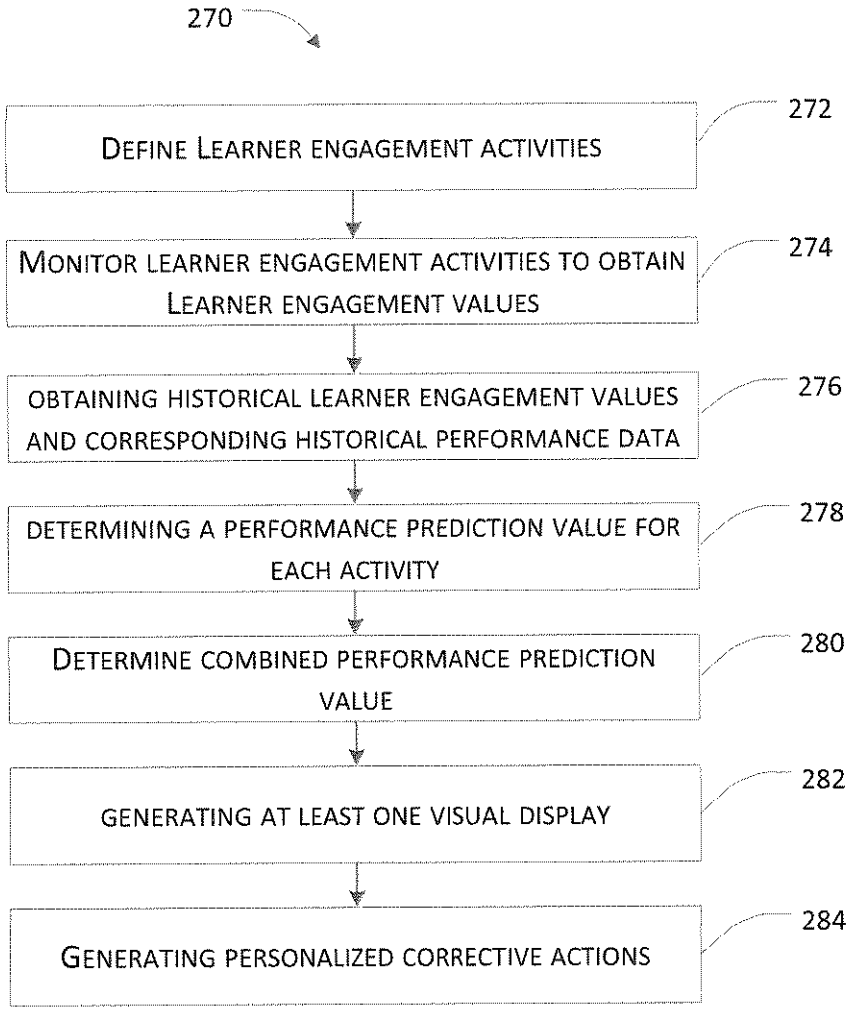
270
DEFINE LEARNER ENGAGEMENT ACTIVITIES
272
MONITOR LEARNER ENGAGEMENT ACTIVITIES TO OBTAIN LEARNER ENGAGEMENT VALUES
274
OBTAINING HISTORICAL LEARNER ENGAGEMENT VALUES AND CORRESPONDING HISTORICAL PERFORMANCE DATA
276
DETERMINING A PERFORMANCE PREDICTION VALUE FOR EACH ACTIVITY
278
DETERMINE COMBINED PERFORMANCE PREDICTION VALUE
280
GENERATING AT LEAST ONE VISUAL DISPLAY
282
GENERATING PERSONALIZED CORRECTIVE ACTIONS
284

