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一、中文摘要

Beukelman and Ansel (1995)指出美國具嚴重口語溝通障礙者0.8%至1.2%，Blackstone(1990)也指出學童中佔0.2%至0.6%；依此推估，國人中具嚴重口語溝通障礙者近乎佔二十五萬人口，障礙類型含智障者、自閉症者、聽障者、無喉者、多障者、發展遲緩者與神經性語障者等各類身心障礙，而溝通輔具運用則為重要議題。溝通輔具種類含各類溝通版、各類符號系統與呈現方式、聽覺輔助器、人工發聲器等；溝通輔具介入人員眾多包括個案使用者、家屬、語言治療師等各類復健師、特教老師等教育人員、輔具的設計者等相關工程師。溝通輔具運用成效是當今治療、教育與科技成果檢定關鍵。國內醫療復健與教育體系缺乏溝通輔具的運用成果文獻，影響溝通障礙者甚鉅。本研究目的有四項訴求：(一)調查溝通輔具介入的醫療、特教、社會福利單位。(二)針對溝通輔具特色、功能、價格、規格、經費來源、個案類型及介入狀況進行調查。(三)溝通輔具使用成效則包括個案溝通品質、溝通效率與使用的狀況、學習能力的改善程度、生活品質的改變等及介入的瓶頸、障礙程度等調查。(四)提供理想的介入模式、個案篩選與介入成效評量方式。本研究採用電話訪問與問卷調查方法，針對溝通輔具使用的單位與人員進行調查。202份問卷回收樣本中，50份為語言治療師、67份為學校中特教老師、40份屬社會福利機構、28份是人工發聲器使用者、17份是聽障班學童。問卷結果包括溝通輔具運用現況、溝通限制、溝通障礙評量、溝通現況、使用績效與溝通成果進行結果分析。本研究結果可提供國內使用溝通輔具介入者對使用現況認知，並進一步提出溝通輔具更佳服務模式。

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關鍵詞：溝通輔具、語言治療師、特教老師、使用者、問卷調查、溝通障礙、溝通成效

Abstract

One quarter of million nonverbal handicapped populations may exist in Taiwan, but no data had been reported regarding to the augmentative and alternative communication (AAC) services in this population. **Purposes** In this survey, four aims were explored: 1) The AAC application among the handicapped in the central Taiwan included Taiwan-made AAC products as well as the demographic data of users. 2) The AAC intervention process and related personnel were involved. 3) How is AAC intervention outcome regarding to communication efficiency and life quality improvement? 4) What suggestions can be made to improve the current AAC intervention services? **Design:** 85 users of locally designed AAC in the central Taiwan and 128 trainers including speech therapists, special education teachers and others were selected as subjects for this survey investigation. The survey data were analyzed by a descriptive statistics. **Results** It showed that AAC services did provide alternative to improve verbal communication limitation but a long-term effectiveness remains a problem. Teachers of special education, speech therapist and user's family

played major roles of the service, but the severity of the handicapped and user's family attitudes influenced effectiveness of AAC application significantly.

Keywords: AAC, survey, speech therapist, teachers of special education, users, intervention outcome, communication effectiveness

Introduction

The Augmentative and Alternative Communication (AAC) is to provide a mean to communicate with others. American National Joint Committee for the Communicative Needs of Persons with Severe Disabilities (1992) has documented the communication "*is any act by which one person gives to or receives from another person information about that person's needs, desires, perceptions, knowledge, or affective states.*" Communication may have linguistic or nonlinguistic forms, and may occur through spoken or "other modes". The American Speech-Language-Hearing Association (ASHA) and defined other modes as an area of clinical practice that attempts to compensate for the impairment and disability patterns of individuals with severe expressive communication disorders. (ASHA; 1989) AAC interventions should be multimode in nature, they should utilize "*the individual's full communication capabilities, including any residual speech or vocalizations, gestures, signs, and aided communication*" (ASHA; 1991).

Published prevalence estimates of the number of people with severe speech and/or writing impairments vary widely, depending on the country, age group, and types of disability surveyed. Beukelman and Ansel (1995) summarized the existing demographic data and suggested that 8-12 individuals per 1000 in the general population (0.8% - 1.2%) experience

severe communication impairments that require AAC. In the United States, 2,521,000 Americans older than the age of 15 experienced difficulty having their speech understood by others; this represents 1.3% of the entire U.S. population in this age group. (Beukelman & Mirenda; 1998) Blackstone (1990) suggested that 0.2%-0.6% of the total school-age population worldwide has severe speech impairment. In this prevalence rate, in Taiwan there are 276,000 to 184,000 populations in general and 130,000 to 46,000 school-age students who need AAC services.

There are several Taiwan-made AAC devices such as commercially available the communication board by the Assistive Technology Company as well as several experimental designed AAC devices for the hearing-impaired as well as non-vocal population had been developed by the department of engineering in Yang-Ming and Chang-Kong Universities.

Moreover, the government in Taiwan has recently advocated and funded three centers to investigate and develop new technology for the physically and mentally handicapped populations. Moreover, several locally made communication board items are available in the market, but limited research has been addressed to the application of AAC services for the communicative impaired.

There are four aims of this investigation: 1) To document the AAC services among the handicapped in the central Taiwan including devices, personnel and institutes as well as how the service has been provided; 2) To investigate the demographic data of the AAC users; 3) To survey the intervention outcome of AAC application for the communication disorders focussing on aspects of communication effectiveness, social interaction, learning achievement as well as life quality improvement; 4) To provide the AAC intervention model and

how to evaluate AAC intervention outcome.

