LOI Response For Phase 2 Projects

Completed LOI Responses should be sent as email attachments to applications@grand-nce.ca with "GRAND LOI Responses for Phase 2 Projects" as the subject line.

A successful LOI Response will address problems of significant relevance to the GRAND research program and must meet all of the guidelines for projects within GRAND, including the following mandatory requirements:

- The project must address significant research issues relevant to one or more of the GRAND Challenges identified for Phase 2 of the GRAND NCE
- The Project Leader and Co-leader must work at different universities; often they will represent multiple disciplinary approaches, appropriate to the project.
- There must be at least three researchers (including the Project Leader and Co-leader) who are or are eligible to be Principal Network Investigators within the GRAND NCE.
- There must be at least one Project Champion personally involved in planning and carrying out the project who is affiliated with a current or potential GRAND Partner drawn from the receptor community.
- One or more Partners from the receptor community must commit to making significant cash or in-kind contributions to the project.
- A current NSERC Form 100, SSHRC CV, or CIHR Common CV for both the Project Leader and Co-leader must be submitted as attachments to the LOI Response, if they were NOT submitted with an LOI in the previous round in June 2013.

Detailed instructions for completing this LOI template are on Page 2. More information on Phase 2 of the GRAND NCE is available on the GRAND website at the following URL, which will be updated with links to additional information as it becomes available: http://grand-nce.ca/renewal

Project Title and Description

Title of proposed project
Connecting and Learning through Social Play (CONNECT) - formerly known as COGS (Collaboration over Game Systems)

Brief description for public use
People spend a significant amount of time playing social games. The challenge we address in this project is: How can we leverage the motivational pull of social play to connect people, empower individuals, crowdsource work, gamify learning, and generate revenue? We address this challenge through 6 subprojects (Foster, Scaffold, Gamify, Socialize, Match, and Evaluate), involving research by scientists, artists, and social scientists from 8 provinces, in collaboration with 20 industry partners, and many receptors.

Proposed Project Leader

Name	Email
Regan Mandryk	regan@cs.usask.ca
University	**Title/Position**
University of Saskatchewan	Associate Professor

Proposed Project Co-leader

Name	Email
Carman Neustaedter	carman_neustaedter@sfu.ca
University (must be different from Project Leader)	**Title/Position**
Simon Fraser University	Assistant Professor

Proposed Project Champion

◉ Confirmed ○ Contacted ○ Not Yet Contacted

Name	Email
Danny Robinson	danny@perch.co
Organization	**Title/Position**
Perch Communications	CEO and Founder

Instructions for LOI Responses for Phase 2 of the GRAND NCE

Front Page: All fields are mandatory. (a) Provide a project title, the name, email address, university, and title for the proposed project leader and the proposed project co-leader. (b) Provide the name, email address, organization name, and title for the proposed project champion and indicate whether the project champion has been confirmed, has only been contacted, or has yet to be contacted.

This Page: (Read all of the instructions for completing the LOI Response template before filling out any of the information on later pages.)

In **Part A**, Provide the names of up to six partner organizations, indicate whether each has been confirmed, has only been contacted, or has yet to be contacted, and provide a brief explanation for how each organization will be involved in the project either as an active participant or as a potential receptor that will benefit from the research.

In **Part B**, list all GRAND projects that are related to the new LOI and also any other LOIs you are aware of that may be relevant to the new LOI.

In **Part C**, List up to nine additional co-applicants (not including the individuals listed on Page 1) who are expected to be involved as active participants in the research project. Indicate for each whether the individual is a project champion from the receptor community or an academic researcher.

In **Part D**, succinctly summarize (up to one half page) the problem being solved by the research project.

In **Part E**, provide an overview (up to one and one half pages) of the proposed solution and the approach that will be taken in the research. Include relevant details about the theoretical framework, significant previous work, methodological approaches, and how the research will be managed and structured to achieve the desired goals. (Subprojects not described in Part F can be briefly described here.)

In **Part F** , describe up to six subprojects (up to one half page for each subproject) that will be pursued during the first two years of the project. Indicate for each subproject the research question(s) that will be addressed, the relationship of the subproject to the rest of the project, the deliverables and assessment criteria appropriate for evaluating the success of the subproject, and the time frame (start and finish dates) estimated for the subproject.

