

# 科技部補助專題研究計畫成果報告

## 期末報告

應用 ICF-CY 為藍圖，建構評估使用輔助溝通系統(AAC)學生的溝通能力(communicative competence)指標:跨兒童到青少年

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計畫主持人：蔡孟儒  
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3. 「本報告」是否建議提供政府單位施政參考：是，衛生服務部社會及家庭署

中華民國 103 年 10 月 29 日

中文摘要：溝通能力(communicative competence)的概念已被廣泛地在多個領域中被研究超過 40 年，包括語言學、心理學和口語傳播領域。從 1960 年到 1990 年期間，大量的溝通能力相關研究(如，Chomsky, 1965；Cupacha & Spitzberg, 1983；Hymes, 1972；Simon, 1979；Wiemann, 1977；Wiemann & Kelly, 1981) 被發表，在不同領域的專家學者都有其領域溝通能力的定義與使用術語，這些術語在文獻中交替的使用，這更加混淆了研究溝通能力的專家學者。

ICF-CY 評估模式可以用於評估溝通障礙兒童與青少年使用輔助溝通系統(AAC)於環境中的溝通互動能力。國內有多位學者與專家(如，甘蜀美, 2009；黃靄雯, 2008；劉文瑜 et al., 2010)分別以 ICF 或 ICF-CY 為藍圖，分別針對兒童伴隨有自閉症、動作發展嬰幼兒、與腦性麻痺兒童等進行不同的應用。國外文獻(如，Pless & Granlund, 2012；Rowland, et al., 2012；Simeonsson, et al., 2012)也探討如何於輔助溝通系統領域中執行 ICF 和 ICF-CY 的評估模式。儘管如此，專家學者一致認為 ICF 與 ICF-CY 於輔助溝通系統相關服務的知識仍是限制的，並建議將此概念與評估模式應該於輔助溝通系統相關服務中被擴大使用。

本研究計畫欲達成之目的為「應用 ICF-CY 為藍圖，建構評估使用輔助溝通系統學生的溝通能力指標:跨兒童到青少年」。主要探究兩個子計畫：子計畫一：探究輔助溝通系統(AAC)使用者其溝通能力(communicative competence)的評估指標與方式與子計畫五：建構分析使用輔助溝通系統(AAC)兒童與青少年其溝通能力(communicative competence)的評估指標。子計畫一結果顯示溝通能力是學習來的，允許個人達到兩人談話的目標，進而達到其扮演的社會角色。溝通能力的達成需要兩個談話者共同建構。子計畫五結果將以四項溝通能力領域(即，語言能力(linguistic competence)、操作能力(operational competence)、社交能力(social competence)、策略能力(strategic competence))建構使用輔助溝通系統(AAC)兒童與青少年其溝通能力(communicative competence)的 ICF-CY 核心評估指標。

中文關鍵詞：溝通能力指標、ICF-CY、ICF、輔助溝通系統(AAC)

英文摘要：The concept of communicative competence has been studied widely for over 40 years in several fields, including linguistics, psychology, and speech communication. During the decades from 1960 through

1990, a vast of previous literatures (e.g., Chomsky 1965; Cupacha and Spitzbergb 1983; Hymes 1972; Simon 1979; Wiemann 1977; Wiemann and Kelly 1981) focusing on communicative competence suddenly emerged in the literature. Scholars in each field have their own definitions of communicative competence, and these definitions vary among these fields. In addition, scholars frequently used different terminologies to represent the phenomena of “communicative competence.” These confused scholars who wanted to investigate communicative competence.

The ICF-CY assessment model can be used to evaluate children and youths with communication disorders using augmentative and alternative communication system (AAC) in their daily environmental communication contexts. Domestic scholars and experts (如, 甘蜀美, 2009; 黃靄雯, 2008; 劉文瑜 et al., 2010), respectively apply ICF or ICF-CY framework in children with autism, infants with motor development, and young children with cerebral palsy. Foreign literature (如, Pless & Granlund, 2012; Rowland, et al., 2012; Simeonsson, et al., 2012) also explored the implementation of the ICF and ICF-CY assessment model in the field of AAC. Nevertheless, experts and scholars all agreed that applications of these two models in AAC are still limited, and suggested that these two models should be expanded in the AAC service.

The purpose of this study was to apply ICF-CY framework to build the indicators of communicative competence of individuals who use AAC. Two secondary projects were to explore measurement communicative competence in AAC practice and to establish measurement sets of communicative competence of children and adolescents who use AAC. The findings of the first project found that communicative competence is learned and allows individuals to achieve dyadic conversation goals and then social roles. Achievement of communicative competence requires co-construction of dyadic conversations. The findings of the second

project was to document core sets of ICF-CY according to linguistic competence, operational competence, social competence, and strategic competence in measuring communicative competence of children and adolescents who use AAC.

英文關鍵詞： communicative competence； ICF-CY； ICF；  
augmentative and alternative communication system  
(AAC)

# 行政院國家科學委員會補助專題研究計畫成果報告

(期中進度報告/期末報告)

應用 ICF-CY 為藍圖，建構評估使用輔助溝通系統(AAC)學生的  
溝通能力(communicative competence)指標：跨兒童到青少年

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計畫主持人：蔡孟儒

共同主持人：黃國祐、羅敦信

計畫參與人員：林思帆、徐詩涵、林佩樺

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3. 「本報告」是否建議提供政府單位施政參考 否 是，衛生服務部  
社會及家庭署（請列舉提供之單位；本會不經審議，依勾選逕予轉送）

中 華 民 國 103 年 7 月 31 日

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## 一、中文摘要

溝通能力(communicative competence)的概念已被廣泛地在多個領域中被研究超過 40 年，包括語言學、心理學和口語傳播領域。從 1960 年到 1990 年期間，大量的溝通能力相關研究(如,Chomsky, 1965; Cupacha & Spitzberg, 1983; Hymes, 1972; Simon, 1979; Wiemann, 1977; Wiemann & Kelly, 1981) 被發表，在不同領域的專家學者都有其領域溝通能力的定義與使用術語，這些術語在文獻中交替的使用，這更加混淆了研究溝通能力的專家學者。

ICF-CY評估模式可以用於評估溝通障礙兒童與青少年使用輔助溝通系統(AAC)於環境中的溝通互動能力。國內有多位學者與專家(如，甘蜀美, 2009; 黃靄雯, 2008; 劉文瑜 et al., 2010)分別以 ICF或ICF-CY為藍圖，分別針對兒童伴隨有自閉症、動作發展嬰幼兒、與腦性麻痺兒童等進行不同的應用。國外文獻(如, Pless & Granlund, 2012; Rowland et al., 2012; Simeonsson, Björck-Åkesson, & Lollar, 2012)也探討如何於輔助溝通系統領域中執行ICF和ICF-CY的評估模式。儘管如此，專家學者一致認為ICF與ICF-CY於輔助溝通系統相關服務的知識仍是限制的，並建議將此概念與評估模式於輔助溝通系統相關服務中被擴大使用。

本研究計畫欲達成之目的為「應用ICF-CY為藍圖，建構評估使用輔助溝通系統學生的溝通能力指標:跨兒童到青少年」。主要探究兩個子計畫: 子計畫一: 探究輔助溝通系統(AAC)使用者其溝通能力(communicative competence)的評估指標與方式與子計畫五: 建構分析使用輔助溝通系統(AAC)兒童與青少年其溝通能力(communicative competence)的評估指標。子計畫一結果顯示溝通能力是學習來的，允許個人達到兩人談話的目標，進而達到其扮演的社會角色。溝通能力的達成需要兩個談話者共同建構。子計畫五結果將以四項溝通能力領域(即，語言能力(linguistic competence)、操作能力(operational competence)、社交能力(social competence)、策略能力(strategic competence))建構使用輔助溝通系統(AAC)兒童與青少年其溝通能力(communicative competence)的ICF-CY核心評估指標。

關鍵詞: 溝通能力指標、ICF-CY、ICF、輔助溝通系統(AAC)

## 二、英文摘要

The concept of communicative competence has been studied widely for over 40 years in several fields, including linguistics, psychology, and speech communication. During the decades from 1960 through 1990, a vast of previous literatures (e.g., Chomsky, 1965; Cupacha & Spitzbergb, 1983; Hymes, 1972; Simon, 1979; Wiemann, 1977; Wiemann & Kelly, 1981) focusing on communicative competence suddenly emerged in the literature. Scholars in each field have their own definitions of communicative competence, and these definitions vary among these fields. In addition, scholars frequently used different terminologies to represent the phenomena of “communicative competence.” These confused scholars who wanted to investigate communicative competence.

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The purpose of this study was to apply ICF-CY framework to build the indicators of communicative competence of individuals who use AAC. Two secondary projects were to explore measurement communicative competence in AAC practice and to establish measurement sets of communicative competence of children and adolescents who use AAC. The findings of the first project found that communicative competence is learned and allows individuals to achieve dyadic conversation goals and then social roles. Achievement of communicative competence requires co-construction of dyadic conversations. The findings of the second project was to document core sets of ICF-CY according to linguistic competence, operational competence, social competence, and strategic competence in measuring communicative competence of children and adolescents who use AAC.

Key Words: communicative competence; ICF-CY; ICF; augmentative and alternative communication system (AAC)



## 壹、前言

溝通(communication)是接收訊息，然後向外發送訊息的日常生活重要行為。溝通在我們的生活中隨處可見，並允許在他/她的家庭教育環境、工作環境、與社區控制自己的環境和與他人的互動(Light, 1997)。溝通已被描述為接觸他人與被他人接觸，我們生活的一種行為。人為了扮演其社會角色，並發展其社交能力，她/他們常需倚賴其溝通能力(communicative competence)於日常生活中的談話(conversation) (Wiemann, 1977)，學齡兒童與青少年更利用其溝通能力廣交朋友(Gertner, Rice, & Hadley, 1994)。也就是說，學齡兒童與青少年的溝通能力愈佳，他/她們更能夠與其同儕談話互動，進而建立朋友關係。溝通能力較差的兒童與青少年擁有較少的機會與其同儕談話互動，相對而言，他/她們較少有機會建立朋友關係。溝通能力和同儕關係的建立的互動牽引不僅適用於一般口語說話的兒童與青少年，對於伴隨溝通障礙的兒童與青少年也不例外。

在台灣，大約有 107 萬的人(包含兒童與青少年)伴隨有不同的障礙，包括視力障礙、聽力障礙、嗓音或言語障礙、自閉症、多重障礙等(Social Sciences Research Center, 2010)，這些障礙都可能造成不同程度的溝通障礙。伴隨溝通障礙兒童與青少年無法像一般口語說話者一樣享受溝通特權(如，建立朋友關係)，甚至，一般口語說話者通常會認為這群伴隨溝通障礙兒童與青少年沒有任何想法要表達，所以，一般口語說話者常主導其與伴隨溝通障礙者的談話互動。在這種情況下，溝通能力低並伴隨溝通障礙成人的溝通權利常被剝奪，當然，兒童與青少年伴隨溝通障礙其溝通權利被剝奪也不可能例外。

這些伴隨溝通障礙兒童與青少年接受特殊教育訓練使其能夠獨立生活，並能夠獨立地與他人談話互動(林燕玲, 呂淑美, & 林子建, 2011)。為提供家長知道其伴隨溝通障礙兒童與青少年障礙的問題與限制，並獲得適性的特殊教育服務，這些兒童與青少年都必須接受口語表達能力評估與聽覺理解能力評估，並由醫療體系提供相關的醫學診斷(王國羽, 2011)。然而，此標籤化的評估方式僅評量伴隨溝通障礙兒童與青少年的身體缺陷或障礙所造成的口語表達和/或聽理解能力障礙，並未周全地考慮其在家庭、學校、與社區的功能性溝通能力，這些標籤化的狀況出現在使用輔助溝通系統(AAC)兒童與青少年也不例外(Finke & Quinn, 2012)。

楊熾康和鍾莉娟(2009)指出台灣約有 30 萬的伴隨溝通障礙者(包括兒童與青少年)需要使用輔助溝通系統(AAC)。在過去幾十年，輔助溝通系統(Augmentative and Alternative Communication, AAC)已被提供給伴隨溝通障礙的兒童、青少年、與成人，以協助他/她們重新與其家庭、同儕、同事、和社區的溝通，並再次扮演他/她們的社會角色(Calculator, 2007; Light, Stoltz, & McNaughton, 1996; Pless

