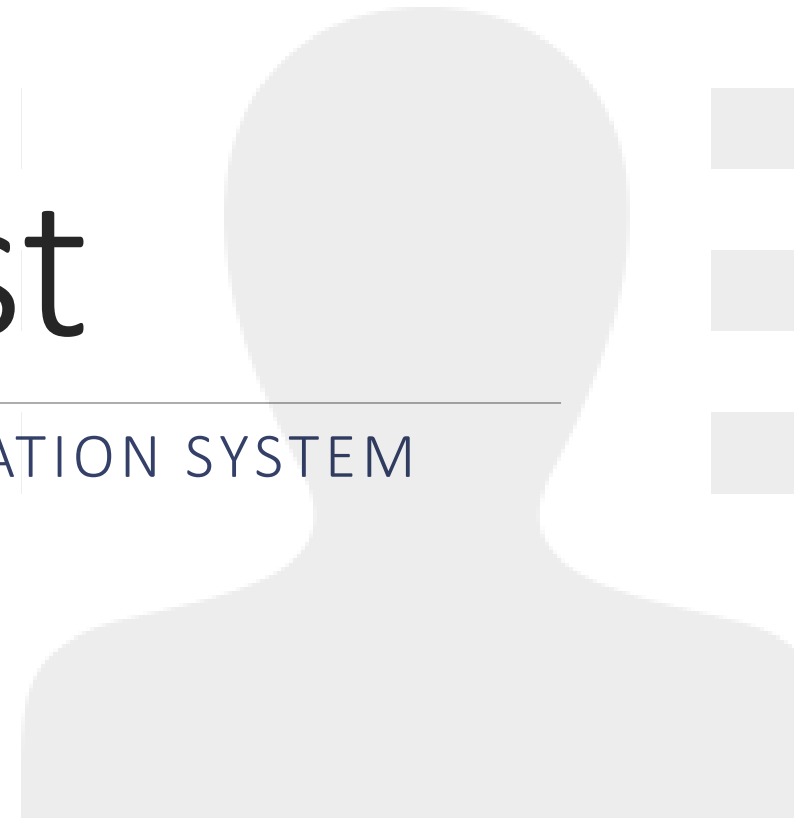


The Goldilocks Test

FINDING THE “JUST RIGHT” STUDENT AUTHENTICATION SYSTEM

LARA MABRY, MELISSA MESSINA, & DEVON CANCELLA, PHD
WCET CONFERENCE, OCTOBER 12, 2016



Presentation Roadmap

Updated requirements for verification of online student identity



UMKC authentication pilot design, criteria, and tools



Pilot testing, data, and outcomes



Conclusions and looking ahead

The Big Picture

The New Cheating Economy

By Brad Wolverton | August 28, 2016 ✓ PREMIUM



Fifteen credits were all he needed. That's what the school district in California where Adam Sambrano works as a career-guidance specialist required for a bump in pay. But when he saw the syllabus for a graduate course he'd enrolled in last year at Arizona State University, he knew he was in trouble.

Among the assignments was a 19-page paper, longer than anything he'd ever written. The idea of that much research worried Mr. Sambrano, who also spends time *s* Guard.

Before the class started, he enlisted the service of a tutor for \$1,000 — less than he was receiving for his job. Sambrano hired a

He transferred \$500 upfront, "From Adam for ASU," according to a receipt obtained by *The Chronicle*.

THE CHRONICLE
of Higher Education
Chronicle.com

www.chronicle.com/article/The-New-Cheating-Economy

“Culture of Cheating”

Study 1

73.6% of students surveyed felt that it was easier to cheat in an online class.

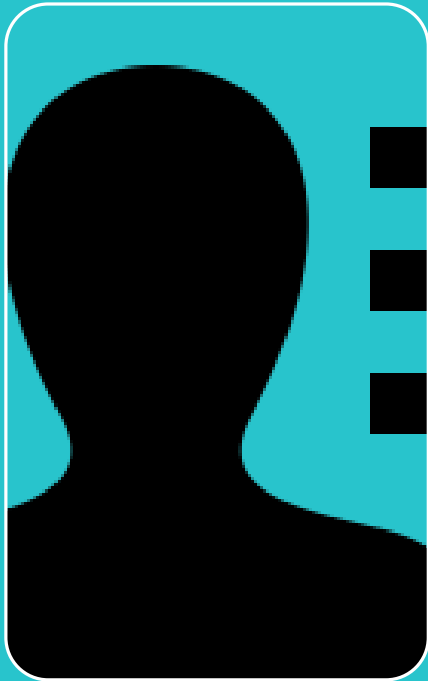
Study 2

21% students report engaging in one or more serious forms of test or exam cheating.

Study 3

In a study of 635 undergraduates and graduates, 32.7% admitted to cheating in an online class at some point while in college.

Student Aid Fraud Is Driving Identity Authentication



From 2009 to 2012, taxpayers lost **\$187 million** to online identity fraud.