In **Part G,** explain the likely technology transfer, knowledge mobilization, knowledge translation, or other activities that are planned for the project and how they may provide benefits to the receptor community.

In **Part H,** explain how the project will interact with other projects and the ways in which it may support or otherwise enhance the overall impact of the network.

In **Part I,** explain specific ways in which current or future partners will participate in the project and the mechanisms that will be used to ensure that this takes place.

In Part J, for each of the seven GRAND Challenges check whether the project will make a major contribution, a minor contribution, or a negligible contribution to the challenge. For each box that is checked as a major or minor contribution, provide a brief description of the expected contribution.

Part A: Receptors and Partners list up to six organizations

Organization	Confirmed	Contacted	Not yet contacted
Electronic Arts	◉	○	○

Brief description of involvement

Electronic Arts is one of the largest game companies with a Canadian presence. EA has expressed interest in Match (Crawford) and Evaluate (Zammitto). Collaboration, access to game log data, and internships are anticipated. Because of the history of collaboration between CONNECT researchers and EA, we expect that EA will be both an active participant and receptor.

Organization	Confirmed	Contacted	Not yet contacted
Microsoft Research and Microsoft Studios	◉	○	○

Brief description of involvement

Microsoft Research (Inkpen: Redmond, Massimi: Cambridge) is supporting Foster and Scaffold though internships for HQP, access to proprietary systems (e.g., VideoThreads, SkypeKit), and collaboration. We may also receive cash contributions for specific projects. Microsoft Studios (Morichere-Matte: Vancouver) is supporting Match and Evaluate through student internships and collaboration.

Organization	Confirmed	Contacted	Not yet contacted
Insightrix	◉	○	○

Brief description of involvement

Insightrix is a market research company based in Saskatoon with over 100 employees, and $3 million in annual sales. Their interest in gamification of their products and processes has led to a relationship with Gutwin. Insightrix will commit employee time to Gamify, and will conduct user studies via their online system. Internships and cash contributions are part of a CRD application with Gutwin.

Organization	Confirmed	Contacted	Not yet contacted
Ubisoft Montreal	◉	○	○

Brief description of involvement

Ubisoft Montreal has a user research team who service all games produced in Ubisoft Montreal's studio and have expressed interest in Evaluate. The role of Ubisoft as a participant or receptor is TBD; however, we are building on the relationship established through the AFEVAL project. Internships, access to game metrics, and implementation of CONNECT-driven solutions are likely.

Organization	Confirmed	Contacted	Not yet contacted
College Mobile	◉	○	○

Brief description of involvement

College Mobile is a smartphone application developer based in Saskatoon with over $1million in annual sales. They won the 2012 Saskatoon Awards for Business Excellence and have collaborated with over 40 companies. College Mobile is supporting Gamify with employee time, and app store access and promotion. Internships and both cash and in-kind contributions have been secured.

Organization	Confirmed	Contacted	Not yet contacted
Alientrap Games and other indie developers	◉	○	○

Brief description of involvement

Alientrap Games is a commerically and critically-successful indie game studio in Saskatoon. Alientrap and several other indie studios (e.g., Minority, EastSide) and incubators (e.g., Execution Lab), will provide access to game code (Match) and game logs (Socialize). Alientrap (and the other small studios will be an active participant and a receptor of CONNECT research. Internships will be provided.

Part B: Relations to existing and proposed projects in the GRAND NCE

Related Current Projects

AFEVAL, GAMIFUT, DIGLT, DIGIKIDZ, CPRM, DINS, HSCEG, INCLUDE,

Related Response LOIs (refer to the list provided)

