4. Students who wish to teach any of the above three uses of games at the Elementary, Middle School, or High School levels.
   Examples: Students studying for teaching credentials.

e above are all regular CSU East Bay undergraduate and graduate students who would bene t from the integration of games and game-like learning in the curriculum.

Articulation of learning areas against CSU East Bay's Institutional Learning Outcomes

B

Introduction

R F

Because each of the four learning areas use di erent methods and had di erent objectives, each will be addressed separately with their ndings.

Games in the General Curriculum

In each of the identi ed subsets of this area, the objective was to identify game or game like learning techniques or tools that would be improve student learning across the curriculum at CSU East Bay. We then broke down these three steps:

- Identify game learning techniques and tools
  - – Search academic journal papers, books, and white papers for relevant research
  - – Identify a list of both leading universities across the US in this area and comparable universities to CSU East Bay
    - ° Determine appropriate contact people at these institutions
    - ° Interview them via email or telephone for promising options
- Assess whether these tools and techniques improve student learning
  - – Consult the literature about this tool or technique, and/or
  - – Interview users at other institutions, and/or
  - – Test the particular tool or technique
- Assess appropriateness to CSU East Bay
  - – Con rm that the learning outcomes above map to one or more of the CSUEB ILOs
  - – Con rm that the students above are comparable to CSU East Bay student body
  - – Ideally, test the tool or technique with CSU East Bay students

ese methods were then applied to each of the three sub-areas.

Small Games in the General Curriculum

Small games are e ective if they are well integrated into the curriculum (Brom, Preuss, Klement). e most common usages at universities similar to CSUEB are:

- Games available o the shelf from textbook publishers
- Simple-to-modify games
- Games developed by the instructor with intermediate so ware, or
- Custom developed with game mechanics that are speci c to the course or discipline

Faculty using each of these types of small games were identi ed on other campuses through the literature and through Google searches of syllabi. Attempts to contact individuals from the list of leading and comparable universities (other than those previously identi ed) proved problematic as few campuses had any centralized system for sharing teaching tools. e exception was those using an online learning system add-on. For example, the StudyMate from Respondus integrates with Blackboard or Canvas and requires a full-campus site license. Universities using StudyMate, such as Sacramento State and CSU Northridge, were able to refer us to faculty users. Faculty users at CSU East Bay were found through personal contacts and informal inquires.

Games from textbook publishers are always locked to speci c textbooks and the content cannot be

of learning, ease of use, and exibility and sophistication of the games that could be produced. Of these, 16 were chosen for closer testing. ese were downloaded and used to create sample games. While we were unable to test the produced games on CSU East Bay undergraduates, two team members assessed the appropriateness of the platforms to the CSU East Bay faculty and students using a 19 point rubric.

e two best platforms for each level of complexity were identi ed.

G C	B P C EB O
	( )
( )	

Gami cation of Pedagogy

Using the same methodology, we examined what we called the Gami cation of Pedagogy. As discussed above, running part of a class like a game has a long history. It was heavily impacted by the passage of FERPA privacy regulations in the 1970s, but has seen a signi cant revival in the last ve years with the

and to determine that serious gaming works as an expressive medium for students to develop critical thinking for dealing with contradiction and for becoming strategic social innovators (Brooks, Keyser, Meneses, in press). In 2010 and in 2011, one member of our team, Professor Brooks, and two graduate researchers conducted a media content and qualitative analysis of students who played an alternative reality game known as Urgent Evoke. An alternate reality game (ARG) is an interactive narrative that uses the real world as a platform, o en involving multiple media and game elements, to tell a story that may be a ected by participants' ideas or actions.

Urgent Evoke was directed by Jane McGonigal, former director of games research at the Institute For e Future and developed by the World Bank Institute. Players were asked to explore and solve urgent

l1(n)4.ndco e,cil 1nd127rnov-2(a)-9(t12(hio4.1(nd c)-4,o4.r)16(fe)10r)8(de)10rncn,sh,rg-233()15(o4.r),

In the Imagine link, the third and nal 10 -tep, p,hici4.rps w0 -edea,skie-13.d ato cside1(ne tis8(d0 -ue oft)12(he t)]TJET

Teaching K12 Credential Students to Use Game Learning

Creativity

Games embrace and foster children's sense of play, cultivating their questioning disposition, and reinforce the power and importance of play.

Gami cation o ers the promise to alter school-based rules to motivate students at the emotional level, their sense of identity and their social positioning (Lee & Hammer, 2011). eir work at Teachers College Columbia University has a "game layer" that "fosters concrete goal-setting, clear communication, and the conscious development of student identity as learners" (p. 2).

e three parts of " ow" de ned as being intensely focused and most satis ed: 1) challenging problems that do not deskill, 2) practice, with some failure, until the problem is challenging, but solvable with e ort, which is the state of ow 3) practice equals solving the problem and then seeking another problem that is more challenging and requires more skill (Gee, 2010).

Critical inking

Ito (2009) conducted a 3 year ethnographic study of children's media practice, linking peer, school, and home environments. Findings included a tremendous diversity of media practice that can be divided into two areas. First, "Friendship Driven Space" that provides the children opportunities to think critically about online identity and digital footprint. Second, using media literacy to "Geek Out", which provides the opportunity to foster civic responsibility.