Academic Cheating Defined

Purchasing a paper, assessment, or other assignment

Paying for someone to take a course or test for you

Using notes or other resources when not instructed to

Using someone else's work without attribution

Falsifying data

Copying someone else's answers

Using a false excuse to get a time extension

Legislative Requirement to Authenticate Online Learners

2008 HEOA
Reauthorization

U.S. Department of
Education

Regional Accrediting
Bodies

Postsecondary Education
Institutions



Part H of the Higher Education Opportunity Act (2008)



*the institution establishes that the student who registers in a distance education or correspondence education course or program **is the same student** who participates in and completes the program and receives the academic credit.*

Other Federal and C-RAC Requirements

Institutions
must also:

- Establish in writing that methods protect student privacy.
- Notify students at enrollment or registration of any additional costs.

Accepted Verification Methods

Secure logins and passwords

Proctored tests

Effective ID technologies and practices

- Knowledge-based authentication (KBA)
- Biometrics
- Web video recording

Pilot Setup

UMKC Quick Facts



Public urban research university

Main and Health Sciences campuses

Enrollment: 14,820

Entirely online students: 1,136

Students taking at least one online course: 3,327

Online programs: 11

Next HLC accreditation site visit: 2019

UMKC's Online Authentication Solution

Overall Considerations

- Central university implementation
- Authentication separate from assessments
- Integration with Blackboard, Shibboleth, PeopleSoft

Specific Criteria

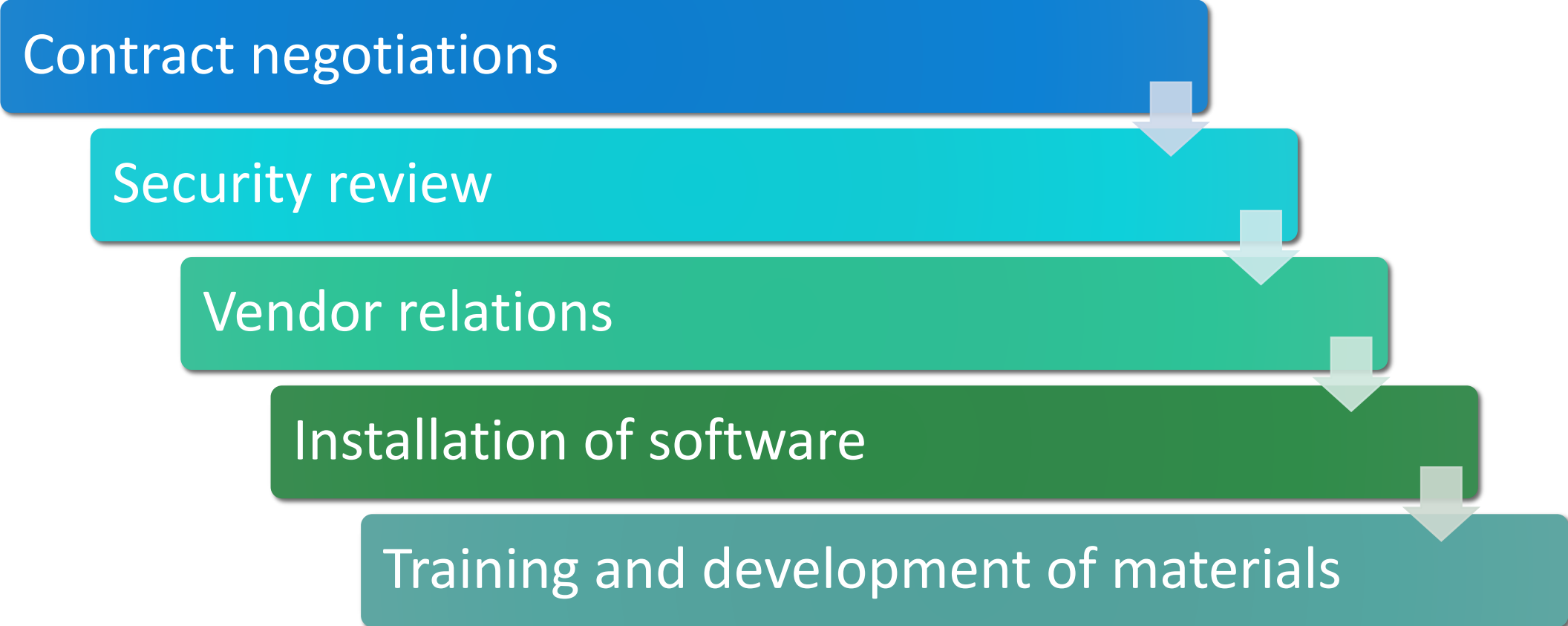
- Accuracy and security
- Integration, management, and scalability
- Persistent student profile
- Ease of student use
- Cost

Tool Review and Selection



Getting Started

Contract negotiations



```
graph TD; A[Contract negotiations] --> B[Security review]; B --> C[Vendor relations]; C --> D[Installation of software]; D --> E[Training and development of materials];
```