FIG. 12

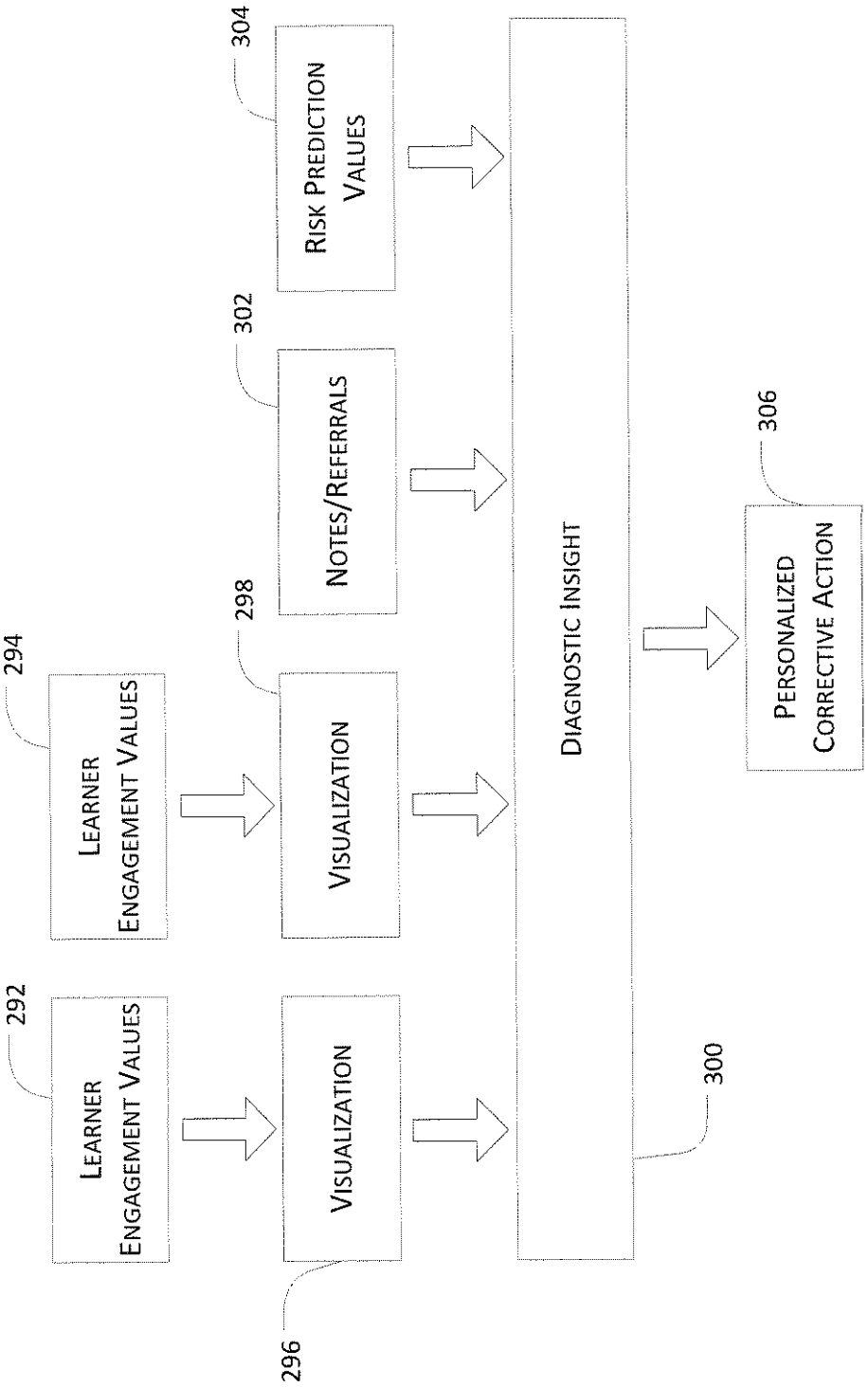
LEARNER ENGAGEMENT VALUES
292
LEARNER ENGAGEMENT VALUES
294
VISUALIZATION
296
VISUALIZATION
298
NOTES/REFERRALS
302
RISK PREDICTION VALUES
304
DIAGNOSTIC INSIGHT
300
PERSONALIZED CORRECTIVE ACTION
306

FIG. 13

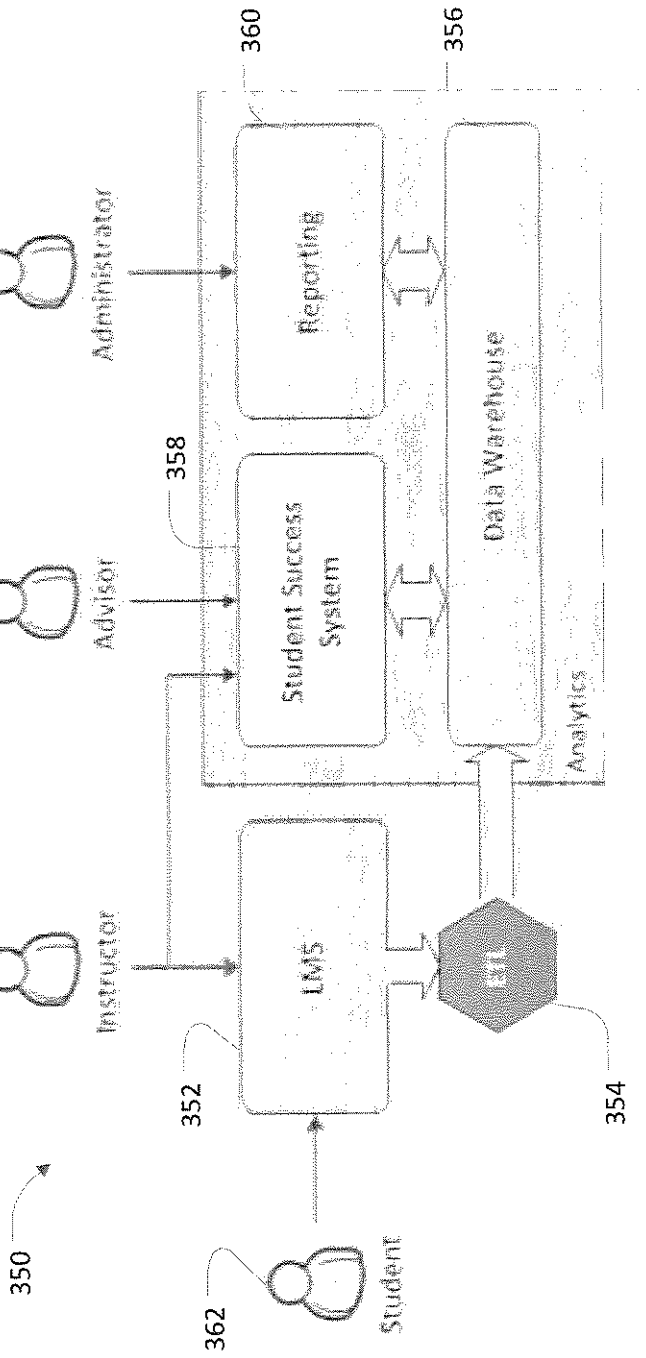
350
362
Student
352
LMS
354
ETL
364
Instructor
366
Advisor
368
Administrator
358
Student Success System
360
Reporting
356
Data Warehouse
Analytics

