Purpose Products like the Apple iPhone or the Nintendo Wii have paved the way for Multi-touch and gesture-based interaction. Since their release, manufactures have brought this novel way of interaction with technology to almost every consumer electronic niche, ranging from cell phones, navigation systems, digital cameras and other handheld devices, to laptops, tablet-PCs and desktop computers. While more and more products are being pushed onto the market that can be operated by finger gestures on a touch-sensitive display, it remains largely unclear how suitable this new input paradigm is for an aging user. Previous research has shown that the direct nature of touch interaction could be beneficial to the older user[1], but also potential drawbacks and limitations of touch and gesture interaction have been discussed[2], such as the lack of haptic feedback, the loss of cues and affordances or the reluctant adoption of unfamiliar technology. The aim of the present research is to generate insight into whether, and under which boundary conditions, a finger-gesture based interface approach might facilitate interaction for elderly users. In this paper, we particularly focus on the semantics of gestures and try to answer the following questions: (i) Which gestures would older users spontaneously perform to achieve a range of typical tasks on a mobile device? (ii) Do these gestures differ systematically from gestures that younger users would perform for the same tasks? (iii) Is there enough agreement among users to derive generation-adequate design recommendations? **Method** We followed the approach of user-generated gestures[3], and compared a group of younger users (n=27, mean age=24.9 years) with a group of older users (n=26, mean age=66.4 years) on the generation of finger gestures for 42 typical tasks (e.g. scrolling a list, zooming a map, taking a call etc.) for a generic mobile device (*Figure1*). The gestures were videotaped, annotated with the help of a formal gesture description language, and analyzed according to the basic type of gesture (symbolic vs. direct manipulation), the number of fingers employed, the complexity of the proposed gesture, and the agreement across participants. Furthermore, we investigated the impact of previous knowledge and computer literacy on the performed gestures. **Results & Discussion** The performed gestures were generally very diverse, with older users showing significantly less agreement among themselves than younger users. This is in line with the reports of a higher congruence of experts compared to novice users[4]. Across age groups, the highest agreement achieved gestures related to simple selection and music playback control, while text-editing did not exhibit generally accepted gesture patterns. Interestingly, older users employed significantly more symbolic gestures and less direct interaction movements, and they also relied more heavily on single-finger gestures than younger users.

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Figure 1. Prototype of the handheld device