& Granlund, 2012)。輔助溝通系統 (AAC) 暫時地或永久地補償因言語和/或語言障礙而導致溝通障礙的人(American Speech-Language-Hearing Association, 2005)，不僅輔助現有的溝通方式，也取代了不恰當的溝通方式，如問題行為 (American Speech-Language-Hearing Association, 2002)等。美國語言聽力學會 (ASHA) 進一步表示，輔助溝通系統能夠增加伴隨溝通障礙者的最大溝通能力，並進一步積極提供他們參與外在的溝通環境。也就是說，提供輔助溝通系統最後目的是藉由此溝通方式來提供無口語和低口語者的溝通能力(Beukelman, 1991; Yoder, 2001)，並滿足他/她們的溝通目標(Light, 1997)。相較於使用口語做為主要溝通方式的一般說話者，無法使用口語者可能會使用輔助溝通系統作為他/她們的溝通方式(Dietz, Quach, Lund, & McKelvey, 2012)。

輔助溝通系統包括四個主要部分：符號 (symbol)、輔具 (aid)、技術 (technique)、和策略 (strategy) (Beukelman & Mirenda, 2005, 2012)。一個「符號」包括實物，圖片，線圖，或注音符號，而一個「輔具」被描述為一個電子或非電子的設備，用來發送或接收消息(Beukelman & Mirenda, 2005, 2012)。「技術」是一種用來傳遞訊息的方式，通常包括：直接選擇 (direct selection) 模式和掃描 (scanning) 模式。直接選擇模式是個體可以直接指向或眼睛凝視選擇的項目 (即，溝通訊息)，而掃描模式是個體等待協助者或電子設備掃描通過每一個選擇的項目，待欲選擇的項目到達時，個人會按壓一個開關、眼睛凝視、發聲、或其他手段來確定欲選的項目(Beukelman & Mirenda, 2005, 2012)。最後，「策略」是一種有效地傳達訊息的方式(Beukelman & Mirenda, 2005, 2012)。

鑑於輔助溝通系統 (AAC) 的四個要素(即，符號、輔具、技術、和策略 (Beukelman & Mirenda, 2005, 2012)異於一般口語說話者，一般口語說話者的溝通能力(communicative competence)的定義與評估指標可能無法完全地套用到使用輔助溝通系統個人的溝通能力。在過去的二十年中，輔助溝通系統使用者的溝通能力、溝通能力的評估、與溝通能力的介入等相關的議題是關注的領域。Light (1989)提出具體的四個輔助溝通系統使用者溝通能力的要素，包括：語言能力 (linguistic competence)、操作能力(operational competence)、社交能力(social competence)、策略能力(strategic competence)。語言能力意指一項能力能夠熟悉語言的代碼。輔助溝通系統使用者必須熟悉至少兩種語言代碼，一種是社區文化使用語言代碼(如，國語)的聽理解，而另一種是其輔助溝通系統上欲表達的表達符號(如，圖文大師<sup>®</sup>) (Light, 1989)。操作能力意指一項能力能夠操作與使用輔助溝通系統/溝通輔具，這些能力包括操作方法和使用特殊功能(如，開/關開關，音量控制) (Light, 1989)。操作能力是輔助溝通系統使用者所特有的，然而，若他/她們僅擁有操作能力並無法保證有足夠的溝通能力(Beukelman, 1991)。社會能力意指社會語言學(socio-linguistic)能力和社會關係學 (socio-relational)能力(Light, 1989)。社會語言學能力是有知識與能力於談話互動中使用語言(Hymes, 1972)，

這些能力包括話題啟始、溝通中斷的修復、與溝通話輪的轉換等(Buzolich & Lunger, 1995)。社會關係學能力意旨能夠表現對他人感興趣，並與他人發展出正向的互動(Drager, Light, Speltz, Fallon, & Jeffries, 2003)。策略能力意旨能力能夠盡量減少其語言能力、操作能力、與社交能力的限制(Drager et al., 2003)。也就是說，策略能力用來補償語言能力、操作能力、與社交能力的缺陷，以進一步可以有效地溝通(Light, 1989)。雖然，這些輔助溝通系統使用者的溝通能力要素已經被提出，但是，專家學者們(如，Beukelman & Ansel, 1995; Light, 1989)認為，輔助溝通系統使用者溝通能力的定義與指標以及有效地評估方式仍然是不容易找到所有的答案。

## 貳、 研究目的

本研究欲達成之目的為「應用ICF-CY為藍圖，建構評估使用輔助溝通系統(AAC)學生的溝通能力(communicative competence)指標:跨兒童到青少年」。根據此研究目的，原研究計畫將逐一完成以下五個子計畫:

### 子計畫一

探究輔助溝通系統(AAC)使用者其溝通能力(communicative competence)的評估指標與方式。

### 子計畫二

探析不同專業人員對於使用輔助溝通系統(AAC)兒童其溝通能力(communicative competence)的評估指標與方式。

### 子計畫三

探析不同專業人員對於使用輔助溝通系統(AAC)青少年其溝通能力(communicative competence)的評估指標與方式。

### 子計畫四

探析不同外在/環境因素對於使用輔助溝通系統(AAC)兒童與青少年其溝通能力(communicative competence)的影響。

### 子計畫五

建構分析使用輔助溝通系統(AAC)兒童與青少年其溝通能力(communicative competence)的評估指標。

## 參、 文獻探討

溝通能力(communicative competence)的概念已被廣泛地在多個領域中被研究超過 40 年，包括語言學、心理學和口語傳播領域。從 1960 年到 1990 年期間，大量的溝通能力相關研究(如,Chomsky, 1965; Cupacha & Spitzberg, 1983; Hymes, 1972; Simon, 1979; Wiemann, 1977; Wiemann & Kelly, 1981) 被發表，這些文獻指出，「溝通能力」這個詞似乎很抽象，且其定義並非只是單純結合個別定義的「溝通」和「能力」而已。專家學者在不同領域中都有其溝通能力的定義與使用術語，這些術語在文獻中常被交替使用，這更加混淆了研究溝通能力的專家學者。

為解決溝通能力(communicative competence)定義與評估工具的多樣性與複雜性，Tsai(2013)曾回顧四個主要定義溝通能力的方式，並探究其每一方式的優點與缺點，更進一步建構出一般口語說話者其溝通能力的定義與其相關特性。Tsai(2013)指出一位有溝通能力的說話者不僅達到其溝通目標，也因應另外一位談話夥伴的談話方式、談話內容、和談話技巧，而適當地改變其談話的相關行為，而達到說話者與聽話者彼此於談話中的溝通目標。Tsai 更進一步說明，溝通能力是天生的生物能力，並受到環境、社會和文化的影響。也就是說，所有的人有不同程度的溝通能力（例如，高溝通能力或低溝通能力），此能力存在著一個連續的與動態的概念，並不是「全或無」，並根據不同的環境來判斷溝通能力的程度。

在 2001 年與 2007 年，世界衛生組織正式發行「國際功能分類系統」(ICF) 與「國際功能分類系統-兒童及青少年版」(ICF for Children and Youths; ICF-CY)。其內容包括「健康情形」(Health Condition)、「身體功能及構造」(Body Functions and Structures, b, s)、「活動及參與」(Activities and Participation, d)、「環境因素」(Environmental Factors, e) 及「個人因素」(Personal Factors) 五個部份。ICF 與 ICF-CY 的分類系統捨棄不必要的內在標記，強調外在環境與個人因素所造成的阻礙，以提供其相關服務(Bornman, 2004; Florian et al., 2006; 王國羽, 2011)。其中的「活動及參與」部份除強調評估之外，更著重評量個人於家庭、學校與社區的溝通互動表現(Simeonsson et al., 2012)。王國羽(2011)建議特殊教育的評估必須藉由了解兒童與青少年的身體障礙限制，進一步評估其活動與參與能力。於溝通障礙領域中，伴隨溝通障礙兒童與青少年溝通能力(communicative competence)的發展，不只是受到其內在的生理與心理狀況影響，更重要是受到外部環境的限制(王國羽, 2011)。所以，評估伴隨溝通障礙兒童與青少年的溝通能力必須評量分析其活動與參與時的能力，而不是單面向地評估其身體障礙造成其口語表達能力與聽覺理解能力的限制。以此推論，當伴隨溝通障礙兒童與青年被提供輔助溝通系統時，身體障礙造成他/她們使用輔助溝通系統的限制與參與社會參與的能力是要被評估的。

過去幾年，國外文獻也指出 ICF 和 ICF-CY 的評估模式解決專家學者於教育介入與研究上的困境，包括：(1)克服招募多元化與高差異化研究對象的困境。也就是說，藉由這兩項評估方式的分數差異，研究學者可以招募同質性較一致的伴隨溝通障礙研究對象。同時，輔助溝通系統領域的研究學者也可以解決其招募研究對象的限制(如，Finke & Quinn, 2012; Pless & Granlund, 2012)；與(2)提供專業人員清楚了解伴隨溝通障礙兒童與青少年於家庭、學校、和社區使用輔助溝通系統的溝通互動能力，適當介入的決策以此為依據(Simeonsson et al., 2012)。

國外文獻也清楚歸納評估使用輔助溝通系統於外在環境溝通互動能力的重要性，包括：(1)伴隨溝通障礙兒童與青少年使用輔助溝通系統於外在環境中的溝通互動能力可以清楚地與完整地知道(Murphy & Boa, 2012; Simeonsson et al., 2012; Simeonsson, Scarborough, & Hebbeler, 2006)；(2)溝通障礙的介入服務必須以溝通障礙者其社會功能性談話互動能力為基礎(Fey, 1986)。基於此，當評估伴隨溝通障礙兒童與青少年使用輔助溝通系統的能力時，絕非僅僅評估其表達與聽理解能力，更重要是評估其參與家庭與社會談話互動的能力(Lund & Light, 2006; Simeonsson et al., 2012)；(3)輔助溝通系統介入服務的訓練是依據使用者於一般生活互動情境使用輔助溝通系統的能力，提供不同形式溝通技巧的介入(如，Marshall & Goldbart, 2008)；與(4)唯有家長、學校教師、與照顧者清楚伴隨溝通障礙兒童與青少年使用輔助溝通系統的外在環境影響因素，也只有他們清楚這些兒童與青少年於家中與學校使用輔助溝通系統的情形(如，Rowland et al., 2012; Simeonsson et al., 2012)。

另一方面，Tsai(2014, submitted)曾探討教保員針對在作業活動工作的使用溝通輔具青少年的教學和/或指導經驗。Tsai 發現這些青少年於作業活動中僅限於指認其溝通輔具(如，Go Talk)版面上的訊息(即，語彙)，而無法有能力地使用其溝通輔具和其他溝通方式與其教保員進行談話互動。也就是說，這些青少年可以於教室練習時應專業人員要求「請指出請幫忙」時，正確指出溝通輔具上「請幫忙」的訊息，但是當其於作業活動時需要他人的協助時，卻無法使用溝通輔具上的「請幫忙」訊息。Tsai 更進一步解釋，可能專業人員僅評估青少年指認溝通輔具上的訊息(即，語彙的聽理解指認)，而忽略其於作業活動等環境中使用溝通輔具的溝通能力(communicative competence)，接下來導致後續的介入服務單純著重於找到正確的溝通訊息和選擇訊息。這樣的結果明顯忽略評估外在環境溝通互動能力的重要性。

綜上所論，ICF-CY 評估模式的確除了確認兒童與青少年接受特殊教育的必要外，還提供專業人員跳脫傳統評估伴隨溝通障礙的框架，觀察到伴隨溝通障礙兒童和青少年溝通能力(communicative competence)的全貌，並提供更多元與功能性的評估資料。當然，此種評估模式也可以用於評估伴隨溝通障礙兒童與青少年

使用輔助溝通系統(AAC)於環境中的溝通能力。目前，國內有多位學者與專家(如，甘蜀美, 2009; 黃靄雯, 2008; 劉文瑜 et al., 2010)分別以 ICF 或 ICF-CY 為藍圖，分別針對兒童伴隨有自閉症、動作發展嬰幼兒、與腦性麻痺兒童等進行不同的應用。另外，國外文獻(如，Pless & Granlund, 2012; Rowland et al., 2012; Simeonsson et al., 2012)也探討如何於輔助溝通系統領域中執行 ICF 和 ICF-CY 的評估模式。儘管如此，雖然，Pless & Granlund(2012)指出於 ICF 於輔助溝通系統相關服務的知識仍是限制的，專家學者更必須採用 ICF 的模式來重新執行輔助溝通系統相關服務。Simeonsson 等人(2012)也建議 ICF-CY 的概念與評估模式應該於輔助溝通系統相關服務中被擴大使用。但是，應用 ICF-CY 的藍圖於評估使用輔助溝通系統兒童與青少年的溝通能力(communicative competence)也尚未被討論與研究。

