

SHERPA



Abstract

SHERPA will transform the manner in which educators address the learning needs of their students, assisting them to provide the right resources at the right time to help them succeed.

SHERPA will function as an intelligent pedagogical assistant, leveraging quantified self, social and learning analytics data to provide a continuous feedback loop between students and instructors. Information will be synthesized into teaching and learning dashboards, generating actionable personalized recommendations to increase student success.

Need/Significance

As tuition costs soar, higher education organizations are under pressure to increase access to affordable programs. Online or large enrollment courses are among the solutions employed. However, instructors do not always have adequate visibility into at risk students. In addition, they are not always provided with appropriate strategies to strengthen instructional delivery for these populations.

In order to improve student outcomes and institutional retention, instructors can benefit from holistic insights into themselves and their learners, leveraging mind/body connections to increase the quality of the educational experience. An application, which can aggregate the academic, as well as opt-in social and health-oriented data, can be the technical conduit to inform insights, otherwise not possible.

Visit the SHERPA prototype

- Public view: www.sherpa.zone
- Faculty view: www.sherpa.zone/diaz





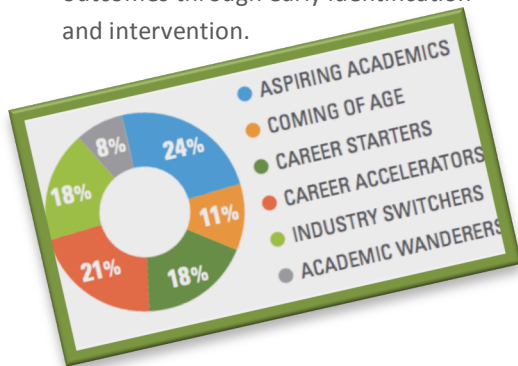
Value

Who will benefit and how?

Ultimately, higher education seeks to ensure student success. The SHERPA system delivers success to the student by empowering the instructor.

Instructors will benefit through improved skills and abilities in their teaching and the ability to respond faster when provided with more timely and relevant data and analytics.

Students will benefit by having a learning environment that is responsive to their needs to increase cognitive, interpersonal, and intrapersonal outcomes through early identification and intervention.



Finally, **institutions** will benefit by effectively and efficiently serving all learner segments by understanding the “whole student” leading to better completion statistics and providing a safer and richer environment for students through deeper understanding of non-cognitive attributes.

What is “the job to be done”?

Universities attempt to provide a consistent quality learning experience to all segments of the learner population. Examination of analytics using data currently available has demonstrated data from student behavior within the LMS combined with early grades can be used to identify students at-risk for failure (Smith, Lange & Huston, 2012)

SHERPA aims to build on these outcomes and increase the types of data being analyzed. We will pull data from new technologies and measure factors not previously used to inform instruction. In addition to traditional learning analytics, SHERPA will provide the opportunity for instructors and learners to opt-in to sharing their fitness and social data, as well as the GRIT scale, known to predict perseverance (Eskreis-Winkler, L. Duckworth, A.L., Shulman, E, Beal, S. (2014).

Through SHERPA, instructors will pursue targeted professional development and action items, better preparing them to meet diverse student needs. SHERPA will recognize trends so the faculty can focus on delivering student learning. We anticipate a more personalized student experience will lead to greater student satisfaction and success.

How will this project align to stakeholder needs?

We know that students learn differently and have different motivations and constraints when it comes to learning. Instructors can be challenged to effectively serve diverse student needs with current teaching practices. Learner activity, self-assessments and predictive modeling will drive action items, leading instructors to pursue tangible action items for at-risk students and professional development activities that benefit the instructor and his/her students alike.



SHERPA will meet the learning needs of the student by empowering faculty with the tools needed - both just-in-time recommendations as well as follow-on development plans.

Institutions will be empowered to make high quality programs more accessible and affordable for low-income learners. In addition, organizations will better understand factors that contribute to student success and make informed investments in relevant academic and community-oriented initiatives.

Project Description

SHERPA will provide a web-based platform, integrating with an institution's learning management system and aggregate data from a variety of sources to generate tangible next steps for instructors and students. Learners will benefit from faculty's ability to respond to their needs as they learn about learner's affective states and self-management. Learners who are most at risk will be correctly identified and more deeply understood.