Games encourage interest-driven learning: engagement, caring about subject matter, and captivating learners' interest (Steinkuehler, 2010). In Steinkuehler's qualitative study with middle school students the gaming reading curricula bridged the "third space" of the peer, school, and home culture. e games, as educational materials, are student centered and the knowledge gained moves toward the students' learning goals. An important reading skill, self correcting for comprehension, increased. He also found that gaming pedagogy is comparable to community organization, asking the question: What do you as a community want to accomplish? How should you marshal resources (time, materials) to accomplish your goal?

Communication

- Interactive narratives promote collaborative problem solving, and position game players as producers (Squire).
- Combining high interactivity with narratives, games promote learning (Becta, 2001).

Digital Literacy

- Bridging 3rd space, games and reading (Steinkuehler)
    - Literacy increases as children self correct
    - Educational materials move toward the students' learning goals (student centered)
    - Pedagogy is comparable to community organization

R P

1. *Small games are worth implementing across the curriculum.*
   ey increase engagement and can promote all Institutional Learning Outcomes.
   - Consider campus purchase of StudyMate for Blackboard (discuss with administration at Sacramento State, CSU Northridge, and CSU Fullerton, where it is in current use)
   - Promote the use of small games to faculty members who may be unaware of proven bene ts

2. *Serious games have produced successes in learning and research at CSU East Bay.*
   - Continue existing support of the program in Department of Communication
   - Consider and encourage other departments to feature serious games if appropriate ones are available

3. *Gami cation, in and of itself, is not worth pursuing at this time.*
   e broader eld of User Experience Design is booming, but would require a new major option.

4. *The game industry is underserved by public universities in the Bay Area and California.*
   Some type of program would be popular. While a new major option is one option, a shorter sequence or minor will provide many bene ts.

5. *Promote teaching the use of game learning in Teacher Education.*
   Use of games is highly e ective in K12 teaching and absent from much of the current curriculum.

6. *Leverage existing skills and options to expand learning in Teacher Education and Art.*
   CSU East Bay already has faculty who can teach game design in a short sequence and student who want to learn. ese can be leveraged to provide needed game learning support in Teacher Education. We recommend creating a short three quarter Game Making for Service track in the Art Department's existing Multimedia option, and assigning senior capstone students to work with Teacher Education classes to develop educational games to maximize outcomes in both Teacher Education and in the classes those certi cated will teach in the community once they graduate.

R R

References

Anderson, Janna, & Rainie, Lee. (2012). Gami cation and the Internet: Experts Expect Game Layers to Expand in the Future, with Positive and Negative Results. GAMES FOR HEALTH: Research, Development, and Clinical Applications, 1(4), 299-302.

Becta. (2013). Computer Games in Education project: Report. http://partners.becta.org.uk/index.php?section=rh&&catcode=&rid=13595

Bleumers, Lizzy, All, Anissa, Mariën, Ilse, Schurmans, Dana, Van Looy, Jan, Jacobs, An, . . . de Grove, Frederik. (2012). State of Play of Digital Games for Empowerment and Inclusion: A Review of the

Zichermann, Gabe, & Cunningham, Christopher. (2011). Gami cation by design: Implementing game mechanics in web and mobile apps: O'Reilly Media.

Resources

e Institute of Play, the leading think tank in the eld http://www.instituteofplay.org/
Best report on games and diversity http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id=5819
Quest to Learn, the New York Times featured, game-focused K12 school, http://q2l.org/
Games + Learning + Society at http://www.gameslearningsociety.org/
Examples of advanced educational games http://www.nobelprize.org/educational/
Examples of serious games http://www.darfurisdying.com/ and http://www.darfurisdying.com/

Campus Contacts

For Serious Gaming, Prof. Lonny Brooks at lonny.brooks@csueastbay.edu
For Gaming in Education, Prof. Jeanette Bicais at jeanette.bicais@csueastbay.edu
and for all other aspects of game learning covered in this white paper, Prof. Gwyan Rhabyt at gwyan.rhabyt@csueastbay.edu

A

[redacted] is a Professor in the Art Department and Director of the Multimedia Graduate Program at CSU East Bay. A multiple Fulbright scholar, his media-rich sculpture, performance, and installation pieces have been exhibited nationally and internationally. He is President Emeritus of the New Media Caucus, the largest association of New Media academics in North America, and sits on the Board of *mediaN*, a peer reviewed journal of new media studies. He regularly presents papers at the College Art Association Conference, where he will chair a panel on the Pedagogy of Games and Engagement in 2014.

[redacted] is an Associate Professor and Chair of Teacher Education at CSU East Bay. A K-5 classroom teacher for 17 years, she returned to earn her doctorate from UC Berkeley researching how English Learners write in a language other than their home language. Her current research continues to be in the K-12 community on ways in which the teacher and the students use language to extend the children's writing abilities. AT CSUEB, she has taught courses in the Master's, Option in Curriculum Program and in the Multiple Subject Credential Program.

[redacted] is an Assistant professor in the Communication Department at CSU East Bay. His current manuscript is *Futures, Inc.: Communicating the Future of Digital Culture* (in nal review at MIT Press). His research of long term thinking is part of a larger study of how organizations (especially forecasting think tanks), interaction designers, and college youth envision the future of communication technologies. His research analyzes how the distribution of stories organizations and individuals create works to forward, mitigate, or restrain technological and scienti c innovation. He is currently Chair of the Communication And e Future (CATF) division of the National Communication Association. He is the Lead Faculty for the Long Term and Futures inking project in education (CSUEB) whose goal is to is to foster the development of thoughtful, engaged citizens for whom critical, creative and