另外，雖然 Light (1989)提出了輔助溝通系統使用者溝通能力的四項組成能力(即，語言能力、操作能力、社交能力、與策略能力)，但是，直至今日(2014年)，專家學者並無繼續再提出發展或建構輔助溝通系統使用者的溝通能力的指標。Light(1988)也建議使用多年的縱向研究來建構溝通能力的評估指標與發展其評估流程與方式是必需的。此外，使用輔助溝通系統的兒童與成人如何發展其溝通能力也是需要再探究的。

基於以上的限制，有六個問題尚未被解決的：

1. 一般口語說話者的溝通能力(communicative competence)指標是否可以被採用為輔助溝通系統使用者的溝通能力指標？
2. 使用輔助溝通系統兒童的溝通能力指標為何？
3. 使用輔助溝通系統兒童的溝通能力指標的評估方式為何？
4. 使用輔助溝通系統青少年的溝通能力指標為何？
5. 使用輔助溝通系統青少年的溝通能力指標的評估方式為何？

這些問題的釐清有助於：

1. 了解一般口語說話者的溝通能力(communicative competence)指標是否可以被採用為輔助溝通系統使用者的溝通能力指標。
2. 了解使用輔助溝通系統兒童的溝通能力指標。
3. 了解使用輔助溝通系統兒童的溝通能力指標的評估方式。
4. 了解使用輔助溝通系統青少年的溝通能力指標。
5. 了解使用輔助溝通系統青少年的溝通能力指標的評估方式。

## 肆、 研究方法

本研究計畫旨在應用 ICF-CY 為藍圖，建構評估使用輔助溝通系統(AAC)兒童與青少年溝通能力(communicative competence)的指標。為達成此研究目的，原研究計畫將依據不同的研究子計畫採用不同的研究設計。

- ◇ 子計畫一:探究輔助溝通系統(AAC)使用者其溝通能力(communicative competence)的評估指標與方式。

### 研究方法

進行國內外相關文獻的回顧，包括:評估一般說話者溝通能力(communicative competence)、評估伴隨溝通障礙學生溝通能力、與評估輔助溝通系統(AAC)使用者溝通能力。目的:(1)定義伴隨溝通障礙學生的溝通能力；與(2)定義輔助溝通系統(AAC)使用者的溝通能力。首先，以關鍵字「溝通能力」、「溝通」、「communicative competence」、「communicative competency」、「communication competence」、與「communicative competency」等關鍵字搜尋中文與英文溝通障礙領域與輔助溝通系統領域相關的期刊與書籍章節，並整理出其定義、特性、評估指標、評估方式、與發表的評估工具等。接下來，再參考 Tsai(2013)提出的一般口語說話者溝通能力指標與評估方式與 ICF-CY 中所提供的溝通評估項目，整理出輔助溝通系使用者其溝通能力的定義與評估指標項目。

- ◇ 子計畫二:探析不同專業人員對於使用輔助溝通系統(AAC)兒童其溝通能力(communicative competence)的評估指標與方式。

### 研究對象

招募 30 位研究對象，包括 10 位語言治療師、10 位特教特殊教育老師、10 位學術研究學者。

- ◆ 語言治療師符合以下納入條件:
  - 在日常生活情境中，中文是第一語言。
  - 具有從事兒童語言治療實務服務 10 年以上。
  - 具有提供至少 5 位兒童輔助溝通系統(AAC)相關服務(如，評估與介入)6 個月以上。
- ◆ 特教特殊教育老師符合以下納入條件:
  - 在日常生活情境中，中文是第一語言。
  - 具有從事幼稚園、國小、國中特殊教育實務服務 10 年以上。
  - 具有提供至少 3 位兒童輔助溝通系統(AAC)相關服務(如，評估與介入)6 個月以上。
- ◆ 學術研究學者符合以下納入條件:
  - 在日常生活情境中，中文是第一語言。
  - 具有溝通障礙學領域或特殊教育領域碩士或博士學位。

- 具有曾研究伴隨溝通障礙兒童或青少年輔助溝通系統(AAC)相關議題。

## 研究方法

使用質性研究的方式來進行現象學分析(phenomenological analysis)，以建立共同主題群，而且將以情境式來描述這些主題群 (Creswell, 2007)。研究對象將會被聯繫和填寫進行訪談的書面同意書。由計畫主持人或協同主持人前往研究對象服務地點的一個安靜空間進行訪談，且所有的訪談內容將由 SONY Stereo IC Recorder (SONY ICD-SX813)錄音下來，以作為後續的資料抄錄與分析(NVivo 10 質性分析軟體)。每位研究對象將參與一次約 20-30 分鐘的訪談。為了探討出現的主題和澄清訪談時的疑問，將執行半結構化的訪談(semi-structured interview)方式。此次訪談將使用開放式討論的方式進行 (Dietz et al., 2012; Westby, 1990)，並於每個訪談問候後，提供必要的相關開放式的問題。後續訪談內容疑問的澄清和研究對象訪談結果的檢查將會透過電訪或拜訪研究對象來完成。首先，訪談的目的將會先被謹慎的解釋，並提示研究對象說明他/她曾經有提供或研究輔助溝通系統(AAC)的服務或議題。

## 研究材料

訪談由一個開放式的問題開啟：「請您聊一聊，評估使用輔助溝通系統(AAC)兒童其溝通能力(communicative competence)的想法」。在這個問題後，研究對象將被問及以下更多細節的四個問題：

- (1) 在您過去提供或研究兒童使用輔助溝通系統的過程中，您是否曾對「溝通能力的評估指標與方式」有任何特別的問題或挑戰？
- (2) 在您過去提供或研究兒童使用輔助溝通系統的過程中，評估其溝通能力，所面對的困難是什麼？
- (3) 您是否必須為了遷就評估使用輔助溝通系統兒童的溝通能力，而改變或修正您的評估指標與方式？
- (4) 您是否有任何研究發表或是已發行的評估工具可以評估使用輔助溝通系統兒童的溝通能力？

在四個細節的問題後，研究對象將會被詢問另一個開放式的問題：「對於將建構使用輔助溝通系統兒童其溝通能力的評估指標與方式，你認為最需要的評估指標與評估方式為何？」訪談過程中，研究對象將被鼓勵闡述他們對於問題的回應，也會在計畫主持人(或協同主持人)沒有清楚理解的地方被要求去澄清或給予更多細節的描述 (Bailey, Stoner, Parette, & Angell, 2006)。此外，在整個訪談過程中，訪談者(計畫主持人或協同主持人)會盡量回應或換句話說研究對象的回答，或換句話說以驗證他們的意圖。這些過程將可避免研究對象和訪談者間的誤解 (Yorkston, Klasner, & Swanson, 2001)。只要研究對象有需要，他們將有足夠的時間去回答問題，一般來說，



整個訪談過程時間約需 30~40 分鐘，並且將全程錄音以便進行進一步的分析。

### 資料整理與分析

所有錄音的訪談內容由三位兼任助理進行逐字抄錄，抄錄內容的正確性將於一週後再由另外三位兼任助理檢閱錄影內容和轉錄內容，並確認無誤。現象學分析(phenomenological analysis)將會用來分析研究對象的語言樣本，在該過程中，與建構使用輔助溝通系統(AAC)兒童其溝通能力(communicative competence)的評估指標與方式相關的重要內容將會被標註，以建立共同主題群，而且將以情境式來描述這些主題群 (Creswell, 2007)。首先，為了取得全部訪談的精華，計畫主持人將會閱讀每份轉錄的語言樣本數次，然後才針對每一個訪談問題，再次閱讀語言樣本並進行初步的主題編碼，之後，這些初步主題編碼的語言樣本將再次被檢驗，來尋找出所有的語言樣本內容中的共同主題。最後，這些經主題編碼過的語言樣本與尋找出的共同主題將被協同主持人(或計畫主持人)驗證其正確性。

### ☆ 子計畫三：探析不同專業人員對於使用輔助溝通系統(AAC)青少年其溝通能力(communicative competence)的評估指標與方式。

#### 研究對象

招募 30 位研究對象，包括 10 位語言治療師、10 位特殊教育教師、10 位學術研究學者。

#### ◆ 語言治療師將符合以下納入條件：

- 在日常生活情境中，中文是第一語言。
- 具有從事青少年語言治療實務服務 10 年以上。
- 具有提供至少 5 位青少年輔助溝通系統(AAC)相關服務(如，評估與介入)6 個月以上。

#### ◆ 特殊教育教師將符合以下納入條件：

- 在日常生活情境中，中文是第一語言。
- 具有從事高中職特殊教育實務服務 10 年以上。
- 具有提供至少 3 位青少年輔助溝通系統(AAC)相關服務(如，評估與介入)6 個月以上。

#### ◆ 學術研究學者將符合以下納入條件：

- 在日常生活情境中，中文是第一語言。
- 具有溝通障礙學領域或特殊教育領域碩士或博士學位。
- 具有曾研究伴隨溝通障礙兒童或青少年輔助溝通系統(AAC)相關議題。

#### 研究方法

將與子計畫二研究方法相同。

## 研究材料與資料整理與分析

訪談由一個開放式的問題開啟：「請您聊一聊，評估使用輔助溝通系統(AAC)青少年其溝通能力(communicative competence)的想法。」在這個問題後，研究對象將被問及以下更多細節的四個問題：

- (1) 在您過去提供或研究青少年使用輔助溝通系統的過程中，您是否曾對「溝通能力的評估指標與方式」有任何特別的問題或挑戰？
- (2) 在您過去提供或研究青少年使用輔助溝通系統的過程中，評估其溝通能力，所面對的困難是什麼？
- (3) 您是否必須為了遷就評估使用輔助溝通系統青少年的溝通能力，而改變或修正您的評估指標與方式？
- (4) 您是否有任何研究發表或是已發行的評估工具可以評估使用輔助溝通系統青少年的溝通能力？

在四個細節的問題後，研究對象將會被詢問另一個開放式的問題：「對於將建構使用輔助溝通系統青少年其溝通能力的評估指標與方式，你認為最需要的評估指標與評估方式為何？」其他相關步驟與資料整理與分析將與子計畫二研究材料與資料整理與分析相同。

### ☆ 子計畫四：探析不同外在/環境因素對於使用輔助溝通系統(AAC)兒童與青少年其溝通能力(communicative competence)的影響。

#### 研究對象

招募 65 位研究對象，包括 10 位語言治療師、10 位特殊教育教師、10 位職能治療師、10 位物理治療師、10 位學術研究學者、5 位溝通輔具製造/代理商代表、10 位使用輔助溝通系統(AAC)兒童與青少年的照顧者。

- ◆ 語言治療師將符合以下納入條件：
  - 在日常生活情境中，中文是第一語言。
  - 具有從事語言治療實務服務 10 年以上。
  - 具有提供兒童或青少年輔助溝通系統(AAC)相關服務(如，評估與介入)3 年以上。
- ◆ 特殊教育教師將符合以下納入條件：
  - 在日常生活情境中，中文是第一語言。
  - 具有從事特殊教育實務服務 10 年以上。
  - 具有提供兒童與青少年輔助溝通系統(AAC)相關服務(如，評估與介入)3 年以上。
- ◆ 職能治療師將符合以下納入條件：
  - 在日常生活情境中，中文是第一語言。
  - 具有從事職能治療實務服務 10 年以上。
  - 具有提供兒童與青少年輔助溝通系統(AAC)相關服務(如，評估與介入)3 年以上。

- ◆ 物理治療師將符合以下納入條件:
  - 在日常生活情境中，中文是第一語言。
  - 具有從事物理治療實務服務 10 年以上。
  - 具有提供兒童與青少年輔助溝通系統(AAC)相關服務(如，評估與介入)3 年以上。
- ◆ 學術研究學者將符合以下納入條件:
  - 在日常生活情境中，中文是第一語言。
  - 具有溝通障礙學領域或特殊教育領域碩士或博士學位。
  - 具有曾研究伴隨溝通障礙兒童或青少年輔助溝通系統(AAC)相關議題。
- ◆ 溝通輔具製造/代理商代表將符合以下納入條件:
  - 在日常生活情境中，中文是第一語言。
  - 具有從事溝通輔具製造/代理商代表 3 年以上。
  - 具有提供兒童與青少年輔助溝通系統(AAC)相關服務(如，評估與溝通輔具建議等)3 年以上。
- ◆ 使用輔助溝通系統(AAC)兒童與青少年的照顧者將符合以下納入條件:
  - 年齡至少 18 歲。
  - 在日常生活情境中，中文是第一語言。
  - 照顧、提供服務、和常與此輔助溝通系統(AAC)使用者進行談話。
  - 沒有任何的認知或言語障礙。