FIG. 14

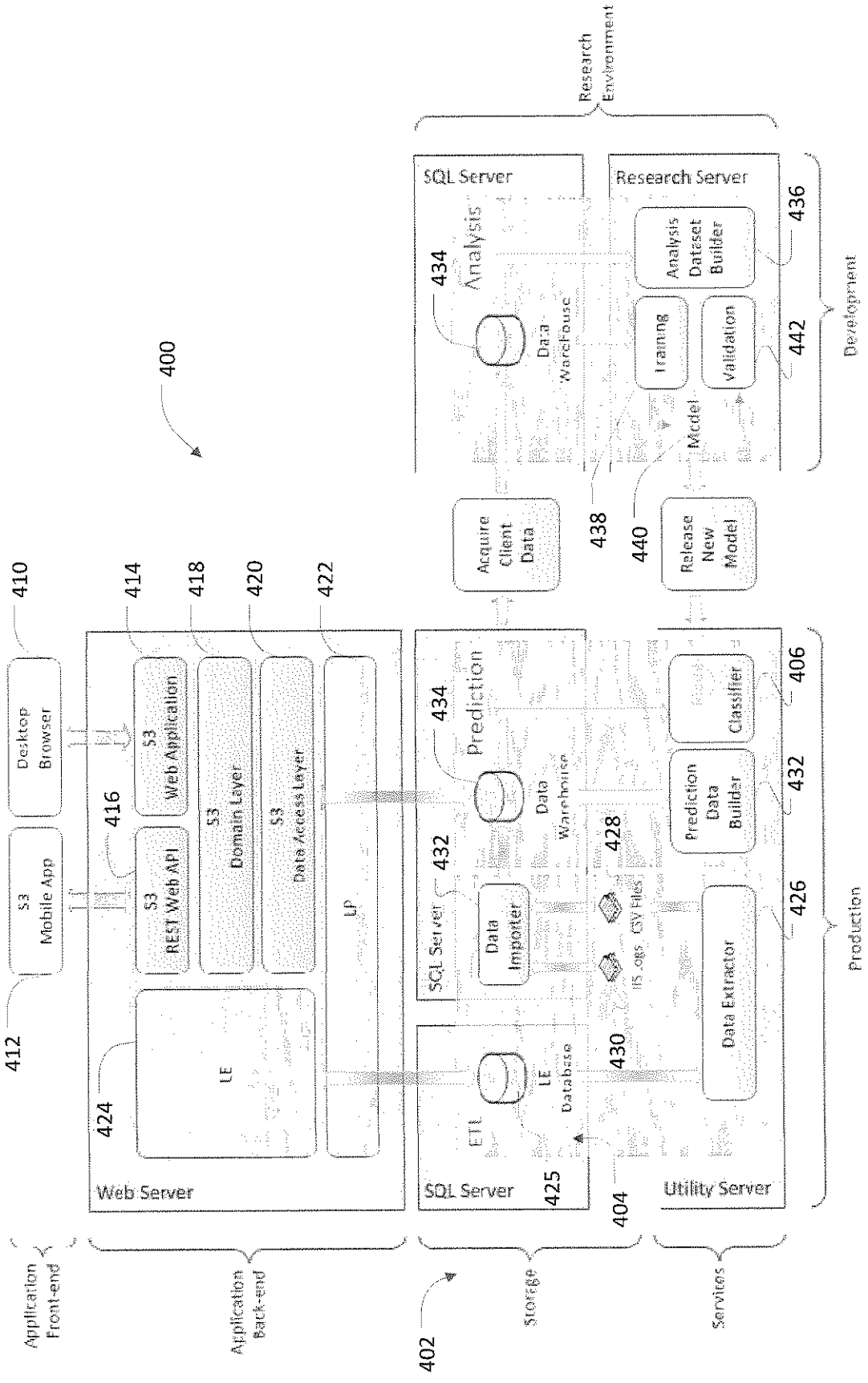
400
Research Environment
SQL Server
Research Server
434
Analysis
Data Warehouse
Analysis Dataset Builder
436
Training
Validation
442
Development
Model
438
440
Acquire Client Data
Release New Model
410
414
418
420
422
Desktop Browser
S3 Web Application
S3 Mobile App
S3 REST Web API
S3 Domain Layer
S3 Data Access Layer
LP
416
412
424
LE
Web Server
Prediction
434
Data Warehouse
SQL Server
Data Importer
432
428
CSV Files
IIS Logs
LE Database
ETL
430
SQL Server
425
404
Prediction Data Builder
Classifier
406
432
Data Extractor
426
Utility Server
Production
Application Front-end
Application Back-end
402
Storage
Services