KIDZ, G4HLTH, SHARE/MAKE, ENGAGE/INDIEGAME, COORDIN8/EXPERT, RILDIM

Part C: Additional Co-Applicants List up to nine additional co-applicants		
Name Carl Gutwin	Email gutwin@cs.usask.ca	○ Project Champion ◉ Researcher
Organization University of Saskatchewan	Title/Position Professor	
Name Bart Simon	Email simonb@alcor.concordia.ca	○ Project Champion ◉ Researcher
Organization Concordia University	Title/Position Professor	
Name T.C. Nicholas Graham	Email nicholas.graham@queensu.ca	○ Project Champion ◉ Researcher
Organization Queen's University	Title/Position Professor	
Name Kim Morgan	Email kmorgan@nscad.ca	○ Project Champion ◉ Researcher
Organization Nova Scotia College of Art and Design University	Title/Position Associate Professor	
Name Mark Hancock	Email mark.hancock@uwaterloo.ca	○ Project Champion ◉ Researcher
Organization Waterloo University	Title/Position Assistant Professor	
Name Kevin Stanley	Email kstanley@cs.usask.ca	○ Project Champion ◉ Researcher
Organization University of Saskatchewan	Title/Position Associate Professor	
Name Sean Gouglas	Email sgouglas@ualberta.ca	○ Project Champion ◉ Researcher
Organization University of Alberta	Title/Position Associate Professor	
Name Karyn Moffatt	Email karyn.moffatt@mcgill.ca	○ Project Champion ◉ Researcher
Organization McGill University	Title/Position Assistant Professor	
Name Lennart Nacke	Email lennart.nacke@uoit.ca	○ Project Champion ◉ Researcher
Organization University of Ontario Institute of Technology	Title/Position Assistant Professor	

Part D: Summarize the problem being solved (1/2 page)

People spend a significant amount of time playing social games. For example, World of Warcraft players alone have collectively spent more than 50 billion hours (equal to about 6 million years) playing together. Successful social games compel sustained and repeated play through game mechanics that motivate players by allowing them to demonstrate mastery over challenges under their own volition (Rigby, 2011). Although some may consider the time spent playing social games as wasted, research has shown that social play results in a variety of benefits outside of the game, including: improving connectedness between parents and their teenage daughters (Coyne, 2011); strengthening relationships between friends (Wohn, 2011); empowering face-to-face negotiations (Yee, 2009); inspiring creativity (Jackson, 2011); promoting cooperation (Ewoldsen, 2012); managing aggression (Bennerstedt, 2012); connecting populations who are often disconnected due to circumstance (Baecker, 2012); and improving mood (Russoniello, 2009).

However, current social play systems have several problems that limit their scope and potential. For example, there are large groups of people who could benefit from social play systems that fill specific needs; however, current systems do not foster intimacy among distributed groups of players, social play systems do not strengthen existing real-world communities, and crowdsourced work or learning accomplished through social games is specific to a particular problem, tying progress to a particular game. Thus, there is a need to make better social games. In addition, many social play systems do not allow for players of differing skills to compete, online game portals do not support the loose collaboration style desired by players, and novice players experience significant barriers to joining established communities. These limitations prevent the participation of would-be social players, reducing the number of consumers for and resulting revenues of social game creators. Thus there is also a need to make social games better.

The challenge we address in this project is: How can we leverage the motivational pull of social games to shape the world? In particular, how can we make better social games and make social games better in order to connect people, empower individuals, crowdsource work, gamify learning, and generate revenue?

We address this challenge through six subprojects: Foster, Scaffold, Gamify, Socialize, Match, and Evaluate.

Part E: Summarize the proposed solution and approach (1 ½ pages)

Our team is comprised of 18 researchers from a broad range of disciplines, including science, art, design, social science, and digital humanities. This interdisciplinary team of researchers with an extensive record of NSERC, SSHRC, CIHR, and CCA funding will bring a holistic perspective to solving the challenge of using the motivational pull of social games to shape the world. In addition, our researchers represent 14 institutions across 8 provinces (BC, AB, SK, MB, ON, PQ, NS, and PEI), bringing a truly networked perspective to CONNECT research activities. In addition to the PL, CO-PL, and researchers noted in Part C, CONNECT also involves the following researchers: Scott Bateman (UPEI), Kate Hennessey (SFU-SIAT), Tony Tang (Calgary), Kate Sellen (OCADU), Andrea Bunt (Manitoba), Audrey Girouard (Carleton), and Peter Gorniak (SFU-SIAT).

Our team will work with small (e.g., Perch Communications), medium (e.g., Insightrix), and large (e.g., Electronic Arts) companies, yielding opportunities for different types of collaboration (see Part I). Our project champion (Danny Robinson) is CEO of Perch Communications, a rapidly-expanding startup with a dozen employees. Perch develops always-on video communication apps designed to bring you closer to the people you talk to everyday, facilitating natural and spontaneous video conversations. We also have a significant number of receptors in the domains of health and learning. These are identified in Part F.

Our project activities fall broadly into making better social games (Foster, Scaffold, Gamify) and making social games better (Socialize, Match), with a final subproject that explores new methods for evaluating success (Evaluate). The specific problem addressed by each subproject and the research goal follows. Specific research questions, project activities and team members are presented in Part F.