## 研究方法

將與子計畫二研究方法相同。

## 研究材料

訪談由一個開放式的問題開啟：「請您聊一聊，不同的外在/環境因素對於使用輔助溝通系統(AAC)兒童與青少年其溝通能力(*communicative competence*)的想法。」在這個問題後，研究對象將被問及以下更多細節的四個問題：

- (1) 在您過去提供或研究兒童或青少年使用輔助溝通系統的服務中，您是否認為外在/環境因素對於他們其溝通能力有任何特別的問題或挑戰？
- (2) 在您過去提供或研究兒童或青年使用輔助溝通系統的服務中，他們的溝通能力所面對的外在/環境因素困難？
- (3) 在您過去提供或研究兒童或青年使用輔助溝通系統(AAC)的服務中，您是否必須為了遷就外在/環境因素，而改變或修正您提供評估溝通

能力或提升其溝通能力的服務？

- (4) 您是否有任何相關資源說明外在/環境因素對於使用輔助溝通系統兒童與青少年其溝通能力的影響？

在四個細節的問題後，研究對象將會被詢問另一個開放式的問題：「對於將評估外在/環境因素對於使用輔助溝通系統兒童與青少年其溝通能力的影響，你認為最需要注意的為何？」其他相關步驟與資料整理與分析將與子計畫二研究材料與資料整理與分析相同。

◇ **子計畫五：建構分析使用輔助溝通系統(AAC)兒童與青少年其溝通能力(communicative competence)的評估指標。**

因(1)核定經費僅為申請經費的 1/10；(2)子計畫二、三、四無法執行；與(3)原子計畫五為第三年執行，故修改子計畫五研究對象人數與研究方法。

**研究對象**

本研究透過德爾菲法獲取輔助溝通系統(AAC)專家的共識，建構使用輔助溝通系統(AAC)兒童與青少年的國際健康功能與身心障礙分類系統-兒童及青少年版(ICF-CY)核心位碼組。依據 Dalkey & Helmer (1963)與 Delbecq, Van de Ven, & Gustafson (1975)等建議，招募 15 位同質性高的專家學者，將誤差降至最低和可信度提升至最高。其中包括 5 位語言治療師、5 位特殊教育教師、與 5 位學術研究學者來進行評估指標的選定。

◆ 語言治療師符合以下納入條件：

- 在日常生活情境中，中文是第一語言。
- 具有從事語言治療實務服務 5 年以上。
- 具有提供兒童或青少年輔助溝通系統(AAC)相關服務(如，評估與介入)1 年以上。

◆ 特殊教育教師符合以下納入條件：

- 在日常生活情境中，中文是第一語言。
- 具有從事特殊教育實務服務 5 年以上。
- 具有提供兒童或青少年輔助溝通系統(AAC)相關服務(如，評估與介入)1 年以上。

◆ 學術研究學者符合以下納入條件：

- 在日常生活情境中，中文是第一語言。
- 具有溝通障礙學領域或特殊教育領域碩士或博士學位。
- 具有曾研究伴隨溝通障礙兒童或青少年輔助溝通系統(AAC)相關議題。

## 研究方法與步驟

透過德爾菲法獲取輔助溝通系統(AAC)學者專家的共識，建構分析輔助溝通系統使用者溝通能力的 ICF-CY 分類評估核心指標與影響的環境因素 (environmental factors)。兩個程序包括：(1)評估指標和環境因素的選擇與問卷發展和(2)實施反覆調查及統計分析(Rowland et al., 2012)，並依據 Martino(1993)與 Rowe, Wright, & Bolger(1991)等人的建議，利用德爾菲法的問卷調查建立共識，分別使用三次的電子郵件調查完成兩個研究程序(Weigl et al., 2004)。

## 研究步驟

### 程序一 評估指標的選擇與問卷發展

本研究採用半封閉式的問卷，進行專家學者意見的蒐集。此程序提供 15 位專家學者一份網路問卷(Google docs.)，進行兩個步驟，**步驟一**，依據 Light (1989)和 Light、Beukelman 和 Reichle(2003)提出的語言能力(linguistic competence)、操作能力(operational competence)、社交能力(social competence)、與策略能力(strategic competence)等四項溝通能力的定義，於國 ICF-CY 的身體功能(b)、身體構造(s)、活動與參與(d)、與環境因素(e)30 個章節挑選出與這四項溝通能力相關的分類評估指標，問卷上將針對將所有的分類評估指標分別以五點量表(Likert Scales)呈現，每一項分類指標將依據四項溝通能力的定義進行對應相關性，將包括：(1)此分類指標無相關；(2)此分類指標有相關；(3)此分類指標有相關，且必須被評估；(4)不確定(考慮評估)；與(5) 不確定(不考慮評估)(Rowland et al., 2012)，研究對象將會被詢問「依據 Light (1989)和 Light、Beukelman 和 Reichle(2003)所定義的四項溝通能力，請選出每一分類指標與此四項溝通能力的相關性。」

**步驟二**，除環境因素(e)外，專家學者必須於身體功能(b)、身體構造(s)、與活動與參與(d)等 25 個章節的每一分類指標確認此分類指標所對應的溝通能力(即，語言能力、操作能力、社交能力、與策略能力)。於網路問卷的最後部分，將包括研究對象的基本資料(如，性別、年齡、專業人員類別、實務服務年資、提供輔助溝通系統(AAC)相關服務年資等)與開放式問題的問卷回饋。此研究不告知專家學者有其他參與者也同時進行德爾菲法的問卷調查(Weigl et al., 2004)。專家學者有一個月的時間回應問卷，於問卷寄出一週後，再寄出一提醒截止日期的信件，如果截止日期已過，將進行電話聯繫，並說明回應問卷的重要性。

### 程序二 實施反覆調查及統計分析

依據第一次問卷的回應，分析歸納專家學者於每一分類指標與四項溝通能力評估內容的對應相關性與屬於何項溝通能力。依據專家學者的評分結果，分別修正與刪除 ICF-CY 分類指標。首先，將對應相關性評分中的(2)此分類指

標有相關、(3)此分類指標有相關，且必須被評估、與(4)不確定(考慮評估)加總為此分類指標為「有相關」，再將分類指標評分中的(1)此指標無相關與(5)不確定(不考慮評估)加總為此分類指標為「無相關」。依據 Grill 等人(2005)的建議，超過 50%的專家學者評分為「無相關」的分類評估指標會被刪除，其他的分類評估指標則會被保留(Rowland et al., 2012)。

第二次問卷所保留的分類評估指標進行整理與分析歸納，於每一指標中詳列專家學者於第一次問卷的專家學者人數百分比(Weigl et al., 2004)與對應溝通能力的專家學者人數百分比。對於無法對應到輔助溝通系統使用者四項溝通能力的分類評估指標，由計畫主持人尋求已出版的評估工具中的評估項目成為分類評估指標，這些評估通具包括 Communication Matrix (Rowland, 2004) 與 Interaction Checklist for Augmentative Communication (INCH) (Bolton & Dashiell, 1984)。其他內容與第一次問卷相似。

第二次問卷回應後，與上述相同的統計分析，如 15 位專家學者一致認為每一分類評估指標分別與其中一項溝通能力呈現「此評估項目有相關」、「此評估項目有相關，且必須被評估」、與「不確定(考慮評估)」，則無須進行第三次反覆問卷調查，相反的，則會再進行第三次問卷調查，第三次問卷架構類似於第二次問卷。

## 伍、 結果與討論 (含結論與建議)

子計畫一：探究輔助溝通系統(AAC)使用者其溝通能力(communivative competence)的評估指標與方式。

依據關鍵字「溝通能力」、「溝通」、「communicative competence」、「communicative competency」、「communication competence」、與「communicative competency」等關鍵字搜尋中文與英文溝通障礙領域與輔助溝通系領域相關的期刊與書籍章節，並整理出其定義、特性、評估指標、評估方式、與發表的評估工具等。研究結果已經撰寫成文章，篇名為「Revisit Communicative Competence in the Field of Augmentative and Alternative Communication: From Perspectives of Communicative Competence in Typically Speaking Conversation Dyads」並於 2014 年七月投稿至 *International Journal of Language & Communication Disorders*。文章全文如附錄，摘要如下：

背景：一組兩人談話包括兩個談話參與者，一個說話者和一個聆聽者，以及溝通模式。一般口語說話談話者使用口語作為他們主要的溝通模式，然而，無法使用口說語言的談話者，除了口語外，他們需要使用其他溝通模式。過去，輔助溝通系統(Augmentative and alternative communication, AAC)已經提供給暫時性或永久性無法使用口語的個人。兩位談話者必須重度依賴其談話的溝通能力(communivative competence)來發展他們在社區中的社會認同。過去，溝通能力常被理所當然地認為著重於使用輔助溝通系統個人，而不是著重於所有參與溝通的談話者。直至今日，人際間、動態的、以及相對性的溝通能力等資訊是稀少的。

目的：確認一般口語說話者兩人談話與輔助溝通系統(AAC)使用者兩人談話(即：一位使用輔助溝通系統者和一位一般口語說話者)其溝通能力(communivative competence)的相似與相異處。

主要貢獻：溝通能力(communivative competence)的相似處被特別強調。溝通能力是學習來的，允許個人達到兩人談話的目標，進而達到其扮演的社會角色。溝通能力的達成需要兩個談話者共同建構。溝通能力的評量是需要依據特定情境、相對的(即，非絕對的)、與動態的(即，非靜態的)，且總是需藉由自我報告、夥伴評量、和第三方觀察所有外顯行為表現(performance)的整合性分析。溝通能力的相異處也被記錄。第一項差異為探討溝通能力的理論不同，而第二項差異為達到溝通能力所需要的共同建構方式不同。學者和從事輔助溝通系統實務人員能夠修正和調整評量輔助溝通系統(AAC)使用者兩人談話(即：一位使用輔助溝通系統者和一位一般口語說話者)溝通能力的評量工具。第三項差異評量溝通能力的行為不同。

結論：溝通能力(communicative competence)是一個兩人一組、相對性表現、特定情境的、與動態的概念，而不是著重於個人。溝通能力的評量需要自我報告、夥伴評量、和第三方觀察所有外顯行為表現(performance)的整合性分析，且毋須考慮常模和標準。

子計畫二：探析不同專業人員對於使用輔助溝通系統(AAC)兒童其溝通能力(communicative competence)的評估指標與方式。

子計畫三：探析不同專業人員對於使用輔助溝通系統(AAC)青少年其溝通能力(communicative competence)的評估指標與方式。

子計畫四：探析不同外在/環境因素對於使用輔助溝通系統(AAC)兒童與青少年其溝通能力(communicative competence)的影響。

因以下因素，故未執行此三項子計畫。

- 依據初審委員們的建議

提出幾個可能可以實際使用的評估指標或方法，實際去做這些學生的溝通能力評估，考驗其可行性，建立具體的信、效度指標，而非只採用訪談或問卷式的方式去蒐集資料。

建議擴大 AAC 受試者的人數，計畫中 AAC 受試的人數過少。建議以較多 AAC 溝通障礙者為對象，並以他們為中心出發，實際觀察他們與其週遭對象溝通的情形(他們的老師、語言治療師、家人、朋友等)評估其溝通能力，並建立幾個可行的符合 ICF 模式的評估指標，考驗這些指標的信、效度，最後提出具體的指標組合方案，以解決實際的 AAC 評估的問題。

- 核定執行為一年期計畫，非原申請三年期計畫

- 核定經費僅為申請經費的 1/10

子計畫五：建構分析使用輔助溝通系統(AAC)兒童與青少年其溝通能力(communicative competence)的評估指標。

本研究原欲招募 15 位研究對象，因一位學術研者表示工作忙碌無暇參與，故總共只招募到 14 位研究對象，包括 5 位特殊教育教師、5 位語言治療師、與 4 位學術研究學者，研究對象基本資料如表一。

表 1. 研究對象的基本資料

編號	專業人員類別	性別	年齡	實務服務年資 (年)	輔助溝通系統(AAC)相 關服務年資(年)
1	特殊教育教師	男	46	17	17
2	特殊教育教師	男	32	6	6
3	特殊教育教師	男	40	11	11



4	特殊教育教師	女	36	11	11
5	特殊教育教師	男	36	12	5
6	語言治療師	男	40	15	15
7	語言治療師	女	26	5	3
8	語言治療師	女	38	10	3
9	語言治療師	女	25	2.5	2.5
10	語言治療師	女	48	24	19
11	學術研究學者	女	50	20	10
12	學術研究學者	女	36	15	15
13	學術研究學者	男	53	25	12
14	學術研究學者	女	35	13	13