FIG. 15

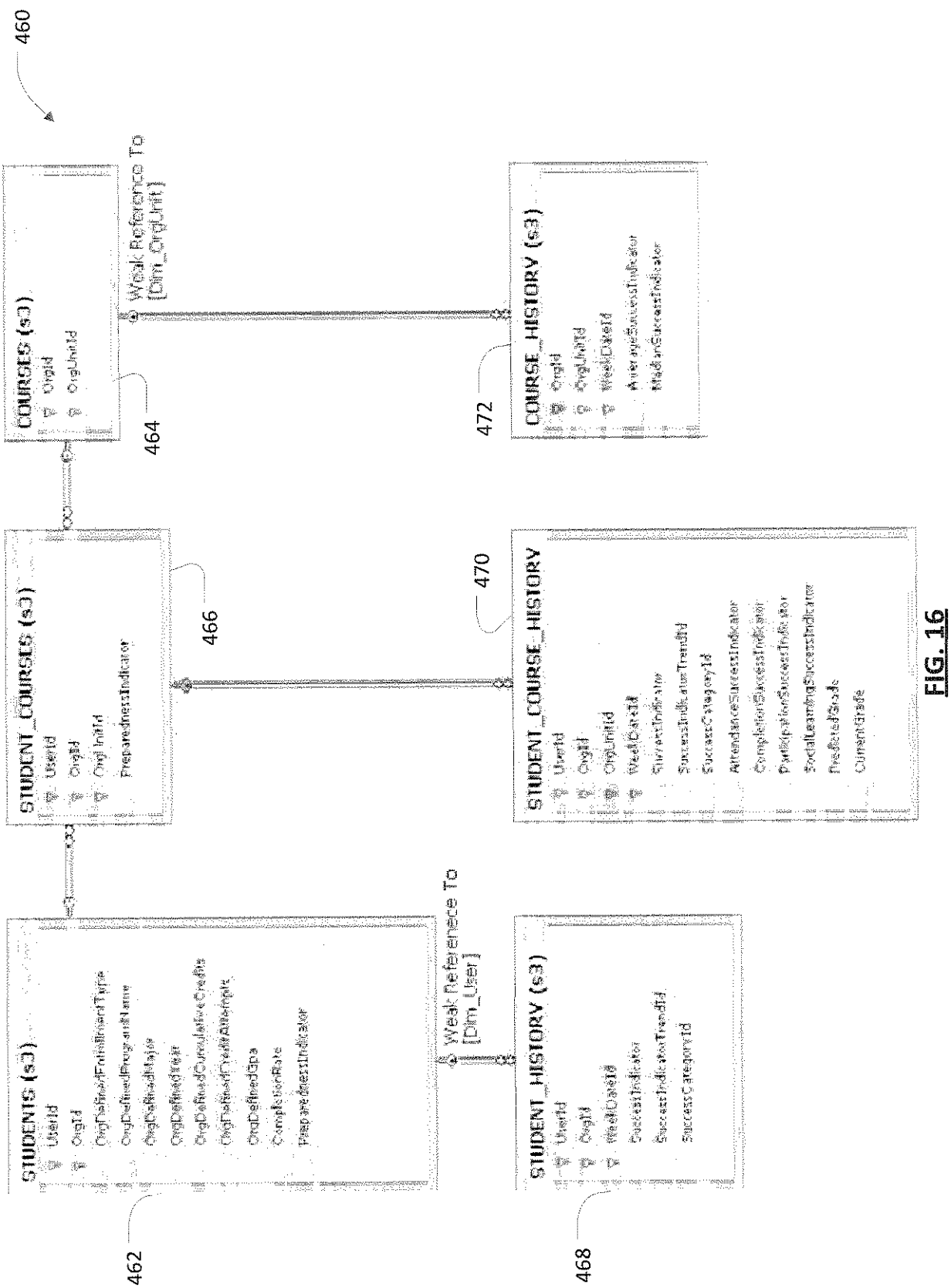
460
COURSES (s3)
OrgId
OrgUnitId
Weak Reference To
[Dim_OrgUnit]
464
COURSE_HISTORY (s3)
OrgId
OrgUnitId
WeekDateId
AverageSuccessIndicator
MedianSuccessIndicator
472
STUDENT_COURSES (s3)
UserId
OrgId
OrgUnitId
PreparednessIndicator
466
STUDENT_COURSE_HISTORY
UserId
OrgId
OrgUnitId
WeekDateId
SuccessIndicator
SuccessIndicatorTrendId
SuccessCategoryId
AttendanceSuccessIndicator
CompletionSuccessIndicator
ParticipationSuccessIndicator
SocialLearningSuccessIndicator
PredictedGrade
CurrentGrade
470
STUDENTS (s3)
UserId
OrgId
OrgDefinedFulfillmentType
OrgDefinedProgramName
OrgDefinedMajor
OrgDefinedYear
OrgDefinedCumulativeCredits
OrgDefinedCreditAttempts
OrgDefinedGpa
CompletionRate
PreparednessIndicator
Weak Reference To
[Dim_User]
462
STUDENT_HISTORY (s3)
UserId
OrgId
WeekDateId
SuccessIndicator
SuccessIndicatorTrendId
SuccessCategoryId
468