Security review

Vendor relations

Installation of software

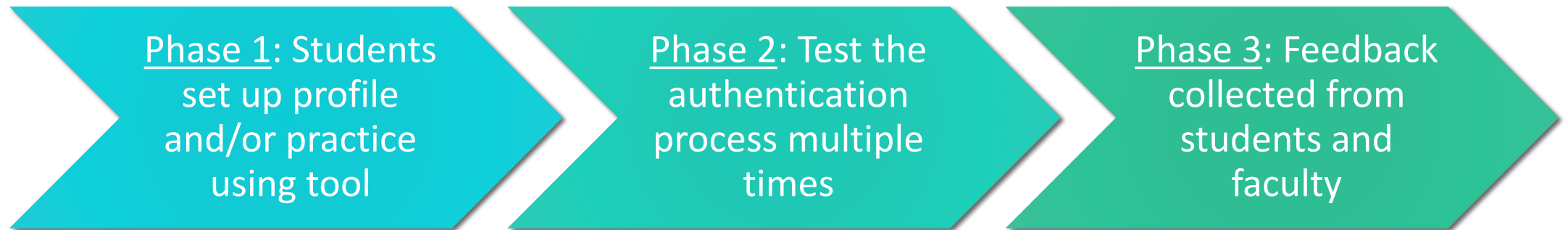
Training and development of materials

Pilot Structure

Evaluated 1 tool each term during 3 consecutive terms

Recruited faculty volunteers (ranged 130-320 students per pilot)

Ideal to have a variety of courses from different programs (averaged 6 courses per pilot)



Tool Evaluation

Evaluation of Accuracy – How Does the Verification Process Prove Identity?



Examity: Level AA - Auto-Authentication

Students take pictures of their ID and face, answer challenge questions, and enter a biometric keystroke signature to verify identity.



ProctorU: UCard

A live proctor checks the student's ID and takes control of the computer to take a photo to keep on file before the student answers challenge questions to validate his/her identity and provide a biometric keystroke.



BioSig-ID

Students create a unique hand-drawn biometric password that can be used to validate student identity each time a course is accessed, entering an exam, and/or at periodic points in the course using adaptive release.

Evaluation of Integration/Scalability

Student Support

NetTutor

ExamityUMKCSSO

Get Help

Tools

Static Link + E-mail Reminders

Biometric Signature ID

Course Intercept + Test Intercept

BIOMETRIC SIGNATURE ID™
* IDENTITY PROOFING SOLUTIONS

[Help](#) [About](#)

powered by



User:

Device: Mouse [Change...](#)

Validate your Identity

Instructions

- Draw the BioSig-ID™ password you created, then click Validate
- This password will be compared to your enrollment profile

Draw Pad

BioSig-ID v4.0

--	--	--	--

Show grid lines: ☒

Use invisible ink: ☐

Clear

Validate →

© 2016 - Biometric Signature ID - v4.0.6077



ProctorU Authentication 1

Availability: Item is no longer available. It was last available on Jun 19, 2016 11:59 PM.

Enabled: Review

Click the link above to complete your first ProctorU authentication, then return to this page and click the "Mark Reviewed" button to indicate that you have authenticated.

This link will be effective from Sun 06/12/16 12:00 AM CDT to Sun 06/19/16 11:45 PM CDT. Please complete your authentication during this period. Thank you.

Specific Authentication Links Placed in Weekly Folders

Evaluation of the Management of Tools

Overall Dashboard View

- Easy to use
- Aggregate view
- Individual student activity

Data Management

- Exported
- Filtered
- Sorted
- Reporting tools

Help Desk Support

- 24/7
- Tracked
- Communicated to institution

Examity Admin Dashboard

Dashboard Exam Status Courses/Exams Students Reports My Profile Authentication Status Logout									
Live Chat Email Support Phone Support: 855-EXAMITY									
 Authentication Status									
 Authentication Email  Blue Alert  Green No Violation									
 Yellow Possible Violation  Red Violation									
 									
Authentication ID	Student First Name	Student Last Name	Time stamp	Status	 Blue	 Green	 Yellow	 Red	View
			05/10/2016 2:41 PM	Authentication started	0	0	0	0	View 
			04/26/2016 1:34 PM	Authentication completed	0	1	0	0	View 
			04/14/2016 1:44 PM	Authentication completed	0	1	0	0	View 
			04/02/2016 5:49 PM	Authentication completed	0	1	0	0	View 
			04/01/2016 10:47 AM	Authentication completed	0	1	0	0	View 
			03/30/2016 9:50 PM	Authentication completed	0	0	1	0	View 
			03/30/2016 9:15 PM	Authentication completed	0	1	0	0	View 
			03/28/2016 11:55 PM	Authentication completed	0	0	1	0	View 