本研究計畫透過德爾菲法獲取輔助溝通系統(AAC)專家的共識，建構輔助溝通系統(AAC)兒童與青少年的 ICF-CY 核心位碼組。問卷共分為四份，分別為身體功能問卷、身體結構問卷、活動和參與問卷以及環境因素問卷。第一部分以身體功能、身體結構、活動和參與與環境因素等經過三次問卷整理分析的指標數呈現結果。

### **第一部分**

#### **身體功能問卷部分**

##### **第一次問卷整理分析**

總原本指標數為 463 個，經過第一次問卷整理分析後剩餘指標數為 166 個，詳見表 2。每一章節經第一次問卷整理分析結果如下：第一章節(心智功能)原指標數為 129 個，經由篩選後剩餘 63 個；第二章節(感官功能和疼痛)原指標數為 74 個，經由篩選後剩餘 26 個；第三章節(嗓音和言語功能)原指標數為 17 個，經由篩選後剩餘 17 個；第四章節(心血管、血液、免疫和呼吸系統功能)原指標數為 58 個，經由篩選後剩餘 1 個；第五章節(消化、代謝和內分泌系統功能)原指標數為 66 個，經由篩選後剩餘 1 個；第六章節(泌尿生殖和生育功能)原指標數為 38 個，經由篩選後剩餘 0 個；第七章節(神經肌肉骨骼與動作相關的功能)原指標數為 71 個，經由篩選後剩餘 58 個；第八章節(皮膚與相關結構的功能)原指標數為 10 個，經由篩選後剩餘 0 個。

##### **第二次問卷整理分析**

經第二次問卷整理分析後，剩餘 159 個指標，詳見表 2。每一章節經第二次問卷整理分析結果如下：第一章節(心智功能)第一次分析後剩 63 個指標，經篩選剩餘 61 個；第二章節(感官功能和疼痛)第一次分析後剩 26 個指標，經篩選剩餘 25 個；第三章節(嗓音和言語功能)第一次分析後剩 17 個指標，經篩選剩餘 17 個；第四章節(心血管、血液、免疫和呼吸系統功能)第一次分析後剩 1 個指標，經篩選剩餘 1 個；第五章節(消化、代謝和內分泌系統功能)第一次分析後剩 1 個

指標，經篩選剩餘 0 個；第七章節(神經肌肉骨骼與動作相關的功能)第一次分析後剩 58 個指標，經篩選剩餘 55 個。

### **第三次問卷整理分析**

經第三次問卷整理分析後，剩餘 158 個指標，詳見表 2。每一章節經第三次問卷整理分析結果如下：第一章節(心智功能)第二次分析後剩 61 個指標，經篩選剩餘 60 個；第二章節(感官功能和疼痛)第二次分析後剩 25 個指標，經篩選剩餘 25 個；第三章節(嗓音和言語功能)第二次分析後剩 17 個指標，經篩選剩餘 17 個；第四章節(心血管、血液、免疫和呼吸系統功能)第二次分析後剩 1 個指標，經篩選剩餘 1 個；第七章節(神經肌肉骨骼與動作相關的功能)第二次分析後剩 55 個指標，經篩選剩餘 55 個。

表 2. 身體功能(Body Functions)指標數

	原指標數(個)	第一次問卷後指標數(個)	第二次問卷後指標數(個)	第三次問卷後指標數(個)
第一章節：心智功能 Chapter 1 Mental Functions	129	63	61	60
第二章節：感官功能和疼痛 Chapter 2 Sensory Functions and Pain	74	26	25	25
第三章節：嗓音和言語功能 Chapter 3 Voice and Speech Functions	17	17	17	17
第四章節：心血管、血液、免疫和呼吸系統功能 Chapter 4 Functions of the Cardiovascular, Haematological, Immunological and Respiratory Systems	58	1	1	1
第五章節：消化、代謝和內分泌系統功能 Chapter 5 Functions of the Digestive, Metabolic and Endocrine Systems	66	1	0	0
第六章節：泌尿生殖和生育功能 Chapter 6 Genitourinary and Reproductive Functions	38	0	0	0
第七章節：神經肌肉骨骼與動作相關的功能 Chapter 7 Neuromusculoskeletal and Movement-Related Functions	71	58	55	55
第八章節：皮膚與相關結構的功能 Chapter 8 Functions of the Skin and Related Structures	10	0	0	0
總指標數 Number of Total Indicators	463	166	159	158

## **身體結構問卷部分**

### **第一次問卷整理分析**

總原本指標數為 293 個，經過第一次問卷整理分析後剩餘指標數為 29 個，詳見表 3。每一章節經第一次問卷整理分析結果如下：第一章節(神經系統結構)原指標數為 38 個，經由篩選後剩餘 0 個；第二章節(眼睛、耳朵與相關的結構)原指標數為 29 個，經由篩選後剩餘 0 個；第三章節(涉及嗓音和言語的結構)原指標數為 30 個，經由篩選後剩餘 11 個；第四章節(心血管、免疫和呼吸系統結構)原指標數為 33 個，經由篩選後剩餘 0 個；第五章節(消化、代謝和內分泌系統相關的結構)原指標數為 18 個，經由篩選後剩餘 0 個；第六章節(泌尿生殖和生育系統相關的結構)原指標數為 31 個，經由篩選後剩餘 0 個；第七章節(動作相關的結構)原指標數為 90 個，經由篩選後剩餘 18 個；第八章節(皮膚與相關的結構)原指標數為 24 個，經由篩選後剩餘 0 個。

### **第二次問卷整理分析**

經第二次問卷整理分析後，剩餘 28 個指標，詳見表 3。每一章節經第二次問卷整理分析結果如下：第三章節(涉及嗓音和言語的結構)第一次分析後剩 11 個指標，經篩選剩餘 11 個；第七章節(動作相關的結構)第一次分析後剩 18 個指標，經篩選剩餘 17 個。

### **第三次問卷整理分析**

經第三次問卷整理分析後，剩餘 27 個指標，詳見表 3。每一章節經第三次問卷整理分析結果如下：第三章節(涉及嗓音和言語的結構)第二次分析後剩 11 個指標，經篩選剩餘 10 個；第七章節(動作相關的結構)第二次分析後剩 17 個指標，經篩選剩餘 17 個。

表 3. 身體結構(Body Structures)指標數

	原指標數(個)	第一次問卷後指標數(個)	第二次問卷後指標數(個)	第三次問卷後指標數(個)
第一章節：神經系統結構 Chapter 1 Structures of the Nervous System	38	0	0	0
第二章節：眼睛、耳朵與相關的結構 Chapter 2 The Eye, Ear and Related Structures	29	0	0	0
第三章節：涉及嗓音和言語的結構 Chapter 3 Structures Involved in Voice and Speech	30	11	11	10
第四章節：心血管、免疫和呼吸系統結構 Chapter 4 Structures of the Cardiovascular, Immunological and Respiratory Systems	33	0	0	0
第五章節：消化、代謝和內分泌系統相關的結構 Chapter 5 Structures Related to the Digestive, Metabolic and Endocrine Systems	18	0	0	0
第六章節：泌尿生殖和生育系統相關的結構 Chapter 6 Structures Related to the Genitourinary and Reproductive Systems	31	0	0	0
第七章節：動作相關的結構 Chapter 7 Structures Related to Movement	90	18	17	17
第八章節：皮膚與相關的結構 Chapter 8 Skin and Related Structures	24	0	0	0
總指標數 Number of Total Indicators	293	29	28	27

## 活動和參與問卷部分

### 第一次問卷整理分析

總原本指標數為 476 個，經過第一次問卷整理分析後剩餘指標數為 156 個，詳見表 4。每一章節經第一次問卷整理分析結果如下：第一章節(學習和應用知識)原指標數為 78 個，經由篩選後剩餘 35 個；第二章節(一般任務和需求)原指標數為 39 個，經由篩選後剩餘 26 個；第三章節(溝通)原指標數為 43 個，經由篩選後剩餘 11 個；第四章節(移動)原指標數為 88 個，經由篩選後剩餘 24 個；第五章節(自我照顧)原指標數為 55 個，經由篩選後剩餘 0 個；第六章節(居家生活)原指標數為 47 個，經由篩選後剩餘 2 個；第七章節(人際互動和關係)原指標數為 48 個，經由篩選後剩餘 47 個；第八章節(主要生活領域)原指標數為 56 個，經由篩選後剩餘 5 個；第九章節(社區、社交和公民生活)原指標數為 22 個，經由篩選後剩餘 6 個。

### 第二次問卷整理分析

經第二次問卷整理分析後，剩餘 155 個指標，詳見表 4。每一章節經第二次問卷整理分析結果如下：第一章節(學習和應用知識)第一次分析後剩 35 個指標，經篩選剩餘 35 個；第二章節(一般任務和需求)第一次分析後剩 26 個指標，經篩選剩餘 26 個；第三章節(溝通)第一次分析後剩 11 個指標，經篩選剩餘 11 個；第四章節(移動)第一次分析後剩 24 個指標，經篩選剩餘 24 個；第六章節(居家生活)第一次分析後剩 2 個指標，經篩選剩餘 2 個；第七章節(人際互動和關係)第一次分析後剩 47 個指標，經由篩選剩餘 47 個；第八章節(主要生活領域)第一次分析後剩 5 個指標，經篩選剩餘 4 個；第九章節(社區、社交和公民生活)第一次分析後剩 6 個指標，經篩選剩餘 6 個。

### 第三次問卷整理分析

經第三次問卷整理分析後，剩餘 154 個指標，詳見表 4。每一章節經第三次問卷整理分析結果如下：第一章節(學習和應用知識)第二次分析後剩 35 個指標，經篩選剩餘 35 個；第二章節(一般任務和需求)第二次分析後剩 26 個指標，經篩選剩餘 26 個；第三章節(溝通)第二次分析後剩 11 個指標，經篩選剩餘 11 個；第四章節(移動)第二次分析後剩 24 個指標，經篩選剩餘 24 個；第六章節(居家生活)第二次分析後剩 2 個指標，經篩選剩餘 2 個；第七章節(人際互動和關係)第二次分析後剩 47 個指標，經由篩選剩餘 47 個；第八章節(主要生活領域)第二次分析後剩 4 個指標，經篩選剩餘 4 個；第九章節(社區、社交和公民生活)第二次分析後剩 6 個指標，經篩選剩餘 5 個。

表 4.活動和參與(Activities and Participation)指標數

	原指標數(個)	第一次問卷後指標數(個)	第二次問卷後指標數(個)	第三次問卷後指標數(個)
第一章節：學習和應用知識 Chapter 1 Learning and Applying Knowledge	78	35	35	35
第二章節：一般任務和需求 Chapter 2 General Tasks and Demands	39	26	26	26
第三章節：溝通 Chapter 3 Communication	43	11	11	11
第四章節：移動 Chapter 4 Mobility	88	24	24	24
第五章節：自我照顧 Chapter 5 Self-Care	55	0	0	0
第六章節：居家生活 Chapter 6 Domestic Life	47	2	2	2
第七章節：人際互動和關係 Chapter 7 Interpersonal Interactions and Relationships	48	47	47	47
第八章節：主要生活領域 Chapter 8 Major Life Areas	56	5	4	4
第九章節：社區、社交和公民生活 Chapter 9 Community, Social and Civic Life	22	6	6	5
總指標數 Number of Total Indicators	476	156	155	154

## 環境因素問卷部分

### 第一次問卷整理分析

總原本指標數為 230 個，經過第一次問卷整理分析後剩餘指標數為 14 個，詳見表 5。每一章節經第一次問卷整理分析結果如下：第一章節(產品和技術)原指標數為 62 個，經由篩選後剩餘 4 個；第二章節(天然環境及環境的人為改變)原指標數為 41 個，經由篩選後剩餘 0 個；第三章節(支持和關係)原指標數為 13 個，經由篩選後剩餘 8 個；第四章節(態度)原指標數為 14 個，經由篩選後剩餘 2 個；第五章節(服務、制度和政策)原指標數為 100 個，經由篩選後剩餘 0 個。

### 第二次問卷整理分析

第二次問卷整理分析後，剩餘 13 個指標，詳見表 5。每一章節經第二次問卷整理分析結果如下：第一章節(產品和技術)第一次分析後剩 4 個指標，經篩選剩餘 4 個；第三章節(支持和關係)第一次分析後剩 8 個指標，經篩選剩餘 7 個；第四章節(態度)第一次分析後剩 2 個指標，經篩選剩餘 2 個。

### 第三次問卷整理分析

經第三次問卷整理分析後，剩餘 11 個指標，詳見表 5。每一章節經第三次問卷整理分析結果如下：第一章節(產品和技術)第二次分析後剩 4 個指標，經篩選剩餘 4 個；第三章節(支持和關係)第二次分析後剩 7 個指標，經篩選剩餘 5 個；第四章節(態度)第二次分析後剩 2 個指標，經篩選剩餘 2 個。