1. FOSTER: Fostering Closeness among Small Groups with an Intimate Relationship (Major Partners: Perch Communications, MSR, Sesame Workshop, Google)
RESEARCH PROBLEM: There are many situations in which it is difficult to maintain close and intimate relationships with family members and friends. People are increasingly busy, they may be separated by distance, they may have a relationship burdened by circumstance (e.g., illness) and technologies do not adequately support shared intimate activities. Social play can help people build intimacy; however, current interfaces do not support relationship building under these difficult situations. In FOSTER, we aim to design and evaluate new social play technologies to foster connections amongst small groups with close or intimate relationships.

Part E: Summarize the proposed solution and approach (continued)

2. SCAFFOLD: Scaffolding interaction among groups with similar interests or circumstances through play (Major Partners: SMART, MSR, Perch Communications, Revera)
RESEARCH PROBLEM: Many groups of individuals face context-specific problems that make it challenging to connect with one another or participate in shared activities. For example, technology infrastructures may be limited if trying to communicate over distance, accessibility issues may make it challenging to interact, or individuals may not be connected with others in their geographical community. Meanwhile, challenging social situations, such as a company merger or restructure, or a life-changing event, may cause relationship friction. Playing together can help to provide common ground for relationship building amongst groups with related interests or circumstances. In SCAFFOLD, we aim to build collaborative systems that scaffold interaction and build relationships.

3. GAMIFY: Crowdsourcing Work and Supporting Learning through Gamification (Major Partners: Insightrix, College Mobile, Tom Jenkins Foundation, Harvard)
RESEARCH PROBLEM: People spend significant time playing casual games (e.g., Angry Birds), yet are too busy or too unwilling to participate in online surveys, experience-sampling experiments, or basic psychophysics experiments that require large numbers of participants. Some researchers have leveraged the intrinsic motivation inspired by play to crowdsource problem solving in specific areas (e.g., Von Ahn's ESP game), but a general solution for gamifying large-scale data collection does not exist. The same problem exists in gamified learning - games are often specific to curricula and do not support the general behaviours that lead to learning. In GAMIFY, we explore how we can use the motivational pull of playing games to crowdsource work, connect people, and support learning. We investigate how we can motivate large-scale participation in data collection and labeling efforts. In addition, we investigate gamification in both structured and informal learning.

4. SOCIALIZE: Connecting People through Online Play (Major Partners: Alientrap Games, Sleeping Beast Games, PlayOK, IgGC)
RESEARCH PROBLEM: Online game portals and persistent virtual worlds are popular places for people to play games with other distributed players; however, the relationships formed in these communities vary from loose ties to close partnerships. Current interfaces do not support the lightweight and transient nature of in-game collaboration seen in many existing game environments, whereas our lack of understanding of collaboration within emerging cooperative games does not allow for effective design of coordinating interfaces. In SOCIALIZE, we explore how we can connect large groups of loosely-connected friends or acquaintances through social play in online environments.

5. MATCH: Matchmaking and Balancing Techniques for Collaborative Play (Major Partners: Electronic Arts, Alientrap Games)
RESEARCH PROBLEM: Playing games is most engaging when the outcome is uncertain; in social games, this means that one player cannot wield a significant advantage. If players of a collaborative game are not well matched in terms of skill (e.g., parents playing with their children, two friends with different abilities), it can be challenging for them to enjoy playing a game together. It is also challenging for players to find others (i.e., friends or strangers) to play games with who already have similar interests and skill levels. In MATCH, we explore how we can provide subtle skill level balancing in collaborative games to balance competition and promote engagement, and how we can design systems and algorithms to support player matchmaking in collaborative games.

6. EVALUATE: Evaluating Success (Major Partners: Ubisoft, EA, Perch Communications, EA, Revera)
RESEARCH PROBLEM: New digital play technologies are difficult to evaluate in ecologically-valid situations. Existing evaluation techniques focus on short scale evaluations that focus more on performance than experience, which is the more important determinant of success in games research. In EVALUATE, we explore how we evaluate digital technologies that aim to support interaction, connection, and relationship building amongst family, friends and strangers, in collocated, distributed, and mixed-presence environments.

