0 - SUMMARY

In this graduation project in integrated product design, a musical instrument was designed to complement standard inventory of instruments at a social jam session, such that music novices can more easily learn to play music within this environment.

"Jam sessions" being a vague term, "social jam sessions" were defined for the purposes of this project as the social activity of playing unrehearsed or improvised music in an informal setting, accommodating musicians of varying levels and not focused on performance.

Preliminary research supports the theory that this activity **benefits mental wellbeing and social development**. As such, it has potential as vessel to combat sinking happiness and growing loneliness in young adults in the Netherlands (Ministerie van Volksgezondheid, Welzijn en Sport, 2023), especially considering the widespread interest in music.

Prior experience with such events had made apparent that **beginners in music, or "music novices", rarely frequent social jam sessions** or return after single-time participation. A poll with young adults from the TU Delft, shown in Fig. 1, indicated

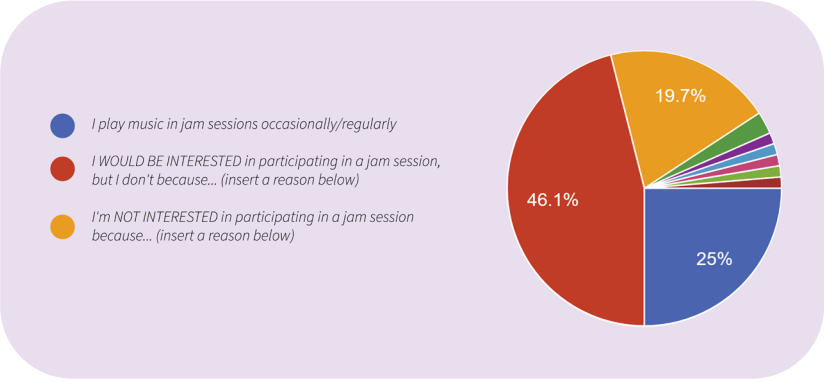

FIG. 1 A QUESTIONNAIRE (N=76) HELD WITH YOUNG ADULTS AT TU DELFT INDICATES A HIGH RELEVANCE OF THE PROJECT TOPIC

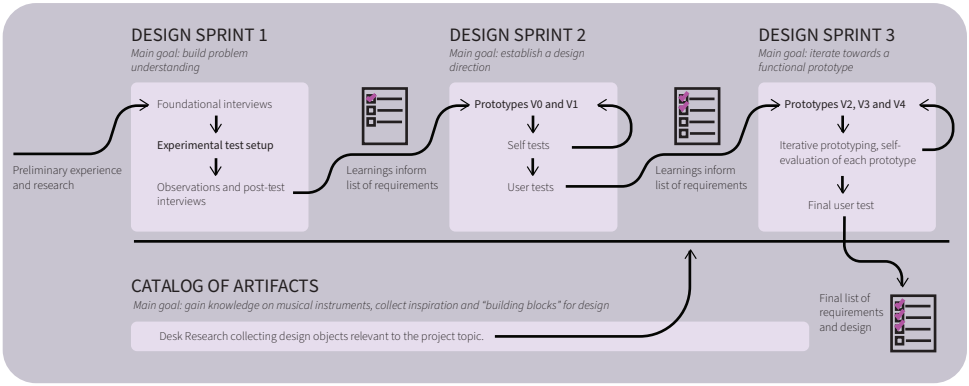

FIG. 2 DESIGN PROCESS

significant interest in joining this activity, paired with reasons for not doing so. With most such reasons revolving around musical instruments, **instrument design was chosen as a design space for the project**.

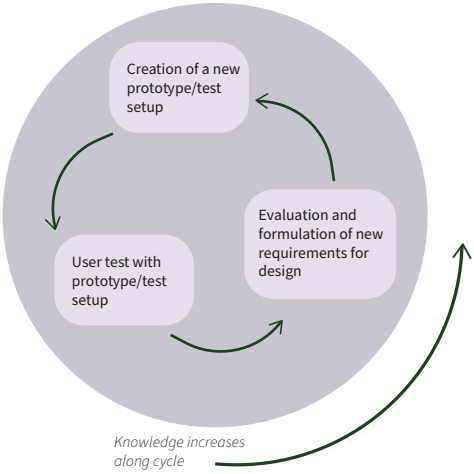

FIG. 3 THIS CYCLE IS THE BASIC BUILDING BLOCK FOR THE ITERATIVE, USER-CENTERED DESIGN APPROACH APPLIED IN THIS PROJECT

A user-centered approach was chosen with an iterative, research through design approach, consisting of consecutive design cycles of prototype production based on the collected knowledge, user tests of the prototypes, and evaluation and interpretation of the tests, leading to an increased level of knowledge, as shown in . This knowledge was used to update a list of requirements to the design, informing the next design cycle.

With these iterative design cycles as building blocks, a higher-level segmentation of the project was made in 3 “design sprints”. The first aimed at establishing an understanding of the problem, the second aimed at forming a general direction for the design, and the third aimed at developing a functional prototype instrument. Throughout these cycles, one experimental test setup and five prototype instruments were produced. In parallel, design artifacts were collected in desk research to expand knowledge on jam

session and instrument-related designs, as a source of operating schemes (Simondon, 1958) to inspire the creation of a new instrument.

The final design is a one-string acoustic bass instrument with a moveable bridge, called the “Bass Box”. Its size and playing position is the same as in a cajón, a widespread percussive instrument at social jam sessions. The pitch of the instrument can be changed dynamically by moving the bridge to create melodies. To give the player orientation, note markers can be clipped into the elongated sound holes to use as references. This allows music novices to receive guidance from advanced musicians in setting up the instrument, either manually or through oral instructions, with the assistance of an integrated tuner. For music novices, the Bass Box represents the missing step between simple percussive instruments such as the shaker, and complex melodic instruments such as the guitar. The Bass Box provides an entry into harmonic improvisation while simultaneously filling a gap in acoustic jam sessions by providing audible bass notes.