表 5.環境因素(Environmental Factors)指標數

	原指標數(個)	第一次問卷後指標數(個)	第二次問卷後指標數(個)	第三次問卷後指標數(個)
第一章節：產品和技術 Chapter 1 Products and Technology	62	4	4	4
第二章節：天然環境及環境的人為改變 Chapter 2 Natural Environment and Human-Made Changes to Environment	41	0	0	0
第三章節：支持和關係 Chapter 3 Support and Relationships	13	8	7	5
第四章節：態度 Chapter 4 Attitudes	14	2	2	2
第五章節：服務、制度和政策 Chapter 5 Services, Systems and Policies	100	0	0	0
總指標數 Number of Total Indicators	230	14	13	11

第二部分將第一部分剩餘的指標以溝通能力(communicative competence)的四個領域分類，包括語言能力(linguistic competence)、操作能力(operational competence)、社交能力(social competence)、策略能力(strategic competence)進行分析呈現結果。

## **第二部分**

### **以四個領域分析核心編碼組**

#### **第一項目為語言學領域(L)**

此領域總指標數為 71 個，在身體功能部份，指標數共為 40 個，詳見表 6。第一章節(心智功能)經分析篩選後剩餘 21 個，第二章節(感官功能和疼痛)經分析篩選後剩餘 2 個，第三章節(嗓音和言語功能)經分析篩選後剩餘 17 個，其餘章節經分析篩選後剩餘 0 個。在身體結構部分，指標數共為 10 個，詳見表 6。第三章節(涉及嗓音和言語的結構)經分析篩選後剩餘 10 個，其餘章節經分析篩選後剩餘 0 個。在活動和參與部分，指標數共為 21 個，詳見表 6。第一章節(學習和應用知識)經分析篩選後剩餘 17 個，第三章節(溝通)經分析篩選後剩餘 4 個，其餘章節經分析篩選後剩餘 0 個。

#### **第二項目為操作領域(O)**

此領域總指標數為 139 個，在身體功能部份，指標數共為 89 個，詳見表 6。第一章節(心智功能)經分析篩選後剩餘 10 個，第二章節(感官功能和疼痛)經分析篩選後剩餘 23 個，第四章節(心血管、血液、免疫和呼吸系統功能)經分析篩選後剩餘 1 個，第七章節(神經肌肉骨骼與動作相關的功能)經分析篩選後剩餘 55 個，其餘章節經分析篩選後剩餘 0 個。在身體結構部分，指標數共為 17 個，詳見表 6。第七章節(動作相關的結構)經分析篩選後剩餘 17 個，其餘章節經分析篩選後剩餘 0 個。在活動和參與部分，指標數共為 33 個，詳見表 6。第一章節(學習和應用知識)經分析篩選後剩餘 5 個，第二章節(一般任務和需求)經分析篩選後剩餘 3 個，第三章節(溝通)經分析篩選後剩餘 1 個，第四章節(移動)經分析篩選後剩餘 24 個，其餘章節經分析篩選後剩餘 0 個。

#### **第三項目為社交領域(So)**

此領域總指標數為 101 個，在身體功能部份，指標數共為 25 個，詳見表 6。第一章節(心智功能)經分析篩選後剩餘 25 個，其餘章節經分析篩選後剩餘 0 個。在身體結構部份，指標數共為 0 個。在活動和參與部分，指標數共為 76 個，詳見表 6。第一章節(學習和應用知識)經分析篩選後剩餘 4 個，第二章節(一般任務和需求)經分析篩選後剩餘 10 個，第三章節(溝通)經分析篩選後剩餘 4 個，第六章節(居家生活)，經分析篩選後剩餘 2 個，第七章節(人際互動和關係)經分析篩選後剩餘 47 個，第八章節(主要生活領域)經分析篩選後剩餘 4 個，第九章節(社區、社交和公民生活)經分析篩選後剩餘 5 個，其餘章節經分析篩選後剩餘 0 個。

#### **第四項目為策略領域(St)**

此領域總指標數為 28 個，在身體功能部份，指標數共為 4 個，詳見表 6。第一章節(心智功能)經分析篩選後剩餘 4 個，其餘章節經分析篩選後剩餘 0 個。在身體結構部份，指標數共為 0 個。在活動和參與部分，指標數共為 24 個，詳見表 6。第一章節(學習和應用知識)經分析篩選後剩餘 9 個，第二章節(一般任務和需求)經分析篩選後剩餘 13 個，第三章節(溝通)經分析篩選後剩餘 2 個，其餘章節經分析篩選後剩餘 0 個。

表 6. 四個領域分析核心編碼組指標數

	語言學領域(L)	操作領域(O)	社交領域(So)	策略領域(St)
<b>身體功能 總指標數</b>	40	89	25	4
第一章節：心智功能 Chapter 1 Mental Functions	21	10	25	4
第二章節：感官功能和疼痛 Chapter 2 Sensory Functions and Pain	2	23	0	0
第三章節：嗓音和言語功能 Chapter 3 Voice and Speech Functions	17	0	0	0
第四章節：心血管、血液、免疫和呼吸系統功能 Chapter 4 Functions of the Cardiovascular, Haematological, Immunological and Respiratory Systems	0	1	0	0
第五章節：消化、代謝和內分泌系統功能 Chapter 5 Functions of the Digestive, Metabolic and Endocrine Systems	0	0	0	0
第六章節：泌尿生殖和生育功能 Chapter 6 Genitourinary and Reproductive Functions	0	0	0	0
第七章節：神經肌肉骨骼與動作相關的功能 Chapter 7 Neuromusculoskeletal and Movement-Related Functions	0	55	0	0
第八章節：皮膚與相關結構的功能 Chapter 8 Functions of the Skin and Related Structures	0	0	0	0
<b>身體結構 總指標數</b>	10	17	0	0
第一章節：神經系統結構 Chapter 1 Structures of the Nervous System	0	0	0	0
第二章節：眼睛、耳朵與相關的結構 Chapter 2 The Eye, Ear and Related Structures	0	0	0	0

第三章節：涉及嗓音和言語的結構	10	0	0	0
Chapter 3 Structures Involved in Voice and Speech				
第四章節：心血管、免疫和呼吸系統結構	0	0	0	0
Chapter 4 Structures of the Cardiovascular, Immunological and Respiratory Systems				
第五章節：消化、代謝和內分泌系統相關的結構	0	0	0	0
Chapter 5 Structures Related to the Digestive, Metabolic and Endocrine Systems				
第六章節：泌尿生殖和生育系統相關的結構	0	0	0	0
Chapter 6 Structures Related to the Genitourinary and Reproductive Systems				
第七章節：動作相關的結構	0	17	0	0
Chapter 7 Structures Related to Movement				
第八章節：皮膚與相關的結構	0	0	0	0
Chapter 8 Skin and Related Structures				
<b>活動和參與 總指標數</b>	<b>21</b>	<b>33</b>	<b>76</b>	<b>24</b>
第一章節：學習和應用知識	17	5	4	9
Chapter 1 Learning and Applying Knowledge				
第二章節：一般任務和需求	0	3	10	13
Chapter 2 General Tasks and Demands				
第三章節：溝通	4	1	4	2
Chapter 3 Communication				
第四章節：移動	0	24	0	0
Chapter 4 Mobility				
第五章節：自我照顧	0	0	0	0
Chapter 5 Self-Care				

第六章節：居家生活	0	0	2	0
Chapter 6 Domestic Life				
第七章節：人際互動和關係	0	0	47	0
Chapter 7 Interpersonal Interactions and Relationships				
第八章節：主要生活領域	0	0	4	0
Chapter 8 Major Life Areas				
第九章節：社區、社交和公民生活	0	0	5	0
Chapter 9 Community, Social and Civic Life				
總指標數	71	139	101	28
Number of Total Indicators				

依據語言能力(linguistic competence)、操作能力(operational competence)、社交能力(social competence)、策略能力(strategic competence)分類使用輔助溝通系統(AAC)兒童與青少年溝通能力(communicative competence)ICF-CY 核心評估指標。於語言學領域的溝通能力(communicative competence)ICF-CY 核心編碼組如表 7。

表 7. 評估使用輔助溝通系統(AAC)學生溝通能力(communicative competence)ICF-CY 核心編碼組-語言學領域

		語言學領域 (L)
		<b>第一章 心智功能</b>
身 體 功 能	b1140._____.	時間定向--產生對今天、明天、昨天、日期、月和年覺察的心智功能。
	b1143._____.	物體定向--產生對物體或物體外貌覺察的心智功能。
	b1144._____.	空間定向--產生對個人身體與周遭自然空間關係覺察的心智功能。
	b117._____.	智力功能--需要瞭解與建構性整合各種心智功能的一般心智功能，包括所有認知功能與其在生命壽限的發展。
	b1440._____.	短期記憶--產生約 30 秒期間的暫時性、可中斷之記憶儲存的心智功能，若未加固進入長期記憶，資訊就會喪失。
	b1441._____.	長期記憶--產生允許將短期記憶資訊與過去事件的自傳式記憶及語言和事實的語意式記憶兩者以長期儲存之記憶系統的心智功能。
	b1442._____.	記憶擷取和處理--回憶儲存在長期記憶的資訊並將其引入覺識的特定心智功能。
	b1448._____.	記憶功能，其他特定者。
	b1560._____.	聽覺--涉及辨別聲音、聲調、音高與其他語音刺激的心智功能。
	b1600._____.	思想步調--支配思考過程速度的心智功能。
	b1601._____.	思想形式--組織思考過程以達連貫和邏輯的心智功能。納入：構思反覆、離題、迂迴的損傷。
	b1602._____.	思想內容--組成思考過程出現的意念及所被概念化的心智功能。納入：妄想、過分重視之意念和身體化症的損傷。
	b1603._____.	思想控制--提供思考自主控制及被人如此辨識的心智功能。納入：反芻思考、強迫意念、思想廣播和思想插入的損傷。
	b163._____.	基本認知功能--涉及獲得關於物體、事件和經驗的知識；及組織和應用知識於需心智活動之任務的心智功能。
	b1640._____.	抽象--創立出自且有別於具體現實、特定目標或實際情況的一般性意念、品質或特徵的心智功能。
	b1641._____.	組織和規劃--協調各部分並系統化成一整體的心智功能；涉及發展進行或行動方法的心智功能。
	b1642._____.	時間管理--將事件按時間順序排序、對事件和活動分配時間量的心智功能。
b1648._____.	高階認知功能，其他特定者。	
b16709._____.	語言接受，未特定者。	

	b16719._____.	語言表達，未特定者。
	b1679._____.	語言心智功能，未特定者。
		<b>第二章 感官功能和疼痛</b>
	b2308._____.	聽覺功能，其他特定者。
	b2309._____.	聽覺功能，未特定者。
		<b>第三章 嗓音和言語功能</b>
	b3100._____.	嗓音產生—經由喉部和周圍肌肉及呼吸系統之協調而產生聲音的功能。納入：發聲、響度功能；失聲損傷。
	b3101._____.	嗓音品質—產生嗓音特徵的功能，包括音高、共鳴與其他特色。納入：高或低音高功能；損傷如鼻音過重、鼻音過輕、發聲困難、沙聲或刺耳聲。
	b3108._____.	嗓音功能，其他特定者。
	b3109._____.	嗓音功能，未特定者。
	b320._____.	構音功能—產生言語聲音的功能。
	b3300._____.	言語流暢—產生平順、無中斷流順的言語功能。納入：言語平順連接的功能；損傷如口吃、結巴、迅吃、流暢障礙，重複聲音、單字或單字部分及言語不規則中斷。
	b3301._____.	言語節律—言語轉調、節奏和強音類型的功能。納入：損傷如刻板或重複言語節拍。
身體功能	b3302._____.	言語速度—言語產生速度的功能。納入：損傷如遲語症和急語症。
	b3303._____.	言語曲調—調控言語音高類型的功能。納入：言語聲韻、語調、言語曲調；損傷如平音言語。
	b3308._____.	言語功能的流暢和節律，其他特定者。
	b3309._____.	言語功能的流暢和節律，未特定者。
	b3400._____.	產生音符—產生音樂性口發聲音的功能。納入：持續、調控和終止單音或連結音發聲並音高變化的產生，如歌唱、哼唱和吟唱。
	b3401._____.	發出音域—產生各種發聲的功能。納入：哭啼聲、咕咕聲、咯咯聲和喃喃聲的功能。
	b3408._____.	替代性發聲功能，其他特定者。
	b3409._____.	替代性發聲功能，未特定者。
	b398._____.	嗓音和語言功能，其他特定者
	b399._____.	嗓音和語言功能，未特定者
		<b>第三章 涉及嗓音和言語的結構</b>
身體結構	s3203._____.	舌。
	s3204._____.	唇結構。
	s32040._____.	上唇。
	s32041._____.	下唇。
	s3208._____.	口結構，其他特定者。
	s3300._____.	鼻咽。
	s3301._____.	口咽。
	s3400._____.	聲帶。