ProctorU Admin Dashboard

University of Missouri - Kansas City

Add New

DEPARTMENTS

TERMS

INSTRUCTORS

EXAMS

TEST-TAKERS

1

1

9

24

124

Exam

Find by Name or Keyword

Term

Find by Term

Type

All

Status

All

Instructor

Find by Instructor

Order

Most Recent

☐ Single User Exams

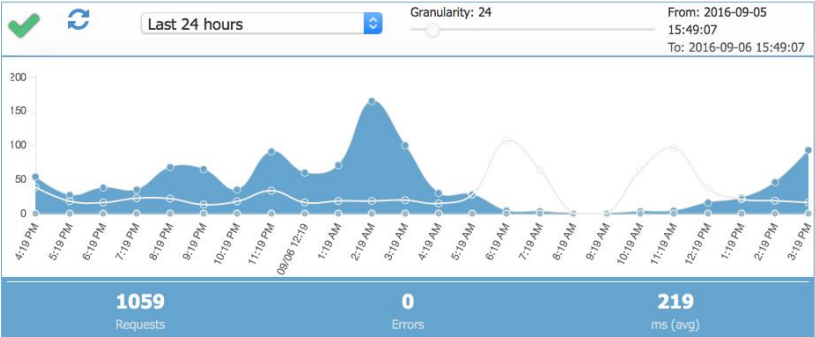
Reset

Search

Name	Term	Instructor	Type	Test-Takers	Status	Updated		
ENGLISH-242-AA-2			Ucard	2	Active	06/23/2016		
ENGLISH-242-AA-1			Ucard	1	Active	06/23/2016		
ART-HIST-110-AA-2			Ucard	3	Active	06/23/2016		
ART-HIST-110-AA-1			Ucard	5	Active	06/23/2016		

BioSig-ID Admin Dashboard

Server Activity



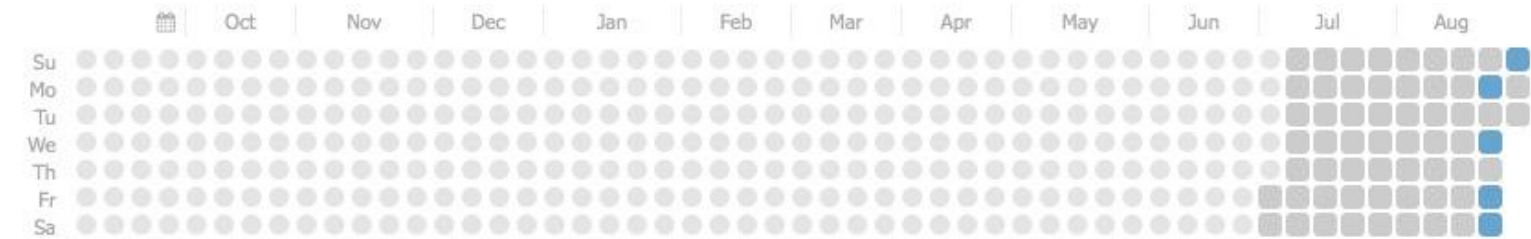
Server Requests Over Time

Sessions: Admins watching: UMKC.Lara

Removed AuthenticationComplete — Session Duration: 25.3s
10:50:13:205 CurrentState: AuthenticationComplete UserAction: Finish
10:50:13:220 Transition: Completed -> Unknown
10:49:48:510 CurrentState: AuthenticationPending UserAction: Authenticate/CSQ/Enroll
10:49:48:556 Transition: Repeat -> AuthenticationPending ("Csq:AnswersNotUnique")

Real-Time View of Session Activity

Overview



Validations

7x ✓ 2x ✗

BioSig™	6x ✓ (66%)	2x ✗ (10%)
Touch Screen	1x ✓ (57%)	1x ✗ (21%)
Mouse	5x ✓ (67%)	1x ✗ (0%)
ClickID™	1x ✓ (86%)	0x ✗

(Re-)Enrollments

9x ✓ 0x ✗

BioSig™	6x ✓ (83%)	0x ✗
Touch Screen	3x ✓ (85%)	0x ✗
Mouse	3x ✓ (81%)	0x ✗
ClickID™	3x ✓ (94%)	0x ✗

