

Designing an ASD Teacher Training Module through a Pictorial Narrative Approach

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Abstract—Global research consistently indicates that many teachers are lacking knowledge and skills to teach students with Autism Spectrum Disorder (ASD) in inclusive settings, particularly in countries with limited resources. To address the issue, we developed a unique ASD teacher training module which is presented through a compilation of 160 pictures, distributed across a 20-unit story called ‘The Story of Khamdy’. The story illustrates the everyday experience of a boy with ASD called Khamdy and how his parents and teachers helped him cope with different learning and daily living challenges. The units span across a range of topics related to the essential aspects of ASD, including disputing the myths of ASD, identifying the early signs, early diagnosis and intervention, preparation for inclusion, and transition to puberty and adulthood. Delivered through a pictorial narrative approach, this module aims to provide a meaningful and engaging way of learning about ASD to teachers in low-resource countries.

Keywords—Autism Spectrum Disorder; teacher training; pictorial narrative; Lao PDR

I. INTRODUCTION

Today, ‘autism’ or ‘ASD’ (Autism Spectrum Disorder) is one of the most common developmental disorders known globally [1]. Many are now aware of the terms ‘autism’ or ‘ASD’ [2], following the commonplace of public awareness campaigns, advocacy programs, and media reporting about ASD [3]. However, it is less clear to what extent the general public is aware of characteristics, challenges and support of ASD, including the diagnosis, etiology, and treatment of ASD [3, 4]. In a large scale population survey in Northern Ireland, 82% of the general public reportedly had heard about ASD [3] but had little understanding about the intervention aspect of ASD. Similarly, a population survey in the United States also revealed that public understanding about the diagnosis, etiology and treatment of ASD was poor [5]. In most studies, the lack of ASD knowledge was more prominent amongst males, those with low education level, those from ethnic

minority backgrounds [3, 4, 5] and those who do not have a family member with ASD [4].

From a global perspective, reports from low-resource countries revealed a critical lack of ASD knowledge among the general public [6]. Poor ASD knowledge in the low-resource communities causes negative impacts such as an under-identification of ASD [7], stigma towards young children with ASD and their family [8], and also culturally and socially constructed misconceptions that ASD is a ‘disease’ or ‘family problem’ rather than a life-long developmental disorder that requires long-term intervention and support from the local authorities [8]. Specifically, in schools, the lack of teacher knowledge about ASD has become a major hindering factor in the provision of equitable educational support for students with ASD in low-resource countries [9]. Despite pledging to inclusive education through the Salamanca Statement, teachers in many developing and low-resource countries do not have resources in the form of knowledge and skills about autism and inclusive pedagogies [9].

One way to tackle this issue in the low-resource countries is through a proper planning and execution of knowledge transfer. The review of literature suggested that one effective mode of knowledge transfer in low-resource countries is through pictorial communication [10, 11]. In health industry, research on HIV and cancer education had provided empirical evidence that the augmentation of communication via using suitable pictorial cues is effective to aid understanding and information recall, particularly for the community in developing and low-resource countries [10, 11]. The utilization of pictorial communication had steered the direction of designing a teacher training module on the topic of teaching students with Autism Spectrum Disorders (ASD) for the preschool and primary school teachers in Lao PDR. Laos is a Southeast Asian country traversed by the Mekong River and known for its mountainous terrain. The poverty rate in Lao PDR is recorded as 23% [12].

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II. LITERATURE REVIEW

Driven by the potentials to utilize pictorial communication as an effective tool for self-paced learning to deliver the module, the design of the module was further inspired by the pictorial narrative approach originated from ancient art [13]. Pictorial narrative is a form of narration through pictures which involves the rendering of specific events with recognizable personages [13]. A story is told in pictorial narration which include polychronic pictures which depict several moments by showing the same actors more than once [13, 14]. Grounded on the principles of pictorial communication and pictorial narration, a unique ASD teacher training module, presented through a compilation of 160 pictures and distributed across a 20-unit story called ‘The Story of Khamdy’ was designed for the purpose of providing a relatively quick yet motivation-sustainable self-paced learning module on ASD and inclusive educational support for students with ASD in Luang Prabang, Lao’s PDR. The content of the module was developed based on the findings of a preliminary survey conducted with teachers in Luang Prabang, Lao PDR. The story illustrates the everyday experience of a boy with ASD called Khamdy and how his parents and teachers helped him cope with different learning and daily living challenges. The units span across a range of topics related to the essential aspects of ASD, including disputing the myths of ASD, identifying the early signs, early diagnosis and intervention, preparation for inclusion, speech and language intervention, friendship and bullying prevention, and transition to puberty and adulthood. This module aims to provide a meaningful and engaging way of learning about ASD to teachers in Luang Prabang, Lao PDR.

III. METHOD

The Action Design Research (ADR) method [15] provided the framework for the design of “The Story of Khamdy”. Originally proposed to blend Design Research and Action Research, ADR is becoming an increasingly popular methodological guidance used to design, develop and evaluate ICT artefact, including e-learning products in developing and low-resource countries [16]. The first two stages in ADR method are (1) problem formulation and (2) building, intervention and evaluation [15] which will be discussed in turn below.