s398._____.	涉及嗓音和言語的結構，其他特定者
s399._____.	涉及嗓音和言語的結構，未特定者
	<b>第一章 學習和應用知識</b>
d115._____.	聽--有意使用聽覺以體驗聽覺刺激，如聽收音機、人類聲音、音樂、演講、或訴說的故事。
d1313._____.	透過象徵遊戲學習--相關象徵性物體、玩具或材料的行動，如為玩具動物或玩偶餵食或穿衣。
d1314._____.	透過假扮遊戲學習--涉及假扮、取代一新物體、身體部分或身體動作以扮演一處境或事件的行動，如假扮一組木頭為汽車，假扮一捲布為玩偶。
d132._____.	獲得訊息--得到關於人物、事情和事件的事實，如問為何、什麼、何地 and 如何，問名字。
d135._____.	複誦--重複一系列事件或符號作為學習之基本要素，如以手勢數到十或練習背誦韻文、數到十或練習背誦一首詩。
d1379._____.	獲得概念，未特定者。
d1459._____.	學習書寫，未特定者。
d1500._____.	獲得辨識數字、算術記號和符號技能--學習辨識和使用數字、算術記號和符號的初級技能。
d1501._____.	獲得計算能力技能如計算和排序--學習獲得計算能力概念和集合概念的初級技能。
d1502._____.	獲得使用基本運算技能--學習使用加法、減法、乘法運算的算術技能。
d1668._____.	閱讀，其他特定者。
d1669._____.	閱讀，未特定者。
d1700._____.	書寫過程使用一般技能和策略--應用單字傳達適當意義，使用慣用句子結構。
d1701._____.	書寫作文使用文法和格式慣例--應用標準拼字、標點和適當個案形式等。
d1702._____.	使用一般技能和策略完成作文--應用單字和句子傳達複雜意義和抽象意念。排除：學習書寫(d145)。
d1708._____.	書寫，其他特定者。
d1709._____.	書寫，未特定者。
	<b>第三章 溝通</b>
d3109._____.	以口語訊息溝通- 接收，未特定者。
d3159._____.	以非語言訊息溝通- 接收，未特定者。
d332._____.	唱歌--按序發出聲調構成曲調或個人自己或集體表演歌曲。
d3359._____.	產生非語言訊息，未特定者。

活動和參與

於操作領域的溝通能力(communicative competence)ICF-CY 核心編碼組如表 8。

表 8. 評估使用輔助溝通系統(AAC)學生溝通能力(communicative competence)ICF-CY 核心編碼組- 操作領域

操作領域 (0)	
	<b>第一章 心智功能</b>
b1300.____.	精力程度--產生活力和耐力的心智功能。
b1470.____.	心理動作控制--調節涉及動作和心理要素兩者的行為速度或反應時間的心智功能，如控制瓦解會產生心理動作遲緩(移動和講話緩慢，手勢和自發性降低)或心理動作興奮(過度的行為和認知活動，通常無生產性且常反應在內心緊張如腳趾敲擊、扭絞雙手、躁動、或不安)。
b1472.____.	心理動作功能組織--產生複雜目標導向順序之動作的心智功能。
b1478.____.	心理動作功能，其他特定者。
b1479.____.	心理動作功能，未特定者。
b1561.____.	視覺--涉及辨別形狀、大小、顏色與其他視覺刺激的心智功能。
b1564.____.	觸覺--涉及區辨不同質地的心智功能，如藉觸摸察覺粗糙或光滑刺激。
b1565.____.	視覺空間感--涉及藉視覺區辨物體在環境中或與自身相關之相對位置的心智功能。
b1568.____.	知覺功能，其他特定者。
b176.____.	排序複雜動作的心智功能--排序和協調複雜、有目的動作的特殊心智功能。
	<b>第二章 感官功能和疼痛</b>
身 b2100.____.	視力功能--用雙眼和單眼兩者、從遠距和近距兩者感覺形狀和輪廓的視覺功能。
體 b21000.____.	雙眼遠距視力--使用雙眼感覺遠離眼睛物體之大小、形狀和輪廓的視覺功能。
功 b21001.____.	單眼遠距視力--單獨使用右眼或左眼感覺遠離眼睛物體之大小、形狀和輪廓的視覺功能。
能 b21002.____.	雙眼近距視力--使用雙眼感覺靠近眼睛物體之大小、形狀和輪廓的視覺功能。
b21003.____.	單眼近距視力--單獨使用右眼或左眼感覺靠近眼睛物體之大小、形狀和輪廓的視覺功能。
b21008.____.	視力功能，其他特定者。
b21009.____.	視力功能，未特定者。
b2101.____.	視野功能--注視固定時所能見的全部範圍相關的視覺功能。包括：損傷如盲點、管狀視覺、斜視。
b2102.____.	視覺品質--涉及光敏感度、色覺、對比敏感度和圖像整體品質的視覺功能。
b21020.____.	光敏感度--感覺最小的光量(光量最小)、及最小光強度差異(光差異)的視覺功能。納入：暗適應功能；損傷如夜盲(對光低敏感度)和畏光(對光高敏感度)。
b21021.____.	色覺--辨別和相配顏色的視覺功能。
b21022.____.	對比敏感度--涉及最小亮度需求下，從背景識別圖像的視覺功能。
b21023.____.	視覺圖像品質--涉及圖像品質的視覺功能。納入：損傷如視散光、影響圖像品質(漂浮或網狀)、圖像扭曲、和眼冒金星或閃光。
b21028.____.	視覺品質，其他特定者。
b21029.____.	視覺品質，未特定者。

	b2108.____.	視覺功能，其他特定者。	
	b2109.____.	視覺功能，未特定。	
	b2152.____.	眼外肌功能--用於看不同方向、追蹤視野內移動物體、產生眼球跳動以趕上移動目標、及固定眼睛的肌肉功能。納入：眼球震顫；雙眼協同。	
身體功能	b2302.____.	聲源定位--確定聲音來源位置相關的感官功能。	
	b2303.____.	聲音偏側性--確定聲音是來自右側或左側相關的感官功能。	
	b260.____.	本體感覺功能--感覺身體各部分相對位置的感官功能。	
	b265.____.	觸覺功能--感覺表面及其質地或品質的感官功能。	
	b2701.____.	振動敏感性--感覺搖動或擺動的感官功能。	
		<b>第四章 心血管、血液、免疫和呼吸系統功能</b>	
	b4550.____.	一般身體耐力--身體運動或精力耐受性之一般程度相關的功能。	
		<b>第七章 神經肌肉骨骼與動作相關的功能</b>	
	b7100.____.	單一關節移動--單一關節動作範圍和靈活的功能。	
	b7101.____.	多個關節移動--一個以上關節動作範圍和靈活的功能。	
	b7102.____.	全身關節移動--全身關節動作範圍和靈活的功能。	
	b7108.____.	關節移動功能，其他特定者。	
	b7109.____.	關節移動功能，未特定者。	
	b7150.____.	單一關節穩定--維持單一關節結構完整的功能。	
	b7151.____.	多個關節穩定--維持一個以上關節結構完整的功能。	
	b7152.____.	全身關節穩定--維持全身關節結構完整的功能。	
	b7158.____.	關節穩定功能，其他特定者。	
	b7159.____.	關節穩定功能，未特定者。	
	b7200.____.	肩胛骨移動--肩胛骨動作範圍和靈活的功能。納入：損傷如肩胛骨的前突、後縮、外轉和內轉。	
	b7201.____.	骨盆移動--骨盆動作範圍和靈活的功能。納入：骨盆旋轉。	
	b7202.____.	腕骨移動--腕骨動作範圍和靈活的功能。	
	b7203.____.	跗骨移動--跗骨動作範圍和靈活的功能。	
	b7208.____.	骨骼移動功能，其他特定者。	
	b7209.____.	骨骼移動功能，未特定者。	
	b729.____.	關節和骨骼功能，其他特定者和未特定者	
	b7301.____.	單一肢體肌肉力量--藉單臂或單腿肌肉和肌肉群收縮而生發力量相關的功能。納入：損傷如單肢輕癱和單肢癱瘓。	
	b7303.____.	下半身肌肉力量--藉在下半身肌肉和肌肉群收縮而生發力量相關的功能。納入：損傷如下半身輕癱和下半身癱瘓。	
	b7305.____.	軀幹肌肉力量--藉軀幹肌肉和肌肉群收縮而生發力量相關的功能。	
	b7306.____.	身體所有肌肉力量--藉身體所有肌肉和肌肉群收縮而生發力量相關的功能。納入：損傷如失能性不語症。	

	b7308.____.	肌肉力量功能，其他特定者。
	b7309.____.	肌肉力量功能，未特定者。
	b7350.____.	單獨肌肉和肌肉群張力--單獨肌肉和肌肉群靜止所呈現張力與嘗試被動地移動那些肌肉時所提供阻力相關的功能。納入：損傷如局部張力不全，如斜頸。
身體功能	b7351.____.	單一支體肌肉張力--單臂或單腿肌肉靜止所呈現張力與嘗試被動地移動那些肌肉時所提供阻力相關的功能。納入：單肢輕癱和單肢癱瘓關聯的損傷。
	b7352.____.	身體單側肌肉張力--身體右側或左側肌肉和肌肉群靜止所呈現張力與嘗試被動地移動那些肌肉時所提供阻力相關的功能。納入：單側輕癱和單側癱瘓關聯的損傷。
	b7353.____.	下半身肌肉張力--下半身肌肉和肌肉群靜止所呈現張力與嘗試被動地移動那些肌肉時所提供阻力相關的功能。納入：下半身輕癱和下半身癱瘓關聯的損傷。
	b7355.____.	軀幹肌肉張力--軀幹肌肉和肌肉群靜止所呈現張力與嘗試被動地移動那些肌肉時所提供阻力相關的功能。
	b7358.____.	肌肉張力功能，其他特定者。
	b7359.____.	肌肉張力功能，未特定者。
	b7400.____.	單獨肌肉耐力--在所需時段內單獨肌肉持續肌肉收縮相關的功能。
	b7401.____.	肌肉群耐力--在所需時段內單獨肌肉群持續肌肉收縮相關的功能。納入：單肢輕癱、單肢癱瘓、單側輕癱和單側癱瘓、下半身輕癱和下半身癱瘓關聯的損傷。
	b7402.____.	身體所有肌肉耐力--在所需時段內身體所有肌肉持續肌肉收縮相關的功能。納入：四肢輕癱、四肢癱瘓、全身輕癱和癱瘓關聯的損傷。
	b7408.____.	肌肉耐力功能，其他特定者。
	b7409.____.	肌肉耐力功能，未特定者。
	b749.____.	肌肉功能，其他特定者及未特定者
	b7500.____.	伸張運動反射--藉伸張自動誘發肌肉不隨意收縮的功能。
	b755.____.	不隨意動作反應功能--藉身體擺位、平衡和威脅性刺激誘發大肌肉或全身不隨意收縮的功能。
	b7600.____.	簡單隨意動作控制--簡單或單獨隨意動作控制和協調關聯的功能。
	b7601.____.	複雜隨意動作控制--複雜隨意動作控制和協調關聯的功能。
	b7602.____.	隨意動作協調--簡單和複雜隨意動作協調關聯的功能，以有序組合進行動作。納入：左右協調、視覺導向動作協調，如眼手協調和眼足協調；損傷如輪替運動困難。
	b7603.____.	臂或腿支撐功能--藉臂(肘或手)或腿(膝或腳)承受重量以控制和協調隨意動作關聯的功能。
	b7608.____.	隨意動作控制功能，其他特定者。
	b7609.____.	隨意動作控制功能，未特定者。
b7610.____.	一般動作--特定年齡一般自發動作的技能和品質，如早年的「扭曲」動作和「顫動」動作。	
b7650.____.	肌肉不隨意收縮--肌肉或肌肉群無意、無或半目的不隨意收縮的功能，如那些涉及心理功能障礙的部分。納入：損傷如舞蹈症和指癱症動作；睡眠相關動作疾患。	
b7651.____.	震顫--關節四周肌肉群交替收縮和放鬆導致震動的功能。	

