ACM Last Reviews

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| Annotated Review table | | | | | |
| No. | **Author, Journal, Year, Country** | **Problem Investigated/ Research Objectives; Theoretical/ Conceptual Frame** | **Methodology** | **Findings** | **Findings, Gaps/ Limitations/ Areas of further study, & Entrepreneurial Value/ Commercialisation of Project** |
| 87. | Greenhalgh, et al., (2022)  **ACM Library/**  **ACM Transactions on Computer-Human Interaction**  University of Nottingham, United Kingdom | **Problem Statement**:  - Traditional opera theatre experience is too conventional: it uses traditional “end-on” staging, yet this is now increasingly disrupted by smart phones. It is important that theatre plays are integrated with smart phones and other technologies to ensure more engagement.  **Objectives:**  **-** **-** To develop a mobile app that encourages audience members to use their own mobile phones to interact with on-stage projections before, during and after the performance.  **Conceptual Framework**:  HCI concepts of user journeys or  trajectories, display ecologies and spectator interfaces, | **Research Design**:  Design Science  **Type:** Case study  **Methods**  -Mixed methods  - Post-performance audience questionnaires,  -Interviews  -Analysis of system logs of app use  -Analysis of audience experiences on the app  **Population**:  19 students  Analysis: SPSS, Nvivo | **Curriculum**:  - Not included.  **Capstone**:  -Project explores the use of a smart phone in a theatre context  -Project was undertaken by staff and students of Nottingham University  -Students were mostly on the user-end of the design- especially during testing.  App was designed in the Mixed Reality Lab (MRL) (School of Computer Science, University of Nottingham).  -Study analyses and designs how theatre audiences engage and experience a live performance  -Focus in Mobile App development  -Project was divided into a writing team that composes the play details the design on paper; and a technical team that develops the App  -Work was done thru Design Workshops  -Participatory design through audience testing of the App  -Iterative designs between audiences and technical people  - A series of open-ended design discussions took place between July 2017 and October 2018, including mock ups, and prototypes.  -The project created an app that is used by theatrical audience members on their own mobile devices before, during and after the performance.  **Design Approaches Used in projects studied**:  HCI, User journeys/ stories, Spectator Interface Design, Smart Phones, Prototyping  **Academic programme studied**:  Not included | **Findings**  - There were 160 active app clients over two shows, i.e., approximately 62.5% of the audience (N = 256) used the app.  - 72 selfies were contributed, i.e., 28% of the audience or 45% of app users  - 54 clients liked a post and 94 responded to at least one quiz or poll. 45 clients were active during the audio play-back in Act 2 Scene 5 (although we cannot tell if they were muted or not from the app/logs).  -App usage is greatest before the show  -Most users felt more involved in the show when they integrated it with the App.  -A few found the App distracting  - Majority of the intended users adopted the app.  -Barriers to using the app include lack of a suitable device, apparent incompatibility with particular devices, and lack of knowledge, confidence and/or time to set it up and use it.  **Contribution**:  - The study created an app to be used with opera that enhances an audience member’s experience and sense of involvement in the opera through their own mobile devices, without compromising the opera itself.  -The role of the student is mostly observatory and not participatory in terms of design. The project falls short of the conventional capstone design elements.  **Gaps/limitations**:  The case study and design of the app relied on the audience’s smart phones and internet connectivity. The views of some of the respondents in the audience could not be easily gotten because of the compromises the team had to make to ensure participation.  **Possibility of Commercialising and up-scaling results of Projects**:  App was implemented but not commercialised. |