Dashboards

Through SHERPA, instructors and students will be able to access dashboards, which detail learner progress on academic goals, as well as suggested instructor strategies, which leverage the mind/body connection. Over time, SHERPA will leverage predictive modeling as success factors become apparent.

Instructors will view:

- Early/critical alerts
- Learner academic, social*, fitness* and GRIT data
- Recommended professional development modules
- Earned professional development badges
- Recommended action items related to at-risk learners

Students will view:

- Aggregated academic, social*, fitness* and GRIT data
 - Recommended student success modules
 - Recommended action items
 - Opt-in/out controls
- * if learner opts-in to sharing data

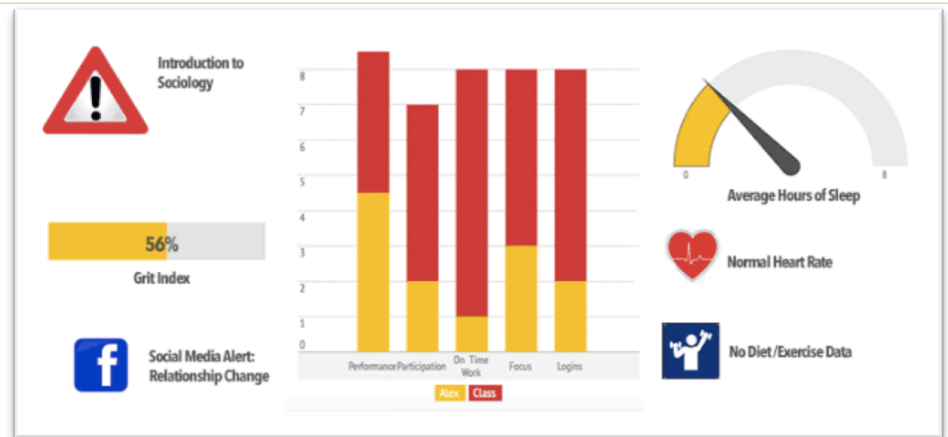


Figure 1

Alerts

Learners at risk will show as early or critical alerts, based on grading, logins, engagement, on-time assignments and participation. Drill-down information will be provided detailing academic/fitness/social analytics (see Figure 1).

Action Items

SHERPA will suggest action items for learners and instructors, based on analytics. A learner who exhibits a fast heart rate or reduced sleep may be referred to the Health Center. A recent dip in academic performance may be due to a recent relationship status change. An instructor action item may be to reach out to the learner or suggest a meeting with his/her advisor. Action items may also include specific instructor professional development or student success modules.

Professional Development

SHERPA will compliment its early warning capabilities by offering credentialed and personalized professional development for instructors. Badges can be shared on LinkedIn, Facebook and Academia.edu profiles.

Under the Hood

SHERPA will be built on the Drupal CMS platform, utilizing Content DB as a data warehouse. To protect student data, the application will be hosted in a SSAE 16 certified major cloud-based data center.

Integrations will be built with the following major learning management systems:

- Blackboard
- Canvas
- Moodle
- Sakai

Integrations with student information systems (SIS) will include:

- Datatel
- Banner
- Jenzabar

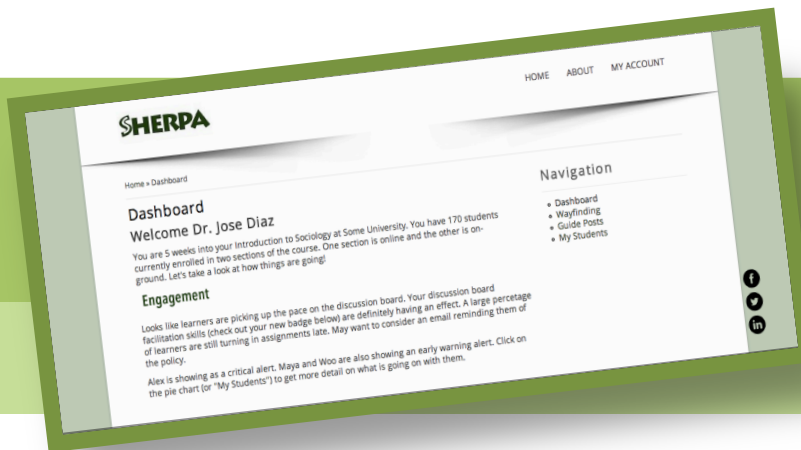
Learners and instructors can also opt-in to sharing social and fitness information.