Resets

0x ✓ 0x ✗

Active in

1. PSYCH 5521 0001- Advanced Social Psy

Last 7 days

Last 60 days

Last 6 months

Last year

Specific Student Activity

Sessions

Last 7 days

9/4/2016, Sunday 2 sessions

3:05 PM

Shawnee, KS, United States

Win10 - FireFox v47

PSYCH 5521 0001- Advanced Social Psy

BioSig™ Validate

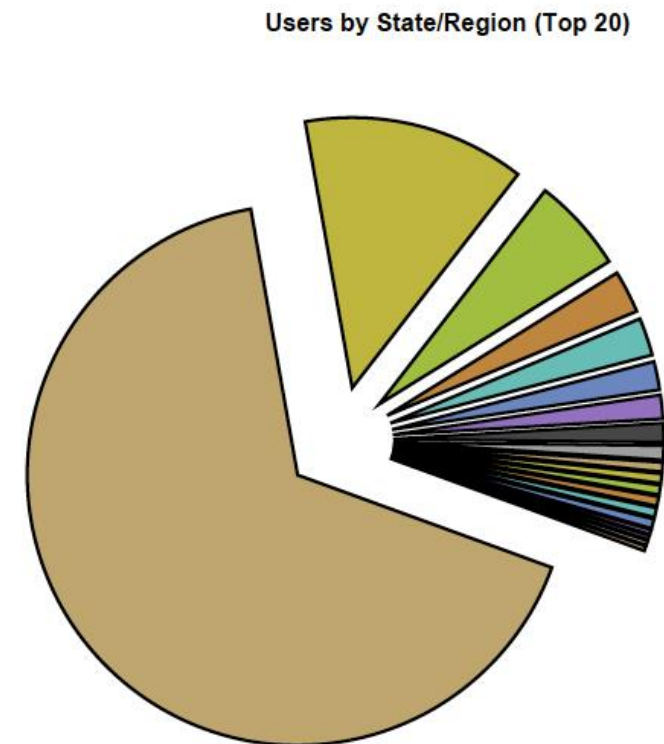
Mouse 1x ✓ (71%)

BioSig-ID Reports

Student	Th	Fr	Sa	Su
Blackboard	1	2	3	4
UMKC				
UMKC-NURSE481-0002-45604-FS2016 (33 students)				
	•	✓	•	•
	✓	•	✓	•
	•	•	✦	•
	•	✦	✓	•
	•	☑	✦	•
	•	✓	•	•
	✦	•	•	•
	•	•	•	✓

Student Reports Sent to Faculty Weekly

Partner: Blackboard	IPs	Users	Avg.
Account: UMKC	373	308	1.257
United States	373	308	1.257



IP Address and Location Checks

MO	- 236
KS	- 47
Unknown	- 20
GA	- 9
CA	- 8
IL	- 6
IA	- 5
CO	- 4
MI	- 3
OH	- 2
TN	- 2
AL	- 2
TX	- 2
OK	- 2
FL	- 2
NV	- 1
MN	- 1
WY	- 1
AE	- 1

Users by Region

MO	236
KS	47
Unknown	20
GA	9
CA	8
IL	6
IA	5
CO	4
MI	3
OH	2
TN	2
AL	2
TX	2
OK	2
FL	2
NV	1
MN	1
WY	1
AE	1

Ease of Student Use

Persistent student profile

Student survey

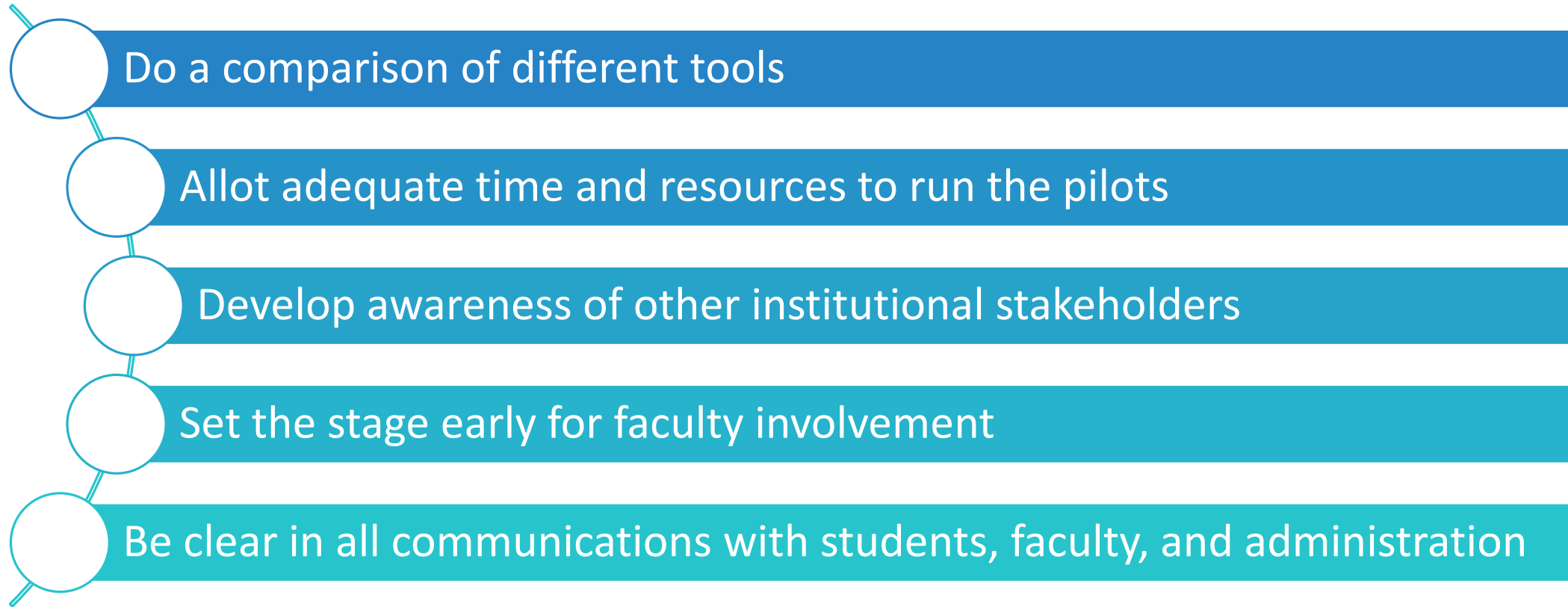
Talk with the faculty

Keep in mind student concerns for privacy

Pilot Results

Criteria	BioSig-ID	Examity	ProctorU
Accuracy and Security			
Integration, Management, Support			
So, What Is the “Just Right” Solution?			
			
