

Yarncraft and Cognition: An Art Installation

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ABSTRACT

The popularity of knitting and crochet, or yarncraft, is on the ascent. As more people discover its pleasures, enthusiasts and neuroscientists are also realizing that crafting with yarn elicits soothing and therapeutic effects. The meditative aspects of knitting and crochet are already familiar to the legions of yarncrafters, but recognition of the neuroscience of yarncraft is a relatively recent phenomenon. This work proposes to embody the relationship between yarncraft and its neurological benefits with a physical art project. This project will take the form of a large crocheted e-textile brain sculpture with embedded LEDs whose illumination is controlled live by a brain-computer interface worn by a yarncrafting practitioner. This sculpture visualizes the changes in the neurology of the yarncrafter.

Author Keywords

Yarncraft; knitting; crochet; eeg; brain-computer interface; cognition; e-textile; soft-circuit; meditation; stress-reduction;

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous; See <http://acm.org/about/class/1998> for the full list of ACM classifiers. This section is required.

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MOTIVATION AND THEORY

Our ancestors have known for generations that repetitive activities such as knitting and crochet can be very calming, and these experiences are gaining widespread recognition. For example, there are currently many therapeutic programs incorporating yarncraft, such as a smoking cessation program in Toronto called *Knit to Quit*[3] and *Knitting Behind Bars*, a group that helps prisoners cope with the difficulties of incarceration by pursuing “the zen of knitting”[4].

While pioneering therapeutic groups enjoy anecdotal success by pursuing stress relief through yarncraft, researchers publish articles in scientific journals on similarly beneficial neurological outcomes. Dr. Herbert Benson reports that repetitive activities like knitting can elicit what he calls the “relaxation response,” a meditative state that leaves practitioners with a quieter, less troubled mind.[6] The Mayo Clinic Study of Aging finds that “cognitive activities such as... craft activities (quilting, knitting, etc.)... were associated with 30% to 50% reduced odds of having MCI [mild cognitive impairment among elderly people]” [2]. In another study of British crafters,

... Respondents attributed a number of psychological benefits to the knitting process, coming from its rhythmic and repetitive nature, which induced feelings of calm and relaxation... Knitting was perceived by respondents to improve their thinking, concentration, problem-solving abilities and memory [5].

Although formal studies with MRIs displaying the brain activity of yarncrafters do not seem to be available yet, one might presume that yarncrafters experiencing the relaxation response would enter a neurological experience comparable to that of a meditator, who also benefits from the relaxation response. Scientists such as Boccia analyze the state of meditators' brains with MRIs and other brain-imaging mechanisms.[1]

DESCRIPTION

I would like to express the pleasure and relaxation I personally derive from yarncraft through yarncraft itself.

I envision a mixed-media, e-textile, interactive sculpture that would illustrate the neurological benefits of yarncraft. It will be a crocheted, simplified model of a brain, probably about half a meter in length. I will embed LEDs into the structure of the brain that would light up in areas that are stimulated by the meditative process of knitting or crochet. This project will include live data visualization from the brain of a practicing yarncrafter. The activity of the LEDs will correspond to the brain activity of an actual yarncrafter wearing a low-cost, accessible EEG (electroencephalogram) or a BCI (brain-computer interface) such as OpenBCI or Muse. I plan to model the crafting-brain connection myself by wearing the EEG/BCI while yarncrafting. In this more interactive format, the project would require a booth or similar small area, probably no more than 3 meters by 3 meters, with a few chairs, a plinth, and a power source. Illumination patterns would be based on the findings of Boccia's meta-analysis of MRIs of meditating minds experiencing the relaxation response.[1] Participation with the project would most likely be limited to spectators' interactions with the artwork, such as looking at the crafted brain, touching it, and maybe doing some yarncraft while wearing a BCI if they know how to knit or crochet. I do not envision teaching spectators how to knit or crochet as part of this project, as that would be fairly complex and take quite a bit of time. Additionally, I think that only advanced yarncrafters can experience the "flow" that leads to meditative enjoyment while crafting.

ARTIST PROFILE

Kathleen Quitmeyer is a librarian and proponent of knitting and crochet. She has contributed to drives that espouse the health benefits of yarn craft such as The National Yarn Council's campaign "When Life Gives You Lemons" (<http://www.craftyarnCouncil.com/MEGAlemondive>). She

has an Etsy shop at <https://www.etsy.com/shop/WellReadPanda>. She is currently based in Singapore pursuing volunteer work concerning mental health, crafts, and the environment. Ms. Quitmeyer can be reached at Kathleen.quitmeyer@gmail.com or at +65-9081-6509.

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