Social integrations will include:

- Facebook
- Twitter
- Instagram
- Tumblr

Fitness/nutrition/heart rate/sleep data will be provided through integrations with:

- Jawbone UP
- Nike FUEL
- Apple Watch



SHERPA Roll-Out

Phases

Discovery (Jan/Feb 2015): The SHERPA team will validate assumptions and identify six major initial integrations necessary for a working prototype through administrator, student and instructor focus groups conducted at respective institutions.

Working Prototype (March – August 2015): With the first round of grant funding, a working prototype will be developed, leveraging one LMS and SIS integration and two fitness band and social integrations. A first pass at the User Interface (UI) will be developed.

Pilot Implementation (September 2015 – May 2016): The working prototype will be piloted at a partner institution. Focus groups with participating students, instructors and administrators will inform required LMS, SIS, social and fitness band integrations, as well as refine the UI.

SHERPA 1.0 Development/Launch (January 2016 – August 2016): SHERPA will be developed with a full set of SIS, LMS, fitness and social integrations and made available for institutional adoption. Institutions will subscribe to the cloud-based service on an annual basis. Advertisements from appropriate health-based businesses may be considered to defray the cost of the subscription.

SHERPA 2.0 Development/Launch (September 2016 - August 2017): Additional integrations and updates based on SHERPA 1.0 feedback.

Financial

The SHERPA team met with a commercial Drupal service provider and identified rough development estimates/timelines

First round of funding requires \$500K to build a working prototype, including

- 6 integrations: 162K (each integration is estimated at 200 hours @ \$135/hour)
- Content DB data warehouse: 50K
- UI development: 27K
- Hosting: 6K
- Leadership/Project Management: 160K (2 team members)

Second round funding requires 600K to launch SHERPA 1.0 with 10 new integrations.

Third round funding would be determined half way through the SHERPA 1.0 launch.

Assumptions

Wearable technology and quantified self-data gathered from these devices will be adopted in higher education to improve student outcomes, Horizon Report (2014).

Institutions of higher education will support students with limited access to the newest forms of emerging technologies.

Successful remediation of academic challenges must take into account cognitive and affective factors (Winston, et. al., 2010)

There are factors that are not related to domain specific knowledge that are related to success and can be taught (Eskreis-Winkler, et. al., 2014)

Faculty must continue to learn about and teach with emerging technologies which creates a need for effective professional development and support (Huber & Hutchings, 2005)

SHERPA Team

The SHERPA team will consist of

- Project Director: Position will require instructional technology, project management and higher education background.
- Assistant to the Director: Position will require light project management skill sets.
- Development partner: Application development will be outsourced to a Drupal partner.
- Advisory Board: The BRMA Team 8 will serve in a consultative, advisory capacity for the SHERPA initiative.

Evidence of Impact

Success will be measured by evaluating the impact on student learning and Faculty Feedback about preparedness to teach.

Examples of artifacts that can be used to demonstrate success are:

- Student portfolios
- Student evaluation of teaching
- Instructor badges, earned through SHERPA professional development
- Measurements of instructor use of SHERPA and its resources
- Number of instructors and learners, who opt-in to sharing additional social and fitness information.
- Instructor feedback
- Retention data

Expected Outcomes

SHERPA's implementation will result in the following:

- Increased persistence of students towards course completion
- Improved student satisfaction with learning experience
- Improved grade ratio
- Increase in faculty success job attainment and promotion
- Increase in faculty satisfaction with teaching
- Increased program retention
- Increased awareness of "whole-self" approaches, which leverage body and mind for success.
- Actionable data, which guides institutional investments in academic programs and student oriented initiatives.

References

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Take a virtual tour!

<http://goo.gl/fTN6Je>



SHERPA is a Breakthrough Models Academy (BRMA '14) project and is respectfully submitted by Team 8. Our members include Michele Cuomo (Montgomery County Community College), Jake Holmquist (Manhattan College), Jill Leafstedt, Ph.D. (CSU Channel Islands) and Kim Round, Ph.D. (Saint Anselm College)