Ease of Student Use			
Cost			

Lessons Learned

- 
- Do a comparison of different tools
 - Allot adequate time and resources to run the pilots
 - Develop awareness of other institutional stakeholders
 - Set the stage early for faculty involvement
 - Be clear in all communications with students, faculty, and administration

Challenges Ahead

Policy development

- Related to required use of authentication tool, monitoring, disciplinary measures, etc.

Revisions to existing honor code

- Language addressing online cheating and possible penalty for violations

Final tool selection

- Evolving tools

Deployment

- Scalability



References

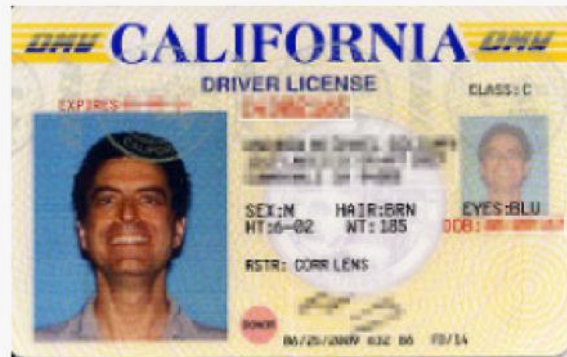
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Appendix Slides

RESULTS OF PILOTS

[Dashboard](#)[Exam Status](#)[Courses/Exams](#)[Students](#)[Reports](#)[My Profile](#)[Authentication Status](#)[Logout](#)[Live Chat](#)[Email Support](#)[Phone Support: 855-EXAMITY](#)