FIG. 16

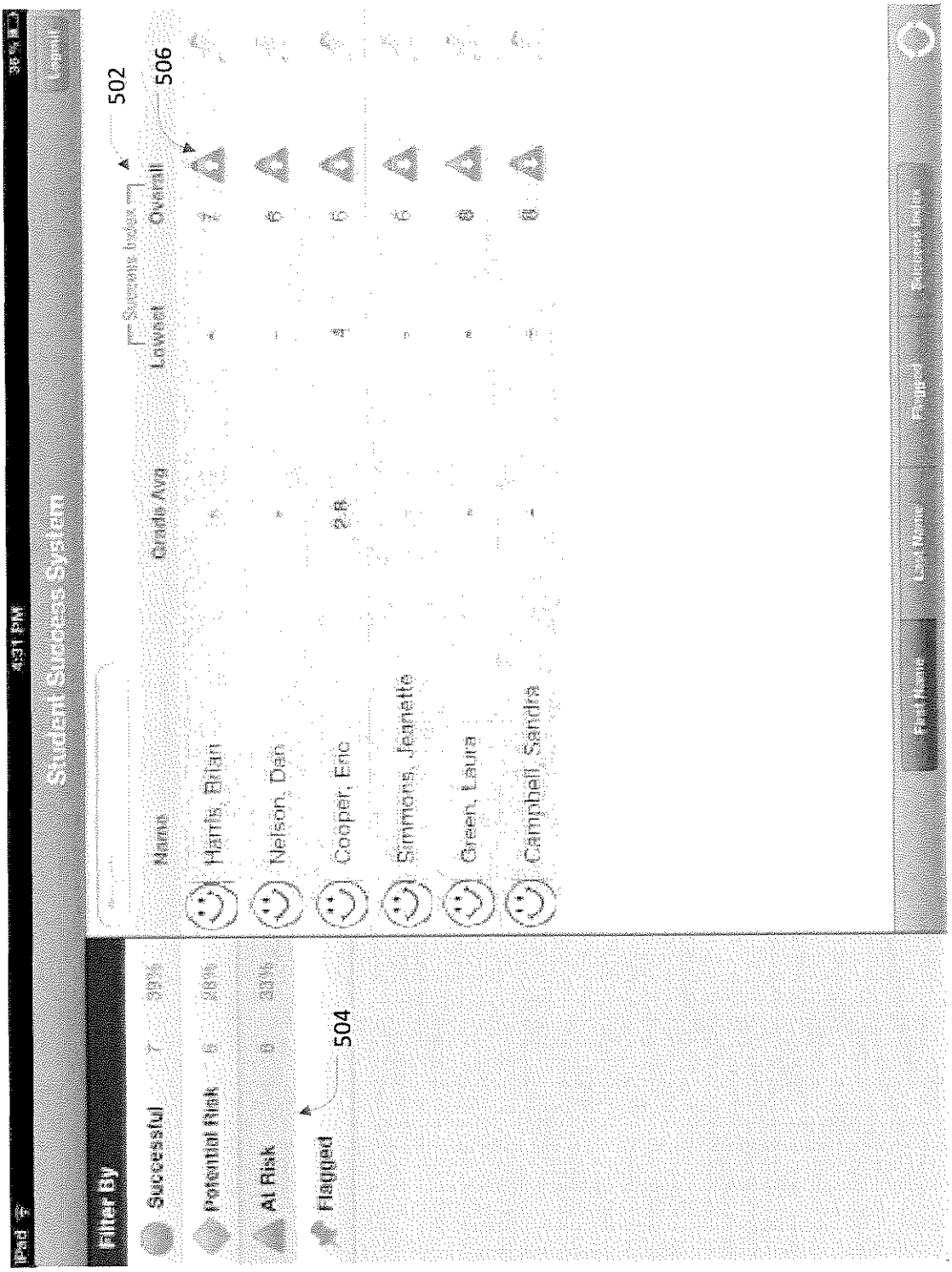
500
Student Success System
Filter By
Successful
Potential Risk
At Risk
Flagged
504
Name
Grade Avg
Overall
502
506
Harris, Brian
Nelson, Dan
Cooper, Eric
Simmons, Jeanette
Green, Laura
Campbell, Sandra

