How visualizations supported goal setting and reflection in self-care technology

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Figure 1: With TRAILiT (left) players connect numbered circles to train their cognitive abilities. The timeline excerpt (middle) plots performance with colour, number and text annotation (right, top/bottom).

ABSTRACT

After discharge from rehabilitation, stroke survivors are excluded from the direct daily support of health care professionals and miss their help for reflecting on their continued recovery progress and goal setting. They are left mostly to their own devices to manage their health in their home contexts. Sudden changes in lifestyle and ability can lead to isolation and reduced social contact which is vital for them to receive encouragement. Self-care technologies provide an avenue to include patients by assisting them in managing their health by tracking and sharing health-related progress in their social circle and with peers. Visualizations are considered valuable as tools for gaining insight into progress, but how they need to support sharing, patient sensitivities and reflection is poorly understood.

We compare findings from interviews with a health care professional about a clinical context to a case study of a discharged and highly motivated stroke survivor training at home. The stroke survivor logged and annotated a paper-based time series visualization of performance data from a tablet application. Free text annotations of data points enabled reflection on training performance for the patient alone but the time series visualization was neither appropriate for sharing with peers and relatives to receive encouragement nor enough for the patient to understand her degree of improvement despite her mathematical competence. The patient’s reluctance to share the visualization may stem from requiring peers to engage with too much technical detail or exposing her prior medical condition or what she perceives to be incompetence.

We found that technical visualizations (e.g. shown in Figure 1) by themselves in our self-care setting poorly supported data interpretation and continued goal setting. To respect patient sensitivities and support sharing for social inclusion, self-care systems should communicate through data aggregations that emphasize patient achievements and allow them to control the visibility of medical details.