Profile Image

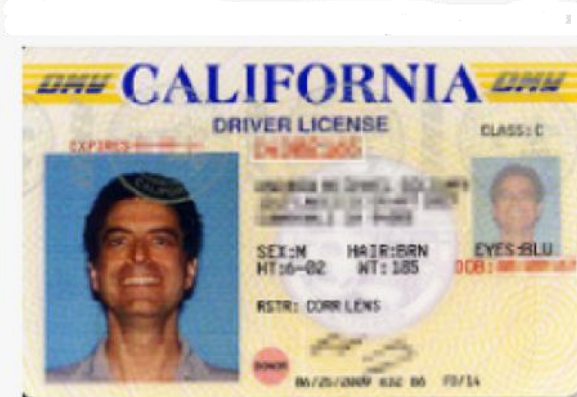


examisNAP ®



1/27/2016 5:39:31 AM

examisNAP ®



1/27/2016 5:39:51 AM

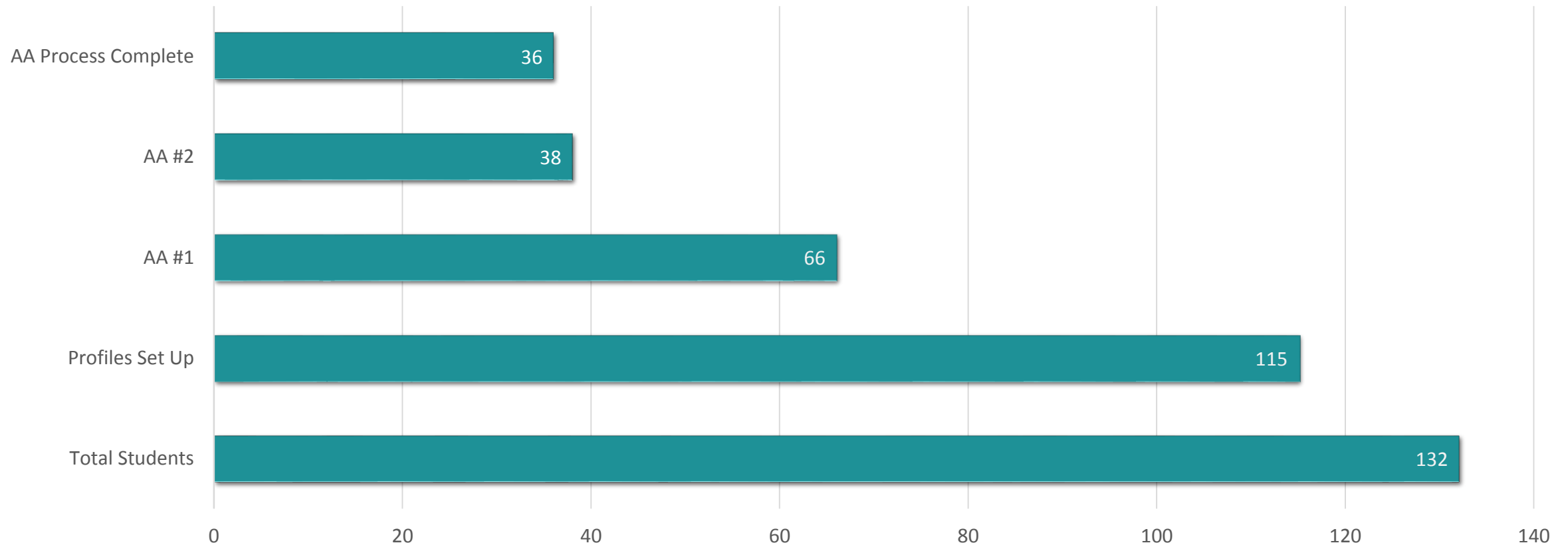
examisKEY ® : 64 %

Flag	Comments	Added By	Added On
 Green	Authentication completed.	Examity System	1/27/2016 5:40:08 AM

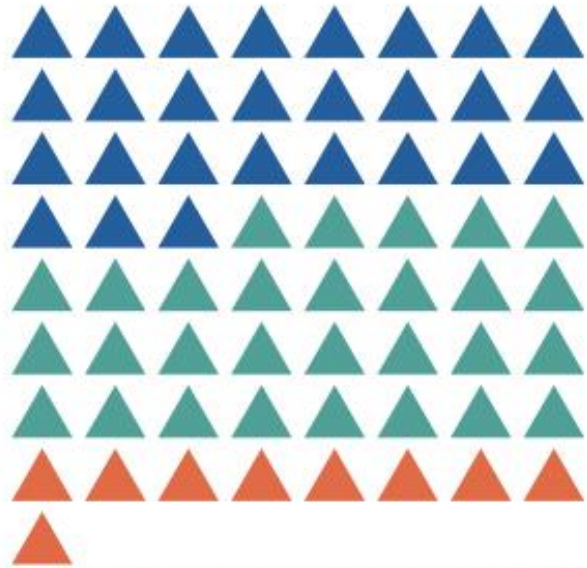
[Back](#)

Examity: Pilot Results

Total Students Completing Examity Pilot Authentication Process

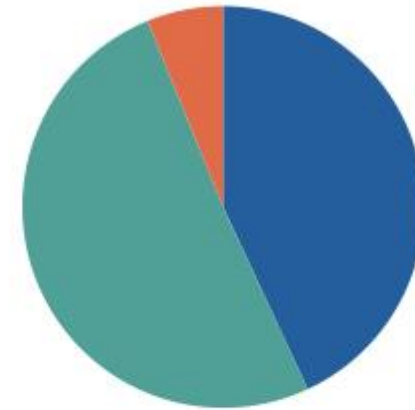


Examity: Survey Results (50% response rate)



■ Very Confident ■ Somewhat Confident ■ Not Confident

Question: How confident are you that the process was effective in establishing your identity?



■ Very Easy(43.08%) ■ Somewhat Easy(50.77%)
■ Not Easy(6.15%)

Question: How easy was the Examity enrollment and validation process?



User

User
Institution
User ID
Phone
Email
City
Time Zone
Status



Session

Type
Exam Term
Session Status
Appointment ...
Exam Start
Actual Start
Actual End
Exam Duration
Appointment ID
Session ID
Office
Exam Contact
Email:
Phone:

Authentication Methods

Type	Max Attempts	Attempted	Status
Keystroke	1	1	PASSED
Challenge Questions	1	1	PASSED