FIG. 17

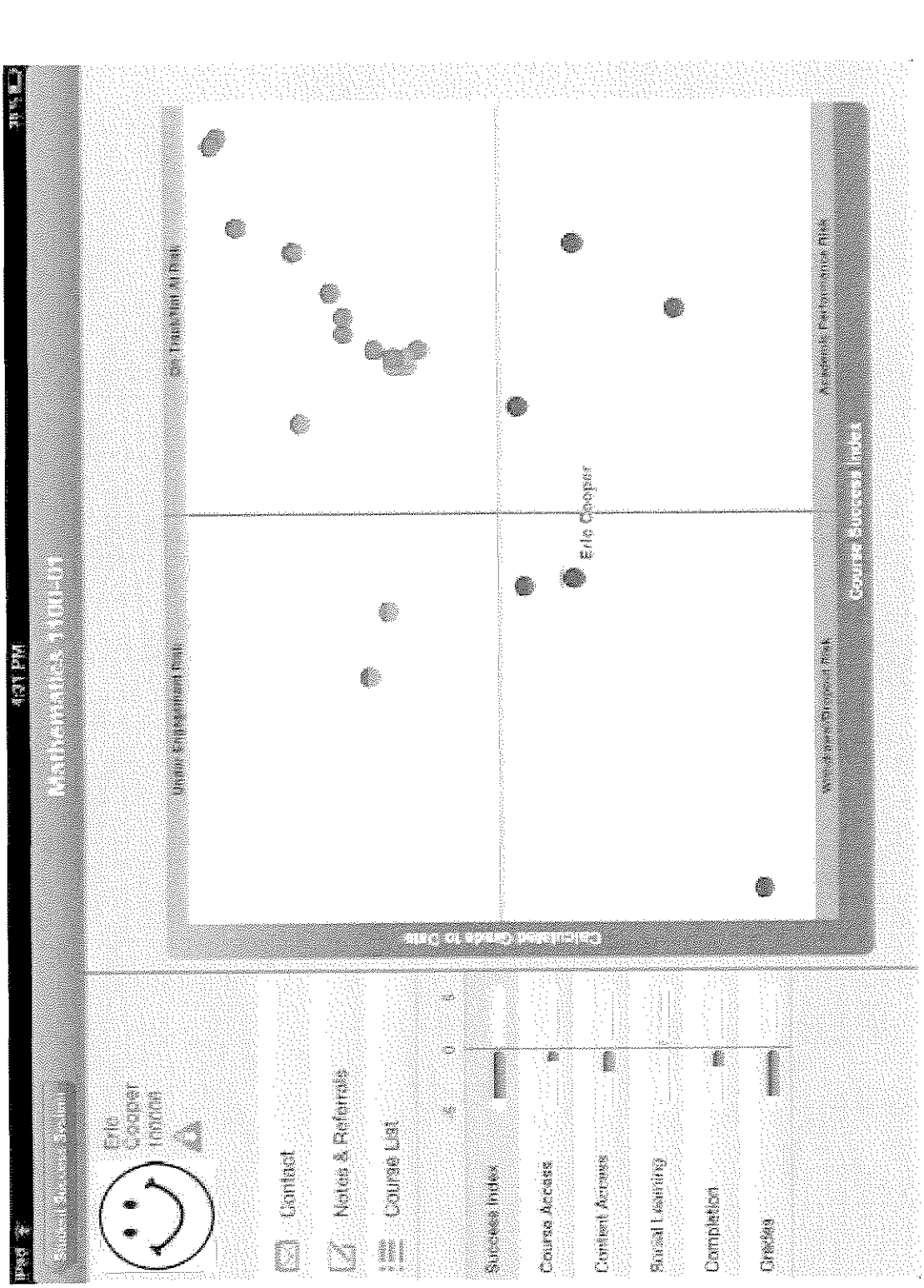
510
Eric Cooper
Contact
Notes & Referrals
Course List
Success Index
Course Access
Content Access
Social Learning
Completion
Grades
Eric Cooper