METHODS: We will address the research problems in each subproject by conducting mixed-methods studies (i.e., qualitative and quantitative) of existing practices to understand the nuances of the challenges faced by people using current technologies. We will design and prototype new social play technologies to scaffold and foster relationships, connect people, match and balance players, crowdsource work, and support learning. Finally, we will evaluate our technologies to confirm their success, using a combination of established practices and novel methods designed for our particular domain. Throughout all project activities, we will leverage the advantages of the network for applying multidisciplinary perspectives of our team (scientists, artists, and social scientists) and connecting with industry partners. The PI and Co-PL will guide the overall research agenda. Each subproject has a leader who will be responsible for assisting with research management. Industry partners are specific to subprojects and are reported in Part F.

Part F: Subprojects list up to six subprojects that will be undertaken in the first two years.

Subproject Name (1)

FOSTER: Fostering Closeness among Small Groups with an Intimate Relationship

Summary

RESEARCH CHALLENGE: How can we design new social play technologies to foster connections amongst small groups with very close or intimate relationships?

PROJECT ACTIVITIES: In FOSTER, we will undertake the development and evaluation of novel technologies for: supporting intimacy among distributed couples and close friends through games; connecting people to distributed relatives through play; relieving the burden of caregiver-patient relationships through games; supporting mixed presence with small social groups (e.g., games nights between couples across distance); and supporting feelings of connectedness with family and friends at the end-of-life. Our systems will be informed by ethnographic, observational, and interview studies of current practices.

FOSTER will be led by Moffatt (CNI), and will also involve: Neustaedter (CO-PL), Mandryk (PL), Tang (CNI), Nacke (CNI), and Hancock (CNI).

FOSTER research will be in collaboration with: Danny Robinson (CEO, Perch Communications), Kori Inkpen (Principal Research and Research Manager, Nexus Research Group, MSR), Miles Ludwig (Vice President, Digital Media at Sesame Workshop), Michael Levine (Director, Joan Ganz Cooney Centre, Sesame Workshop), Tejinder Judge (User Experience Researcher, Google), Mike Massimi (Socio-Digital Systems Group, MSR Cambridge), Brenda Gershkovitz (Founder, Silicon Sisters), Dr. Jenny Basran (Clinical Gerontologist, Saskatoon Health Region), and Shelly Cory (Executive Director, Canadian Virtual Hospice).

In FOSTER, we will deliver studies, solutions, and systems. Our industry partners will be both collaborators and receptors of the work.

Subproject Name (2)

SCAFFOLD: Scaffolding interaction among groups with similar interests or circumstances through play

Summary

RESEARCH CHALLENGE: How can we scaffold interaction amongst groups with similar interests or circumstances through social play to support relationship building?

PROJECT ACTIVITIES: In SCAFFOLD, we will design and evaluate technologies for: installing playful public interactive art to connect communities through virtual and physical space; leveraging affordances of public spheres to support collaborative play; maintaining indigenous knowledge of artifacts through games; connecting people in special populations (e.g., kids with CP, elderly people with limited mobility aging in place) using games; connecting people with limited connectivity due to institutional setting (e.g. long term care residents) or rural regions through play; connecting groups of learners with similar goals, and fostering group rapport in the enterprise (e.g., post merger/acquisition) through play. Our systems will be informed by foundational studies of current practices, autobiographical design, and participatory design.

SCAFFOLD will be led by Graham (PNI), and will also involve: Morgan (CNI), Stanley (PNI), Bateman (YNI), Hennessy (CNI), Neustaedter (CO-PL), Mandryk (PL), Tang (CNI), Nacke (CNI), Sellen (CNI), Baecker (PNI), Bunt (CNI), and Girouard (CNI).

SCAFFOLD research will be in collaboration with: Mike Boyle (Distinguished Developer, SMART Technologies); Kori Inkpen (Principal Research and Research Manager, Nexus Research Group, MSR); Danny Robinson (CEO, Perch Communications); Dr. Darcy Fehlings (Clinician Senior Scientist and Bloorview Childrens Hospital Foundation Chair in Developmental Paediatrics, Physician Director of the Child Development Program, Holland Bloorview Hospital); Dr. Paul Hoskins (BC Cancer Agency); Trish Barbato (Senior Vice President, Revera), and Melissa De Smet (Entrepreneur, Homebody Health).

In SCAFFOLD, we will deliver art installations, studies, systems, and science.

