Expanding the scope of experimental archaeology using the Perception-Process-Product analytical framework

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Abstract

This paper presents the Perception-Process-Product analytical framework to expand the scope of experimental archaeology. ¶

¶ **Keywords:** Experimental archaeology; Ethological analysis; Ethnographical analysis; Collaborative knowledge production

Contents

1 Introduction

This paper presents the Perception-Process-Product analytical framework to expand the scope of experimental archaeology (**Figure** 1). It aims to expose the behavioral variability at multiple levels and build the connections. minimal engineering using raw materials available in the past to demonstrate it is possible to do something.

This part talks about the goal and toolbox of PPP framework, which is understanding the multi-level understanding of variation. the first two p captures different level of variation: EQUIFINALITY (Chami, 2015).

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Is RCT the golden standard of knowledge (Cartwright, 2007)

Traditionally, experimental archaeology focuses on generating knowledge regarding the causal mechanism at behavioral level to explain the variation of material culture (Eren et al., 2016). In the past decades, actualistical experiments becomes more common (Liu & Stout, 2022). new toolkit such as BORIS were introduced (Friard & Gamba, 2016)

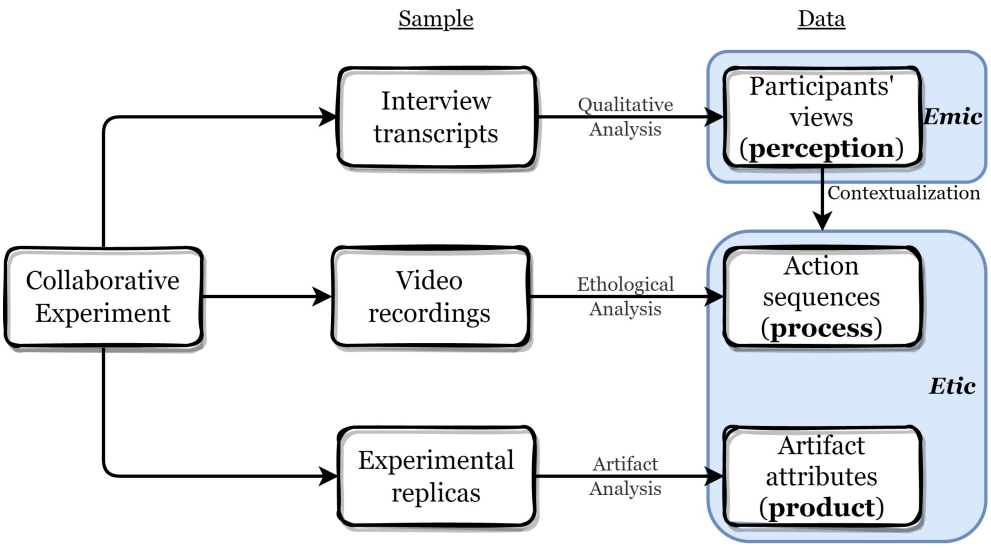

Figure 1: The conceptual diagram of the Perception-Process-Product analytical framework.

Ethological approaches has been first systematically developed and applied in the archaeological research by Haidle (M. Haidle, 2010; M. N. Haidle, 2009; Lombard & Haidle, 2012), known as cognigram, essentially representing an abstracting process of a series of behavioral sequences achieving a similar goal. This approach is a power and elegant yet limited by the curse of expertise (Hinds, 1999). Like chaine operatoire, it cannot handles variation very well. To some extent it describes the minimal steps to achieve a goal from the perspective of reverse engineering and assume clear causal thinking between each steps. Novices has a different sets of perception on the causal structure of how certain behaviors will modify the raw materials, leading to over-imitation. Here we used the ethogram, or the action grammar, developed by (Stout et al., 2021) as an example. Other coding scheme also exist such as (Mahaney, 2014).

2 The curse of knowledge

Variation: why novice is important? (Hinds, 1999)

3 Many places, many voices

Variation: why experts or collaborative knowledge from different regions matters?

The PPP analytical framework inherently adopts an collaborative mode of knowledge production, which has been advocated in experimental studies (Ranhorn et al., 2020) and museum collection studies (Timbrell, 2022).

4 Open science beyond reproducibility

The last step is uploading the data to a open-access repository (Marwick et al., 2017). The building of manufacture can cost (Gilmore et al., 2015; Simon et al., 2015).

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