Subjects and methods

The first part of investigation includes a questionnaire survey of 128 trainers of AAC including 50 speech therapists in the clinical settings and 78 teachers of special education in the special ed. class for the mental retarded as well as in the class of special resource at the public and private schools in the central part of Taiwan. The survey included the thirty-eight questions regarding to trainer's status, working experience with AAC users, AAC features as well as evaluation of AAC effectiveness. The second part of investigation included the survey investigation of 85 users with autism, mental retardation, hearing impairment, multiple disorders, developmental delay as well as artificial larynx. The data of 202 respondents were analyzed with descriptive statistics regarding to the parameters of communication status, measures of communication functions, AAC efficacy and AAC outcome.

Results

The first part of questionnaire survey of 50 speech therapist revealed that 78% working in hospital, 12% at the center of special children and 6% in the clinic. 90% of speech therapist has learned AAC through attending workshops. 86% of therapist recommended AAC service through an objective evaluation. The majority of therapists had had AAC with multimode and self-designed features, which covered high-tech communication board 23.9%, portable board 13.4% and clinician-designed low-tech notebooks of words and pictures. In terms of AAC intervention outcome, 60% of therapist considered AAC could improve the subjects' communication, 42% of therapist judged the improvement of subject'

quality, but only 37.7% rated effectiveness.

Regarding to AAC users characteristics, 13.1% of neurogenic disorders, 12.6% of multiple handicapped, 12.6% of mental retardate, 13.1% of autism, 16.7% with no vocal patients; in terms of intervention effectiveness, 30.4% rated the cases of language delay, 23.9% rated verbal apraxia. Among the AAC intervention outcome in their living situation, 68.8% rated no effectiveness because size of the board, 22.2% and not being supported from the family 24.6%. In terms of treatment outcome from disorders, none of the disorders can reach 20% of effectiveness. Regarding to improve AAC user's communication, 22.1% of therapists used AAC to stimulate communication attempt, 20.5% of therapist rated AAC to facilitate the user's language development, 17.2% to provide alternative communication and 12.3% used it as training materials.

A questionnaire survey of 78 teachers of special education indicated that 49% of teachers working in the class of mental retardation, 26.5% of teachers from private institutes for the special children and 16.3% belongs to the class of special resource. 86% of teachers have attended the workshop for the AAC. 77.6% of teachers had used AAC with their students based on the objective evaluation. 81.6% of teachers rated AAC application to improve communication of therapist recommended AAC service through attempt, 79.6 % of teachers rated AAC to improve student's expressive competence, 61.2% rated to improve student's learning, and 59.2% to improve social relationship. In terms of device feature, 33.8% of teachers used portable high-tech communication board, 24.7% used high-tech communication board, and 26.9% used self-designed notebook with pictures or words. Regarding to student characteristics, 17.8% rated their users with multiple handicapped, 16.3%

rated users of mental retardation, 15.5% rated users with autism and 14.7% rated users of developmental delay. In terms of effectiveness rating, 14.9% rated students of mental retardation another 14.9% rated autism, but none of the rest reached over 10%. 25.5% of teachers rated effectiveness of AAC use in teaching, 29.4% rated the good improvement for the students with autism, 21.9% rated least improvement for the students of mental retardation

The second part of survey results indicated that 28 users (mean age 62:5 years , duration of intervention 7:4 years)with artificial larynx achieved the highest score (94.6%) of communication outcome and efficacy and intervention goal achievement reached 90%. The second group of auditory amplification users included 17 subjects with a mean age 15:2 years among them, 12 with profound hearing loss And 4 with severe hearing loss. Their communication status with auditory amplification reached 35.3% communication efficacy reached 64% and the intervention goal achievement reached 76.5%. The third group of users included 10 AAC users with autism. The AAC included 2 with gestures, 8 with communication board. The users indicated poor outcome with 30% communication efficacy. The fourth group of 6 communication board users , mean age 5:1 years with developmental delay. They reached communication efficacy 55.5%, the 5th group of 14 AAC users- communication board and notebook with picture- suffered from MR. The result indicated they reached communication efficacy 28.6%. The 6th group of AAC users were ten users of multiple disorders, a mean age 12:4 years. The results indicated that 40% users achieved communication efficacy.

Conclusion and discussion

This project indicated the AAC application

in Taiwan revealed communication improvement data. Fifty Speech therapists as well as 67 teachers of special education indicated that they had been trained AAC knowledge by attending workshops and seminar. The majority of responders have used the commercially available high-tech AAC communication board designed by the Assistive Technology Engineering Company in Taiwan, either purchased by the users or rented from the Social Welfare Department. The majority of trainers and users did consider that the AAC in any form could improve communication deficits; however it is still not alternative communication for the users. There are limitations of AAC effectiveness due to the severity of the disorders, duration of intervention, trainer's experience with AAC as well as the family attitudes toward alternative communication. The majority of trainers have used the high-tech AAC as training materials to develop oral communication skills as well as other communication skills such as turn-taking, stimulation of communication attempts and development of semantic content. Well-structured training model with AAC is needed which can be developed either by experienced trainers or AAC centers. High- tech communication board should be supplemented with software such as trainer's design skills, client's carry-over to daily living as well as family education.

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