Part F: Subprojects (continued)

Subproject Name (3)

GAMIFY: Crowdsourcing Work and Supporting Learning through Gamification

Summary

RESEARCH CHALLENGE: How can we use the motivational pull of playing games to crowdsource work, connect people, and support learning? How can we motivate large-scale participation in data collection and labeling efforts, such as online polls, sensor-based experience sampling, psychophysics experiments, and archive sites through digital games? How can we motivate the behaviours that lead to learning through games?

PROJECT ACTIVITIES: In GAMIFY, we will create and evaluate systems for: crowdsourcing work through games; gamification of online survey data collection supporting psychophysical data collection in the wild through game based rewards; motivating participation in large-scale sensor-based experience sampling through games; gamification of groupware systems to motivate participation and scaffold expert behaviour through social learning, gamification of archive sites to improve participation; gamification of behaviours that lead to learning for integration in structured classroom learning, and gamification of flipped classroom activities, encouraging parental involvement in learning.

GAMIFY will be led by Gutwin (PNI), and will also involve: Hancock (CNI), Stanley (PNI), Gouglas (PNI), Mandryk (PL), Bateman (YNI), and Nacke (CNI).

GAMIFY research will be in collaboration with: Larry Goodfellow, Briana Brownell (CFO, Insightrix, Manager of Analytics, Insightrix); Tom Jenkins (Chair of the Tom Jenkins Foundation, and CEO of OpenText); Krzysztof Gajos (Associate Professor, Harvard, labinthewild.org); Vish Vishvanath (Professor, Harvard School of Public Health); Neil Randall (Director, SSHRC IMMERSe network); Brenda Green (Superintendent of Education, Saskatoon School Board); Peter Rukavina (President, Reinvented Inc.); and Chad Jones (Founder and CEO, College Mobile).

Subproject Name (4)

SOCIALIZE: Connecting People through Online Play

Summary

RESEARCH CHALLENGE: How can we connect large groups of loosely-connected friends or acquaintances through social play in digitally-mediated environments?

PROJECT ACTIVITIES: In SOCIALIZE, we will understand current practices of, and propose novel solutions for: supporting sociality (lightweight relationships, loose ties) in game portals and game lounges; imagining and practicing social relationships in games with limited communication channels; understanding the value of virtual relationships in MMORPGs; understanding and supporting high-speed collaboration in games; modeling how network conditions affect online play, and generating improved interface solutions; designing remote representation of players in mixed-presence gaming; and building trust in multiplayer cooperative or collaborative games. We will work with our partners to understand current practices through log analysis of player data and will evaluate our solutions in collaboration with the industry partners through deployment with end users.

SOCIALIZE will be led by Simon (PNI), and will also involve: Gutwin (PNI), Stanley (PNI), Graham (PNI), Mandryk (PL), Nacke (CNI), Bateman (YNI), and Tang (CNI).

SOCIALIZE research will be in collaboration with: Lee Vermuelen (Founder and CEO, Alientrap Games); Henry Smith (Founder, Sleeping Beast Games); Marek Futrega (Founder, PlayOk); Arty Sandler (Founder, igGC); Dereck Toker (EastSide Games).

In SOCIALIZE, we will deliver studies (science and social science) of in-game behaviour and player relationships. We will work with industry partners to develop interface solutions and game mechanics for better social games and will evaluate our approaches in both controlled laboratory studies and in-the-wild studies with end users.

Part F: Subprojects (continued)

Subproject Name (5)

MATCH: Matchmaking and Balancing Techniques for Collaborative Play

Summary

RESEARCH CHALLENGE: How can we provide subtle skill level balancing in social games to balance competition and promote engagement? How can we design systems and algorithms to support player matchmaking in collaborative games?

PROJECT ACTIVITIES: In MATCH, we will create systems and approaches for: matching game partners through visualizing and gamifying player data; designing algorithms for automatically modelling gamer playstyle, goals, and expertise for matchmaking and balancing; designing matchmaking algorithms based on game metrics; balancing the competition between players of different skill and ability to improve fun in various genres and using various techniques; and interface-free grouping for lightweight (and transient) cooperation in play. Our research will involve studies of current systems, but will focus on the creation of new algorithms, interfaces, and systems for improved matchmaking and in-game collaboration.

MATCH will be led by Hancock (CNI), and will also involve: Gorniak (new), Stanley (PNI), Gutwin (PNI), Bateman (YNI), Graham (PNI), Nacke (CNI), and Mandryk (PL).