FIG. 18

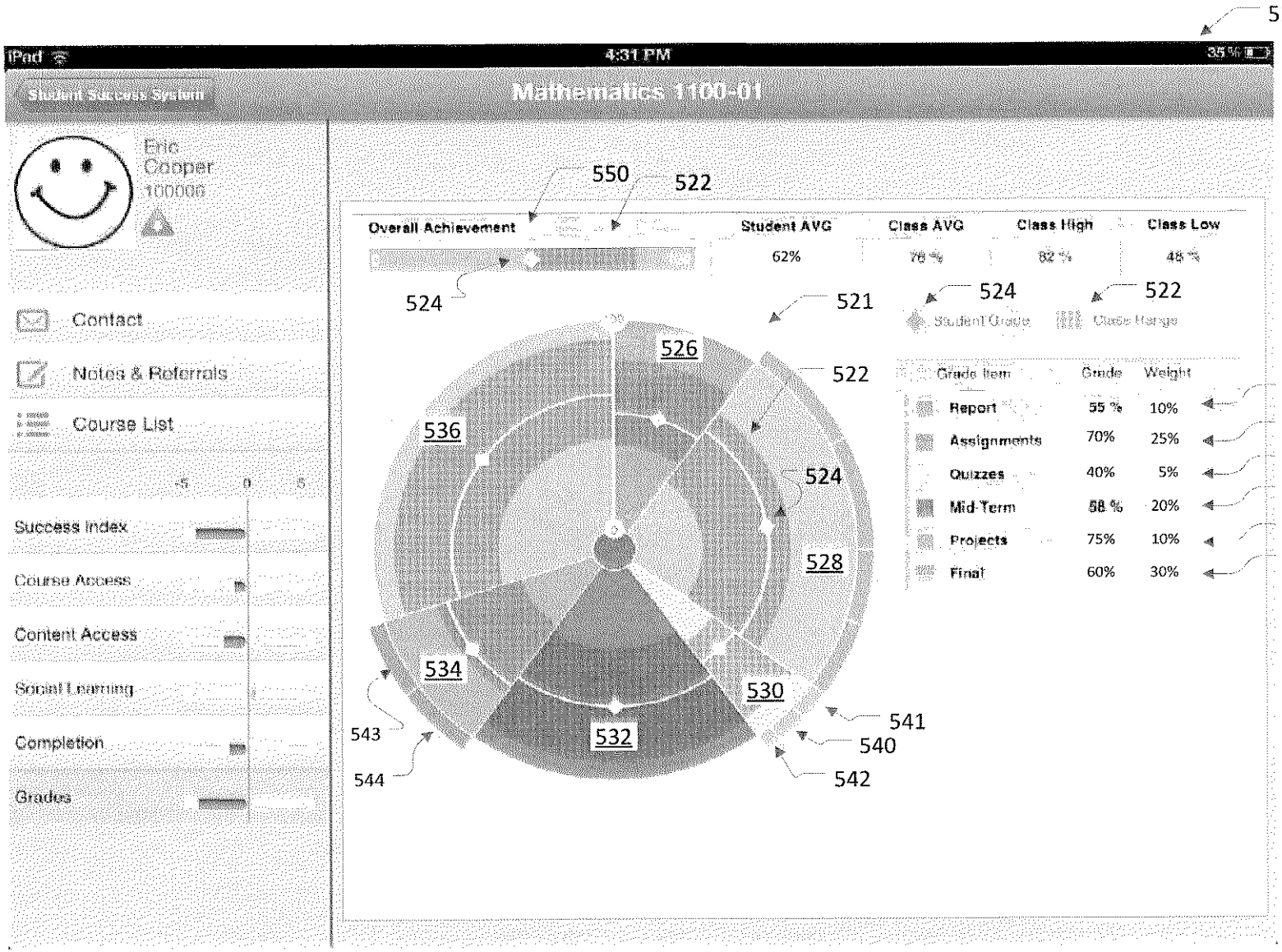
520
iPad
4:31 PM
35%
Student Success System
Mathematics 1100-01
Eric
Cooper
100000
Contact
Notes & Referrals
Course List
-5
0
5
Success Index
Course Access
Content Access
Social Learning
Completion
Grades
550
522
Overall Achievement
Student AVG
Class AVG
Class High
Class Low
62%
524
521
524
Student Grade
522
Class Range
526
522
536
524
528
534
530
532
543
544
541
540
542
Grade Item
Grade
Weight
Report
55 %
10%
Assignments
70%
25%
Quizzes
40%
5%
Mid-Term
58 %
20%
Projects
75%
10%
Final
60%
30%
526
528
530
532
534
536