A. Stage 1: Problem Formulation

The problem provides the impetus for formulating the research effort [15]. A preliminary investigation was conducted to identify the problems faced by the preschool and primary school teachers in Luang Prabang, Lao PDR. Data were collected via a quantitative survey method, using a standardized instrument called Autism Stigma and Knowledge Questionnaire (ASK-Q) [17]. ASK-Q assesses teachers’ ASD knowledge and stigma. Ninety teachers participated in the survey. The ASK-Q findings indicated that only 13% of teachers reported that they had prior knowledge of ASD. This level of prior knowledge was noticeably low, as compared to 82% of prior knowledge reported by a community sample in Ireland, Britain [18]. As a group, half or more than half of the Laotian teachers did not know about the ‘etiology’ (only

52.2% with adequate knowledge), the ‘diagnosis’ (only 38.6% with adequate knowledge), and the ‘treatment’ (only 51.1% with adequate knowledge) of ASD. As expected, the Laotian teachers indicated a higher social stigma (the potential of children with ASD to become independent adults) towards children with ASD, than a stigma towards the causes and behaviours of ASD, and stigma related to religious beliefs. Additionally, it was observed that when answering the ASK-Q, many teachers could not understand the technical terms related to intervention and education of children with ASD. In Lao language, there are no existing terms for specific terminologies such as ‘autism’, ‘eye contact’, and ‘shared attention’. The findings gathered from the preliminary survey defined the problems to be tackled through the design of the teacher training module.

B. Stage 2: Building, Intervention and Evaluation

The second stage in the ADR model encompasses the BIE cycle: building of the artifact (B), intervention in the sample population (I), and evaluation (E). The outcome of the BIE cycle(s) is the design of the artifact [15]. In this project, the artifact is the teacher training module called “The Story of Khamdy” which was designed using the pictorial narrative approach. The 20 units of the module, begin with the birth of Khamdy and follow Khamdy’s developmental journey till he graduates from primary school. Each unit includes eight to 10 illustrations of specific techniques used by Khamdy’s parents and teachers to support Khamdy’s learning and to provide an inclusive environments to him. Figures 1 and 2 show the examples of two illustrations in Unit 7: Khamdy’s New Routine. In this unit, Khamdy just entered kindergarten and the storyline is about how his preschool teacher, Teacher Bounvanh helps him to be familiar with the learning environment in the kindergarten.



Fig. 1. Picture one in Unit 7



Fig. 2. Picture two in Unit 7

For the intervention, the targeted Laotian teachers will read the 20-unit story which is uploaded onto a Facebook social learning group. Facebook is chosen as the e-learning platform as it is the most common online social media used by the

community members in Lao PDR. Using Facebook as an online learning platform for the targeted teachers in the proposed project reduces the learning curves faced by the teachers. They can straightaway focus on the learning content rather than to spend extra time to acquire familiarity with the technical aspects associated with the use of a novel e-learning platform. After completing each unit, they will complete a quiz as an evaluation and self-reflection of the intended learning outcomes. Figure 3 shows an exemplar question in the quiz.

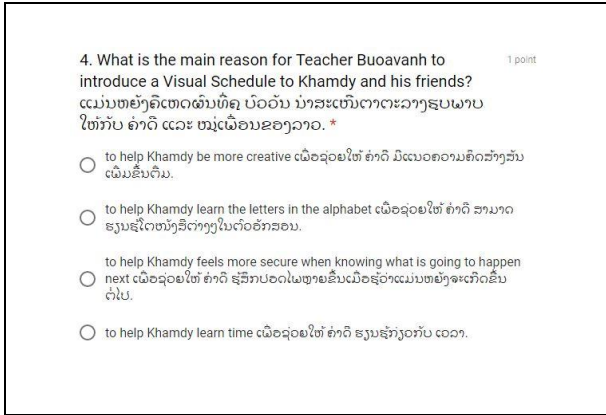


Fig. 3. Sample question in quiz

IV. DISCUSSION AND CONCLUSION

The design of “The story of Khamdy” using the pictorial narrative approach offers a new breath of teacher training option in developing and low-resource countries. By integrating practice-inspired research and theory-ingrained artefact [15], the training is expected to provide ASD knowledge transfer to teachers in Lao PDR, and also to other stakeholders and community members who are supporting young children with ASD in inclusive education. Abiding the design principles of the ADR model, “The story of Khamdy” will go through another two continuous stages of development, namely Stage 3: Reflection and Learning, and Stage 4: Formalization of Learning. These two stages include the utilization of the teacher training module in actual teacher training. In relation to this, the team is now working towards the formal launching of this module to the population of preschool and primary school teachers in Lao PDR, and also to consider the multilingual adaptation of this module. At the same time, effectiveness study will be conducted to obtain insights on the social and ecology validity of this module.

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