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| 88 | Harburg,, et al., (2022)  **ACM Library/ ACM Transactions on Computer-Human Interaction**  Northwestern University, United States | **Problem Statement**:  - SE PBL students receive infrequent social support, rarely engaged in online help-seeking, and perceive little progress until the end of their projects.  **Objectives:**  **-** To explore how to design an online system that  enlists external supporters to provide online social support to motivate PBL students.  **Conceptual Framework**:  HCI concepts of user journeys or  trajectories, display ecologies and spectator interfaces, | **Research Design**:  Design Science  **Type:** Observational Case study  **Methods**  -Qualitative  **Data Collection:**  - Interviews  **Population**:  127 Professionals  28 students  15 design supporters  Analysis:  Nvivo | **Curriculum**:  - Not included.  **Capstone**:  -Project developed an online social support app called CheerOn  - CheerOn was tested by 3 PBL teams and 15 external supporters over 6-weeks.  - CheerOn was designed to prompts novice student teams to externalize project progress allowing external, online supporters to offer social them support.  -Students were supported by 127 professionals across the network that volunteered as coaches for teams.  - Other participants included Peer instructors, students, mentors, and coaches.  - Students worked in groups of 4  -Students came from diverse backgrounds  - Student teams were not restricted to a particular solution, designing both services and products.  - Teams presented their process and solution at the conclusion of the term at a “final expo” to other members of their university design studio.  **Design Approaches Used in projects studied**:  Project Based Learning, Web Development.  **Academic programme studied**:  Multiple Courses:  Chemical Engineering (1),  Art, Theory and Practice (1), Manufacturing and Design Engineering (1),  Mechanical Engineering (4),  Comparative Literature (1),  Engineering  Sciences and Applied Mathematics (1), Computer Science (2), and  Computer Engineering (1). | **Findings**  - External project supporters provided instrumental, informational, and emotional support that strengthens students’ bonds to the community, and increases help-seeking.  - Supporters provide appraisal support, which increases students’ perceived value of their work.  - Supporters are more likely to offer informational and instrumental support when they are promoted or see a clear need for help;  - Supporters who receive gratitude from students are more likely to offer emotional support in return;  - Supporters who are closely connected to the community are more likely to offer appraisal and instrumental support.  **Contribution**:  - This study contributes to understanding of how hybrid face-to-face and online communities can impact the behaviour of PBL students, specifically towards the facilitation of help-seeking behaviour.  - The study creates a deeper understanding of how different types of social support (i.e., appraisal, emotional, informational, and instrumental) can impact the participation of PBL students and supporters.  **Gaps/limitations**:  The case study had some methodological limitations, since it was exploratory and qualitative, including students biases, their mixed reactions to praise from external supporters among others. Only 28 students was too small a sample to draw meaningful conclusions from the study.  **Possibility of Commercialising and up-scaling results of Projects**:  The developed app, CheerOn was tested on student communities, but not commercialised. |

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| 89. | Greenhalgh, et al., (2022)  **ACM Library/ ACM Transactions on Computer-Human Interaction**  University of Nottingham, United Kingdom | **Problem Statement**:  - SE PBL students receive infrequent social support, rarely engaged in online help-seeking, and perceive little progress until the end of their projects.  **Objectives:**  **-** To explore how to design an online system that  enlists external supporters to provide online social support to motivate PBL students.  **Conceptual Framework**:  HCI concepts of user journeys or  trajectories, display ecologies and spectator interfaces, | **Research Design**:  Design Science  **Type:** Observational Case study  **Methods**  -Qualitative  **Data Collection:**  - Interviews  **Population**:  127 Professionals  28 students  15 design supporters  Analysis:  Nvivo | **Curriculum**:  - Not included.  **Capstone**:  -  **Design Approaches Used in projects studied**:  Project Based Learning, Web Development.  **Academic programme studied**:  Multiple Courses:  Chemical Engineering (1),  Art, Theory and Practice (1), Manufacturing and Design Engineering (1),  Mechanical Engineering (4),  Comparative Literature (1),  Engineering  Sciences and Applied Mathematics (1), Computer Science (2), and  Computer Engineering (1). | **Findings**  -  **Contribution**:  -  **Gaps/limitations**:  **Possibility of Commercialising and up-scaling results of Projects**:  The developed app, CheerOn was tested on student communities, but not commercialised. |

Greenhalgh, C., Hazzard, A., Benford, S., Cliffe, L., & Kelly, E. (2022). Crafting trajectories of smart phone use at the opera. ACM Transactions in Computer-Human Interaction, Volume 29, Issue 6, Article 59 (November 2022), 37 pages. <https://doi.org/10.1145/3531007>.

Harburg, E., Lewis, D.R., Easterday, M., & Gerber, E.M. (2018). CheerOn: Facilitating online social support for novice project-based learning teams. ACM Transactions in Computer-Human Interaction, Volume 25, Issue 6, Article 32 (December 2018), 46 pages. <https://doi.org/10.1145/3241043>.