MATCH research will be in collaboration with: Ian Crawford (Director of Studio Operations, Electronic Arts); Lee Vermeulen (Founder and CEO, Alientrap Games), and Dereck Toker (EastSide Games).

In MATCH, we will work with our partners to develop our algorithms and interfaces using player logs from commercial games. We will evaluate our solutions both in the lab and in the wild.

Subproject Name (6)

EVALUATE: Evaluating Success

Summary

RESEARCH CHALLENGE: How can we evaluate digital play technologies that aim to support interaction, connection, and relationship building amongst family, friends and strangers, in collocated, distributed, and mixed-presence environments? How do we evaluate the success of technologies designed to promote closeness and intimacy, rather than performance and usability?

PROJECT ACTIVITIES: In EVALUATE, we will adapt existing evaluation methods for interactive technologies to game and play situations; validate scales of user experience in the context of collaborative game play; develop implicit measures of experience and group rapport; create unobtrusive methods of sensing affective experience during play; review and extending existing techniques to measure impact on quality of life; develop methods to measure sensory experience; and evaluate measures for quality of life and sensory experience through field deployments of collaborative play tools. We will also provide theoretical contributions in player typologies and understanding how types of people respond differently to the evaluation approaches.

EVALUATE will be led by Nacke (CNI), and will also involve: Gouglas (PNI), Mandryk (PL), Sellen (CNI), Moffatt (CNI), and Neustaedter (CO-PL).

EVALUATE research will be in collaboration with: Nicholas Sweeney and Ian Livingston (User Research Lab Team Lead, User Research Project Manager, Ubisoft); Veronica Zammitto (Electronic Arts), Gary Rhodin (Head, Department of Psychosocial Oncology and Palliative Care, Princess Margaret Hospital, University Health Network); Job Rutgers, (Professor, OCADU); and Joanne Dykman (Vice President Clinical Services and Quality, Revera).

In EVALUATE, we will work with our partners to assess our evaluation approaches both in the lab and in the wild. We will deliver validated scales, peer-reviewed articles, and software systems.

Part G: Summarize how the proposed project will pursue technology and knowledge exchange and exploitation activities within the context of GRAND.

BENEFITS TO CANADA: Foster and Scaffold will provide new system designs that can act as prototypes for Canadian companies who wish to build commercial games and play systems that support relationships amongst Canadian family and friend networks. They will provide new design understanding about how to support increasingly diverse relationship challenges. Results from Match and Socialize will give Canadian game companies who produce multiplayer games a competitive edge, whereas Gamify will do the same for data collection companies. Evaluate will help Canadian studios take leadership in player experience evaluation.

ACTIVITIES TO FACILITATE KTEE: We will meet with our receptors to discuss our progress and findings and plan collaborations. We will support: startups by providing product design validation; larger partners with theoretical frameworks and direction for future products; and receptors with knowledge to improve quality of life for Canadians and technologies that can be used in practice.
PAST KTEE: We believe our KTEE activities will be successful as we are building on existing relationships. We have previously had funding relationships with Perch Communications, MSR, College Mobile, Insightrix, AlienTrap, Google, SMART, and EA and these companies will continue this support. HQP have completed internships at College Mobile, AlienTrap, Insightrix, Demonware, EA, MSR, and Google. We are also bringing on new industry partners. Our record of patents (Hancock, Graham, Mandryk, Stanley) and working with partners (e.g., Visdatec Inc, Digital Extremes, TR Labs, Digido Interactive, SaskTel, Nokia) establishes our success in KTEE that we intend to build on.

Part H: Summarize how the project will network with other projects within GRAND.

CONNECT is complementary to other GRAND LOIs: The focus of KIDZ on design for children intersects with Foster, the use of games for wellness in G4HLTH and INCLUDE relates to Scaffold, and distributed play relates to SHARE/MAKE. The collection and use of large volumes of personal data in AVID relates to Gamify. The study of racism and sexism in games and the industry in ENGAGE/INDIE has importance for our work on interface techniques for breaking down the barriers to multiplayer socialization (Socialize). The goal of crowdsourcing work (Gamify) overlaps with EXPERT/COORDIN8. Although we see synergy with these other LOIs, it is clear that there is little overlap in terms of anticipated project outcomes; CONNECT is complementary to a variety of projects proposed in GRAND, yet it is also distinct. The focus of CONNECT is on interaction, collaboration, relationships, gamification, and social play. Although we expect to see ancillary benefits of our systems in terms of games for learning, health, and cognitive, emotional, or physical well-being, the main thrust of CONNECT is on social play for relationship building, entertainment, and supporting behaviours that promote learning. We will share findings with related projects through the overlapping researchers and periodic meetings.