FIG. 19

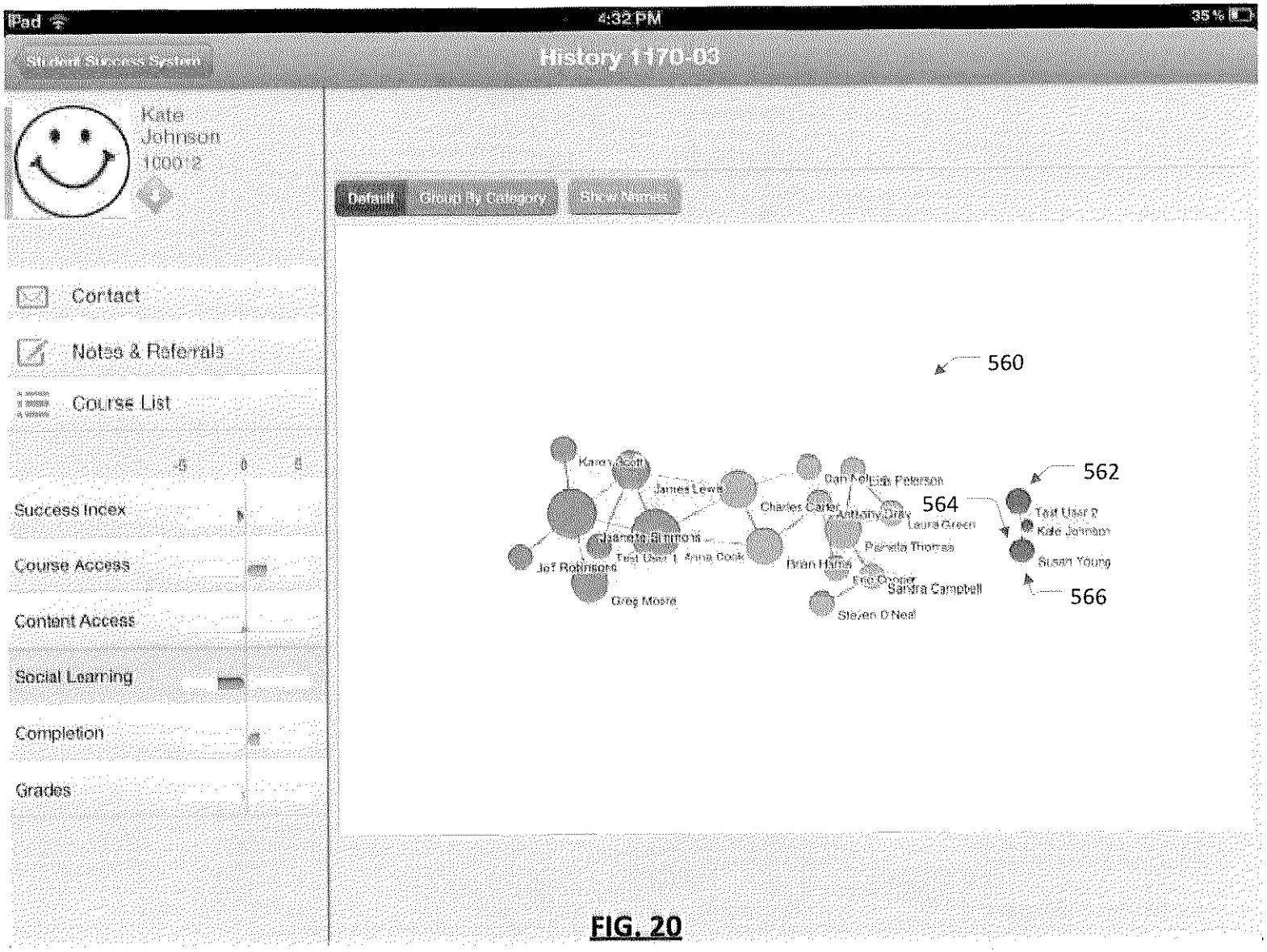
Pad
4:32 PM
35 %
Student Success System
History 1170-03
Kate Johnson
100012
Default
Group By Category
Show Names
Contact
Notes & Referrals
Course List
-5
0
5
Success Index
Course Access
Content Access
Social Learning
Completion
Grades
560
562
564
566
Karen Scott
James Lewis
Charles Carter
Anthony Gray
Laura Green
Test User 2
Kate Johnson
Susan Young
Pamela Thomas
Jeff Robinson
Test User 1
Anna Cook
Brian Hams
Sandra Campbell
Greg Moore
Steven O'Neal

FIG. 20