Timeline

DURATION	NOTES	ALERTS
5 Minutes	0 Comments	0 Incidents

- 2:11pm CDT on Jul 6, 2016

Appointment finished by
- 2:11pm CDT on Jul 6, 2016

Fight path step completed by

Thank You
- 2:10pm CDT on Jul 6, 2016

Fight path step completed by

Administer Keystroke Challenge
- 2:10pm CDT on Jul 6, 2016

Fight path step completed by

Administer Challenge Questions
- 2:09pm CDT on Jul 6, 2016

Fight path step completed by

Authentication Instructions
- 2:09pm CDT on Jul 6, 2016

Fight path step completed by

Authentication Profile
- 2:08pm CDT on Jul 6, 2016

Verification passed by

Idology authentication method
- 2:08pm CDT on Jul 6, 2016

Verification passed by

KeyTrac authentication method
- 2:07pm CDT on Jul 6, 2016

Fight path step completed by

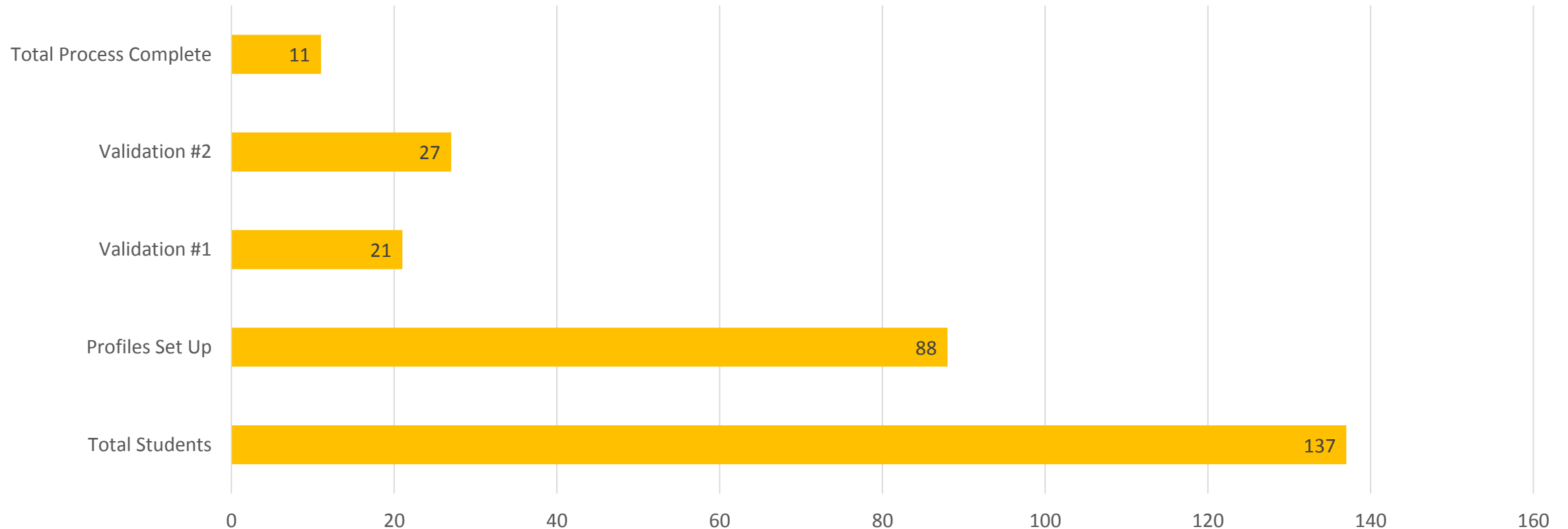
Test-Taker Clicks Authentication Button
- 2:06pm CDT on Jul 6, 2016

Fight path step completed by

Unlock Authentication

ProctorU: Pilot Results

Total Students Completing ProctorU Pilot Authentication Process

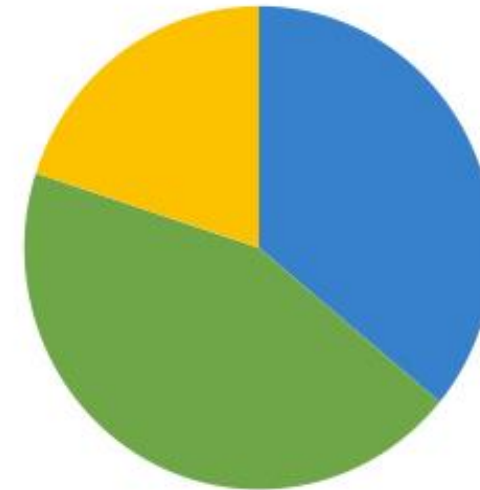


ProctorU: Survey Results (58% response rate)



Very Confident Somewhat Confident Not Confident

Question: How confident are you that the process was effective in establishing your identity?



Very Easy(36%) Somewhat Easy(44%) Not Easy(20%)

Question: How easy was the Exami enrollment and validation process?



ART-HIST 110 0001- Intro
To Hist of Art FS2016

Home Page

Announcements

Getting Started

Syllabus

BioSig-ID™ Enrollment

Week by Week

Art History eText

My Groups

Visual Analysis Paper

Museum Tour

Extra Credit

Q&A Forum

Tools

Get Help

COURSE MANAGEMENT

Control Panel

Files →

Course Tools

Evaluation →

Grade Center →

Users and Groups

Customization →

Packages and Utilities →

Help

Quick Unenroll

BioSig-ID™ Enrollment



BioSig UMKC Help Desk

Please access the UMKC BioSig support website to find directions on resetting your BioSig-ID password or to submit a support ticket request.



BioSig-ID™ Enrollment Information

As part of our initiative to improve student success and academic integrity, all on-line students are required to verify their student identity. Federal regulations require that all institutions must verify that the student who registers in an on-line learning course is the same student who participates in and completes the course.

As an on-line student, you will be asked to create a biometric password using a tool called Biometric Signature ID (BioSig-ID™). This password cannot be replicated by someone else.

You will be asked at various points throughout the course to validate your identity. Look for the BioSig-ID™ image  in your weekly learning content or when you are prompted automatically.

Please Note: All BioSig-ID™ activity takes place in the Blackboard course/s.

BioSig-ID™ Enrollment Process:

1. Watch the process explained visually in the following video



Optionally view the [BioSig-ID™ enrollment video](#) in a new tab.