While CONNECT is a new project proposal, it incorporates research from the past projects, AFEVAL and HSCEG. These two projects were highly-rated and successful in GRAND 1.0, and results from them will be transferred into CONNECT whereas outstanding research questions from them will be addressed in CONNECT (through Socialize, Match, and Evaluate). Thus AFEVAL and HSCEG will be discontinued as distinct projects, but will be rolled into CONNECT in an anticipated evolution of the network.

Part I: Summarize how one or more current or potential GRAND partners will be engaged in and benefit from the proposed research.

Our team will work closely with individuals at 20 partner companies. Our partners range from large companies with thousands of employees (e.g., MSR, Google, EA, Ubisoft, Microsoft Studios) to medium enterprises (e.g., SMART, Insightrix, Sesame Workshop) to small indie developers or start-ups who have already seen commercial success (e.g., Perch Communications, Alientrap Games, College Mobile, PlayOK, igGC, Silicon Sisters, Minority, Sleeping Beast Games, EastSide Games, Execution Lab, Bookata). This combination of industries will provide CONNECT researchers with incredible opportunities for industrial collaboration.

Small companies are willing to engage deeply, provide access to code and data, and can implement CONNECT-based solutions. Medium enterprises can benefit broadly from CONNECT research, giving a competitive advantage, whereas the large companies provide the opportunity for CONNECT-based solutions to have widespread impact. All partnerships may include HQP internships.

Receptors of our work include the game and media companies, but also include organizations representative of the end user who will benefit from CONNECT research. Although too numerous to list all receptors here, confirmed collaborators include the Saskatoon School Board, Saskatoon Health Region, Revera, Canadian Virtual Hospice, BC Cancer Agency, Homebody Health, and the Princess Margaret Hospital.

Part J: GRAND Challenges Check all that apply and briefly describe anticipated impact	
Entertainment ◉ Major impact ○ Minor impact ○ Negligible impact	We will provide new understanding of how digital play and games can support relationship building and social play. This will include new game and digital play technologies, new game mechanics, and new methods for evaluating game and play platforms for their ability to support relationships. We will create proof-of-concept prototypes and theoretical frameworks to address the challenge. Our results will be transferred to game companies for competitive advantage and widespread deployment.
Learning ◉ Major impact ○ Minor impact ○ Negligible impact	Some of our research efforts will enhance learning for children and adults through relationship building and knowledge creation of how digital play and games can be used by parents and children to support informal learning. We will also investigate structured learning through gamification in the classroom. Finally, our research will also result in new data gathering approaches (i.e., gamification) that can be used by academics and industry for data collection, modeling, and analytics.
Healthcare ○ Major impact ◉ Minor impact ○ Negligible impact	Some research will focus on populations facing health challenges and how we can support playful relationships among these populations. Additionally, some sub-projects will address secondary impacts of playful engagement such as quality of life; however, the goals of our subprojects in these areas are to connect people, scaffold relationships, and foster intimacy - achieving these goals will positively affect health, but our primary goal is social connectedness through play.
Sustainability ○ Major impact ○ Minor impact ◉ Negligible impact	Our work aims to bring people together through digital play; as an aside, our approaches may help foster connections through distributed technologies, reducing the need for travel.
Big Data ○ Major impact ◉ Minor impact ○ Negligible impact	Our research efforts in crowdsourcing work through games (Gamify) will allow for large amounts of data collected that could be used for modeling and analytics.
Work ○ Major impact ◉ Minor impact ○ Negligible impact	Our approaches for connecting individuals could be transferred to team building in distributed workplaces.
Citizenship ○ Major impact ◉ Minor impact ○ Negligible impact	Although our games systems will be designed to foster social connections, there is an opportunity for these social connections to crystallize around groups with common sociopolitical interests - essentially deepening civic engagement through play. The opportunity to crowdsource work through play can also be applied to improve civic engagement around particular issues (e.g., elections, bills), or to scaffold citizen science.