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**Critical Reflection —**

**Textile Game Controllers: Exploring Affordances of E-Textile Techniques as Applied to Alternative Game Controllers**

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The paper describes workshops that covered e-textile techniques by making alternative game controllers, which led to a conceptual game jam. The purpose was to prioritize creative exploration within marginalized makers. The research main goal was to explore and elucidate the overlap between e-textiles and experimental game making. The workshops served as a research method on embodied experience. Do-it-yourself game making gives a diverse and equitable space in technology. Many groups exist to gives space to marginalized groups and promote intersectional practices such as Dames Making Games. Alternative controllers gives the opportunity to remove the established conventions in games and design.

The text describes the Do-it-yourself concept, maker movement, and e-textiles.

Maker groups helped arise feminism in critical design in craft practices.

There was multiple objectives within these researches: identify affordances an e-textile can bring with alternative game controllers, develop materials and kits usable in future jams. And provide domain expertise to participants within an equity-seeking community.

The intersection of ethnography and practices consist of techniques (i.e., methods), translation (i.e., shift of ideas across multiple platforms) and transmission (i.e., act of communication). It offers a way to consider sustainability in research outcomes.

Play: mechanism for transmission that involves public in social spaces to extend research to a wider audience. Play holds the potential to disturb inevitable power dynamics while inviting active engagement.

Material play-> central to physical experiences of making, haptic and multi-sensory feedback core to both learning and developing e-textile and wearable technology projects.

Five workshops were offered, focusing on creation of alternative game controllers using textile sensors and microcontrollers. Each workshop explored different topics, materials, methods, and game types. They were announced individually and not as a series. It serves as an opportunity for iterative development. Time was devoted to teaching, designing, and crafting a game controller. Controllers produced were used to control existing games. The preparation of physical materials became more advanced through each workshop.

The first workshop, Introduction to Textile Game Controllers, introduced a curated selection of materials and prototyping methods to gauge interest in topics for future workshops. Three sensing methods were introduced: capacitive sensing, digital switches, and analog sensors, all made with conductive textiles. First method: connecting e-textiles on Makey Makey, a prototyping board used to create DIY interfaces for games.

Other methods: Using Arduino Micro board to enable textiles switches to control browser-based games on a USB-connected laptop.

Workshop 02 – Body-Centric Game Controllers: Deep dive into creating game controllers using analog sensors. Sensors are created with conductive fabric and resistive plastic sheeting. Create pressure-sensitive textile buttons designed for specific parts of the body.

Workshop 03- Wearable Game Controllers : Concept of digital switches focused on a more complex implementation of them, introduced the idea of “social switches”- closed or completed by multiple bodies. A piece of conductive fabric on another person’s body part will close the switch and make electrical connection. Focus placed on multiplayer/collaborative games.

Workshop 04- Stitch and Stuff: Making Embroidered Games: Creation of capacitive sensors using embroidering techniques with conductive thread. Took hardware-only approach to make textile game controller, game does not rely on a screen=-based device.

Workshop 05 – Fun with Felting: used the same sensing technique (capacitive) with a different crafting technique - felting. Game controllers looked most like consumer game controllers. Participants were more comfortable with a usual aspect of game controller.

Workshops identify dynamic processes of participants experience. Two main methods: photobooth particpants to self-document and “live” presentation materials were introduced to rapidly respond to participants needs while sessions were in progress.

Remote adaptation because of COVID-19.

Workshops-> spaces to enable material development and way to share skills and domain knowledge across participants.