‘Bridging’ social contexts to learn from everyday life (mis)communication incidents: theoretical framing of the design of a digital reflection tool for primary school children with language impairments

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Abstract. Children with specific language impairments often experience miscommunication in the various social environments they engage in (e.g. school, at home, at leisure). In this design-based research project, a digital reflection tool was designed to support children with capturing (both positive and negative) (mis)communication incidents they experience during their everyday life, which can become ‘artefacts’ facilitating reflection with others. This paper reports on theoretical concepts that informed the design of the digital reflection tool.

Keywords: Reflection, Mobile learning, Seamless learning, Ubiquitous Learning, Learning Design, Situated learning.

1 Introduction

Children with Specific Language Impairment (SLI) are behind with their speech and/or natural language development, without causes such as hearing problems, neurological disorders or a low non-verbal IQ [1, 2, 3, 4]. Due to their language impairment children often experience miscommunication incidents, often leading to frustration, both for the sender as the receiver in the communication process, and may even lead to impeded social contacts, social phobias and loneliness [5,6,7].

While (mis)communication incidents happen in various social contexts and its frequency is unpredictable, it is difficult to guide, support and supervise children when learning how to cope with and learn from personally experienced (mis)communication incidents, both positive and negative. Incidents and contextual factors need to be recalled, described and taken into account.

In this study we aimed to support children with SLI to learn from their personal communication experiences in various social contexts (e.g. school, at home, at leisure) through reflection. To support their retrieval of (mis)communication incidents

and to facilitate discussing them with relevant others (e.g. teachers/coaches, parent, logopeadist), a digital reflection tool was designed to help them with 'capturing' (mis)communication incidents and (social)contexts in which these occurred, both in-and-outside school.

2 Theoretical framing of the digital reflection tool 'Communication Mirror'

The design of the digital reflection tool, called 'Communication Mirror', was grounded in several existing theoretical approaches, which are summarized below.

2.1 Seamless learning and hybrid learning environments

'Seamless learning' is about connecting (learning) experiences and learning activities that learners experience in various environments and settings through technology-supported learning scenario's using mobile/wireless/handheld devices, thus supporting, improving and enhancing learning-and support-processes [8][9]. The main objective is that learners experience a *continuity of learning* across environments at different times [10] [11]). In this study [12] we explored how the various social contexts children with SLI are interacting with (at school, at home, and at leisure) could be bridged, in order to develop both their communication skills and self-insight, grounded in personally experienced critical communication incidents.

2.2 Supporting development of self-awareness

Self-awareness is the capacity of becoming the object of one's own attention [13]. In this state one actively identifies, processes, and stores information about the self. Self-awareness positively affects reflection, self-regulation, self-efficacy, self-confidence, inners speech, self-recognition and accurate knowledge of ones abilities and talents [14]. Self-awareness can be facilitated through three mechanisms [13]. First, through physical stimuli representing oneself and ones behaviour, such as mirrors, texts, video, photo or (social) media. Second, through the social environment that complements ones inner self-image with feedback, (types of) listeners and alternative perspectives. Third, the inner speech and imagination of a person that complements ones self-image. The capability of inner speech of children with a language impairment is less well developed. By facilitating feedback from their social environment and by providing physical stimuli on their personal experiences inner speech and self-awareness could be developed.

2.3 'Capturing' critical incidents to learn from experience

In order to develop a realistic self-image and facilitate self-awareness, a personally experienced critical (mis)communication incident could captured, to both facilitate children's retention of this contextualized moment and support individual and collab-

orative reflection. Children can be supported with the creation of an artefact of an incident they experience. An artefact is an artificial representation of an event that can facilitate recall and make implicit knowledge, skills and contextual factors of a critical incident explicit [15]. This can facilitate more concrete, specific, effective and explicit reflection on the incident [16]. A critical incident is an important incident in the life of a student that effects them. These incidents can lead to (crucial) decisions, changes, actions and or reflection and have a lasting effect, as these moments are memorable and powerful for a learner [17]. Critical incidents are not intentional or planned. They offer an individual the opportunity to reflect on events that happen 'spontaneously' in a specific context. The presence and consideration of this context enhances active knowledge construction and involvement of a learner, with a more lasting effect [17, 18]. In a factual report the situation is described, the actions and activities that happened, the objective(s) of these activities, emotions experienced and the consequences of the critical event [18]. This factual report forms the artefact [15] and physical stimulus [13] that facilitates individual as well as collaborative reflection processes and talks. It also makes the information findable, retrievable and usable over time by various stakeholders, making a child's development explicit.

2.4 Supporting reflection on critical incidents

Grounded in several definitions [15, 16, 19], we defined reflection as a conscious, goal-directed activity, in which a person looks back at a personal experience in an earlier situation. A gap between what happened in this situation and what ideally should happen is identified. Hereby insights and awareness is gained in how the discrepancy between the actual and the ideal situation can be reduced, so that these insights can be used in a comparable situation. Concluding, reflection can happen through the occurrence of an unusual situation or can be stimulated externally, involves assessment and evaluation of a (personal) experience, convincement or knowledge and entails looking back critically to earlier actions [19]. To facilitate reflection, we grounded our design on the cyclic reflection process of [22], based on work of [20], which involves 1) an action or event, 2) a personal experience of this action or event 3) the conscious retrieval of the action/event, associated with a concrete personal experience of this event, 4) analysis leading to awareness and insights 5) processing of insights/awareness 6) deciding on how to act 7) personal (revised) action. In order to prevent rumination [21], where learners only focus on their faults and become overly critical and judgmental on their behaviour, reflection is positioned in a broader social context and involves individual and collaborative reflection with stakeholders. This facilitates understanding, analysis and problem-solving behaviour [21, 13].

2.5 The development of the digital reflection tool

The digital reflection tool was developed grounded in the literature above. The tool contains descriptive questions and a possibility to add photo's to reconstruct the critical incident by creating an artefact [15]. This artefact forms the physical stimulus that

can support self-insight, through individual and collaborative reflection [13]. This reflection process is supported by the tool through reflective questions, which help to provide context to the incident. The reflection process is based on the cyclic reflection model of [22]. The reflection tool contains support for every phase of this reflection cycle: Step A; the children experience a (mis)communication. Step B; descriptive questions and photo's help them to reconstruct the situation into an artefact. Step C1; reflection questions help to analyze the situation and are described as part of the artefact. Step C2; feedback is acquired through a conversation about the artefact with stakeholders (e.g. teacher, parent, peer), to gain additional insight in the situation. Step D; tips and tops provide additional information on controlled and yet to practice communication skills. Step E; a description of what action will be taken in the next comparable situation. Step F; next action taken and an opportunity to start the reflection cycle once more. After using the tool repetitively children could gain insight in their role and performance in various communication situations.

3 Conclusion and further work

This paper outlines the design considerations, from a theoretical stance, which led to a digital reflection instrument to support children with SLI to learn from critical (mis)communication incidents they experience across the various social contexts. Insights from literature on mobile seamless learning, self-awareness, critical incidents and reflection were combined to inform the design of the digital refection instrument, called 'Communication Mirror'.

The purpose of this instrument is to support children with gaining self-awareness of their role in these critical incidents, their (current) mastery of communication skills and to help them develop further. This is done by supporting them in capturing critical communciation incidents 'in context' through the creation of an artefact. By sharing this artefact with stakeholders across formal and informal social environments, individual and collective reflection processes can be facilitated.

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