	b7652.____.	抽搐和作態行為--肌肉群重複、準目的、不隨意收縮的功能。納入：損傷如發聲抽搐、穢語症和磨牙症。
	b7653.____.	刻板行為和動作反覆症--自發、無目的動作功能，如前後重複搖擺和點頭或扭動。
	b7800.____.	肌肉僵硬感--肌肉緊縮或僵硬的感覺。
	b7801.____.	肌肉痙攣感--肌肉或肌肉群不隨意收縮的感覺。
	b7808.____.	肌肉和動作功能相關的感覺，其他特定者。
	b789.____.	動作功能，其他特定者和未特定者
	b798.____.	神經肌肉骨骼與動作相關的功能，其他特定者
	b799.____.	神經肌肉骨骼與動作相關的功能，未特定者
		<b>第七章 動作相關的結構</b>
身 體 結 構	s7300.____.	上臂結構。
	s73000.____.	上臂骨骼。
	s73001.____.	肘關節。
	s73002.____.	上臂肌肉。
	s73003.____.	上臂韌帶和筋膜。
	s73008.____.	上臂結構，其他特定者。
	s73009.____.	上臂結構，未特定者。
	s7301.____.	前臂結構。
	s73011.____.	腕關節。
	s7302.____.	手結構。
	s73020.____.	手骨骼。
	s73021.____.	手和手指關節。
	s73022.____.	手肌肉。
	s73023.____.	手韌帶和筋膜。
	s73028.____.	手結構，其他特定者。
	s73029.____.	手結構，未特定者。
s7308.____.	上肢結構，其他特定者。	
		<b>第一章 學習和應用知識</b>
活 動 和 參 與	d1201.____.	觸--使用手、手指或其他肢體或身體部分探索物體。
	d1310.____.	透過單一物體的簡單行動學習--藉操作、碰擊、移動、落下等單一物體或玩具的簡單行動。
	d1311.____.	透過相關兩個或更多物體的行動學習--相關兩個或更多物體、玩具或其他材料而無關於物體、玩具或材料特定外貌的簡單行動。
	d1312.____.	透過關於特定外貌相關兩個或更多物體的行動學習--相關兩個或更多物體、玩具或材料而有關於特定外貌的行動，如箱子上蓋子、茶托上杯子。
	d1318.____.	透過行動學習，其他特定者。
		<b>第二章 一般任務和需求</b>
	d2100.____.	從事簡單任務--準備、啟動並安排一簡單任務所需的時間和空間；執行單一主要要素的簡

	單任務，如堆一玩具塔、穿上鞋子、讀一本書、寫一封信、或整理個人床鋪。
d2101.____.	從事複雜任務--準備、啟動並安排單一複雜任務的時間和空間；執行不止一種要素的複雜任務，它可能按序或同時進行，如整理遊戲的地方、使用數個玩具玩裝扮遊戲、在個人家裏佈置傢俱或完成學校作業。
d2104.____.	完成簡單任務--完成單一主要要素的簡單任務，如：堆一玩具塔、穿上鞋子、讀一本書、寫一封信、或整理個人床鋪。
	<b>第三章 溝通</b>
d369.____.	交談及使用溝通裝置和技術，其他特定者和未特定者
	<b>第四章 移動</b>
d4153.____.	維持坐姿--在必要的一段時間在座椅或地板上保持坐姿，如坐在書桌或餐桌時。納入：兩腳支撐或無支撐以保持兩腿伸直或盤腿的坐姿。
d4155.____.	維持頭部姿勢--在限定一段時間控制頭部姿勢和支撐其重量。
d4158.____.	維持身體姿勢，其他特定者。
d4159.____.	維持身體姿勢，未特定者。
d429.____.	改變和維持身體姿勢，其他特定者和未特定者
d4300.____.	舉起--抬起物品以便將其從較低移到較高處，如從桌上舉起玻璃杯時。
d4301.____.	用手運送--用手將物品從一處拿起或搬運到另一處，如運送飲用玻璃杯或手提箱。
d4302.____.	用臂運送--用臂和手將物品從一處拿起或搬運到另一處，如運送寵物或小孩或其他大型物品時。
d4305.____.	放下物品--用手、臂或身體其他部位把物品放下到地面或地點，如水容器放低到地上時。
d4400.____.	撿起--用手和手指舉起或拿起小物品，如撿起鉛筆時。
d4401.____.	抓握--用單手或雙手抓住和握住某物，如抓握工具或門把時。
d4402.____.	操作--用手指和手施力控制、指向或指引某物，如處理硬幣或其他小物品時，用剪刀剪，綁鞋帶，圖著色簿，或使用筷子或刀和叉時。
d4403.____.	放開--用手指和手放開或釋放某物使其落下或改變位置，如抖落衣服上物件或一小塊食物給寵物時。
d4408.____.	精細手部使用，其他特定者。
d4409.____.	精細手部使用，未特定者。
d4450.____.	拉--用手指、手和臂將物品帶向自身、或將其從一處移到另一處，如拉繩或關門時。
d4451.____.	推--用手指、手和臂將某物從自身移開，或將其從一處移到另一處，如推開玩具或動物時。
d4452.____.	伸--用手和臂向外延伸並觸及和抓住某物，如越過餐桌或書桌拿書時。
d4453.____.	轉動或扭轉手或臂--用手指、手和臂以旋轉、轉動或彎曲一物品，如需刷牙或清洗器皿。
d4454.____.	擲--用手指、手和臂以舉起某物並用些力向空中推出，如投球時。
d4455.____.	抓--用手指、手和臂以抓住移動物品以便使其停止並握住，如接球時。
d4458.____.	手和臂使用，其他特定者。
d4459.____.	手和臂使用，未特定者。
d446.____.	精細腳部使用--用個人腳和腳趾進行協調行動來移動或操作物品。

於社交領域的溝通能力(communicative competence)ICF-CY 核心編碼組如表 9。

表 9. 評估使用輔助溝通系統(AAC)學生溝通能力(communicative competence)ICF-CY 核心編碼組-社交領域

		社交領域 (So)
		<b>第一章 心智功能</b>
身 體 功 能	b1141._____.	地點定向--產生對個人位置，如個人周遭事物、個人市鎮或國家覺察的心智功能。
	b1142._____.	人物定向--在周遭環境產生對個人自己身分和個體覺察的心智功能。
	b11420._____.	自我定向--產生對個人自己身分覺察的心智功能。
	b11421._____.	他人定向--在個人周遭環境產生對其他個體身分覺察的心智功能。
	b122._____.	總體心理社會功能--在其生命壽限發展中，需要瞭解與建構性地整合心智功能，以引起形成在意義和目的兩方面建立交互社會互動所需個人和人際技能的一般心智功能。
	b1252._____.	活動程度--以精力和行動而非萎靡和怠惰之行動或反應的特質。
	b1253._____.	可預測性--以可預測和穩定的態度而非古怪或不可預測態度之行動或反應的特質。
	b1255._____.	可接近性--以啟動態度邁向個人或事物而非退避或撤消行動的特質。
	b1258._____.	特質和個人內在功能，其他特定者。
	b1260._____.	外向--產生直率、好交際和感情流露之個人特質的心智功能，相對於怕羞、拘束和羞怯。
	b1261._____.	隨和--產生合作、友善和親切之個人特質的心智功能，相對於敵意、對抗和蔑視。
	b1262._____.	嚴謹--產生如努力工作、有條不紊和謹慎之個人特質的心智功能，相對於產生如懶惰、不可靠和不負責特質的心智功能。
	b1263._____.	精神穩定性--產生性情平和、鎮靜和沉著之個人特質的心智功能，相對於易怒、發愁、古怪和喜怒無常。
	b1264._____.	經驗開放性--產生好奇、富想像力、好問和尋求經驗之個人特質的心智功能，相對於遲鈍、怠慢和不善表達情緒。
	b1266._____.	自信--產生有自信的、大膽和武斷之個人特質的心智功能，相對於膽怯、不安和自輕。
	b1301._____.	動機--產生行動誘因的心智功能；行動之有意識或無意識的驅動力量。
	b1403._____.	分享注意力--允許兩人或更多人聚焦於同一刺激的心智功能，如小孩和照顧者兩者聚焦於一玩具。
	b1520._____.	情緒適當性--產生與處境相符之感覺或情感的心智功能，如接到好消息時快樂。
	b1521._____.	情緒調節--控制情感之經驗和顯露的心智功能。
	b1522._____.	情緒範圍--產生激發情感或感覺之經驗頻譜的心智功能，如愛意、仇恨、焦慮、傷心、高興、恐懼和憤怒。
b1528._____.	情緒功能，其他特定者。	
b1529._____.	情緒功能，未特定者。	
b1644._____.	洞察力--覺察和瞭解自身及個人行為的心智功能。	



	b1645._____.	判斷力--涉及辨別或評估不同意見間的心智功能，如那些涉及意見形成。
	b1800._____.	自我經驗--在自身周圍環境的實境中，覺察個人身分和個人位置的特定心智功能。 納入：損傷如失自我感和失真感。
身 體 結 構		並無對應核心編碼組
活 動 和 參 與		<b>第一章 學習和應用知識</b>
	d1551._____.	獲得複雜技能--學習整合成套行動以便遵守規則，及按序並協調個人動作，如學習玩遊戲(如足球或西洋棋)和使用建築工具。
	d1608._____.	集中注意力，其他特定者。
	d1609._____.	集中注意力，未特定者。
	d1630._____.	假裝--致力於涉及想像的人、地、事或事件的假裝活動。
		<b>第二章 一般任務和需求</b>
	d2300._____.	遵循常規--回應他人指導下致力於基本日常程序和責任。
	d2301._____.	管理日常工作--進行簡單或複雜和協調行動以便規劃和管理日常程序或責任的要求。
	d2302._____.	完成日常工作--進行簡單或複雜和協調行動以便完成日常程序或責任的要求，如完成覺醒、穿衣服、吃早餐、離家上學或上班及一天結束時回家的日常工作。
	d2303._____.	管理個人自己活動水準--進行行動和行為以安排日常程序或責任之精力和時間的要求。
	d2402._____.	處理危機--進行簡單或複雜和協調行動以應付在急劇危險或困難處境或時期的決定性轉折點，如決定在適當時間點請求幫助及向適當人請求幫助。
	d2500._____.	接受新事物--管理情緒行為和表達以適當接受回應新事物或處境。
	d2501._____.	回應需求--管理情緒行為和表達以適當態度回應實際或感知的期望或需求。
	d2502._____.	接近他人或處境--管理情緒行為和表達以適當態度啟動他人或處境的互動。
	d2503._____.	可預料行動--管理情緒行為和表達以一致努力態度回應需求或期望。
	d2504._____.	適應活動水準--管理情緒行為和表達以適當需求或期望的態度和水準的精力。
		<b>第三章 溝通</b>
	d3508._____.	交談，其他特定者。
	d3509._____.	交談，未特定者。
	d3558._____.	討論，其他特定者。
	d3559._____.	討論，未特定者。
		<b>第六章 居家生活</b>
	d6602._____.	協助他人溝通--協助家庭成員和他人的溝通，如幫助講話、書寫或閱讀。
	d6603._____.	協助他人人際關係--協助家庭成員和他人的關係，如幫助他們啟動、維持或終止關係。



	第七章 人際互動和關係
d7100._____.	關係中的尊重和熱情--以情境和社交適當方式顯出和回應以關心、同情、體貼和尊重。
d7101._____.	關係中的欣賞--以情境和社交適當方式顯出和回應以滿意和感恩。
d7102._____.	關係中的寬容--以情境和社交適當方式顯出和回應以瞭解和接受。
d7103._____.	關係中的批評--以情境和社交適當方式提供和回應以隱含和明確的意見不同或意見不一。
d7104._____.	關係中的社交暗示--在社交互動中適當地發出和反應以記號和提示。
d71040._____.	啟動社交互動--適當地啟動和回應與他人交互社會交換。
d71041._____.	維持社交互動--調節行為以持續社會交換。
d71048._____.	關係中的社交暗示，其他特定者。
d71049._____.	關係中的社交暗示，未特定者。
d7105._____.	關係中的身體接觸--以情境和社交適當方式做出和回應以與他人肉體接觸。
d7106._____.	區分熟人--對個體表現出差別回應，如對熟人伸手並將其與陌生人區分。
d7108._____.	基本人際互動，其他特定者。
d7109._____.	基本人際互動，未特定者。
d7200._____.	形成關係--以情境和社交適當方式與他人開始並維持短期或長期的互動，如自我介紹，發現並建立友誼和專業關係，開始可能變成永久、浪漫或親密的關係。
d7201._____.	終止關係--以情境和社交適當方式帶進互動的終結，如在拜訪結束時結束暫時關係，搬到新市鎮時結束與朋友長期的關係，或結束與工作同事、專業同事和提供服務者的關係，及結束浪漫或親密關係。
d7202._____.	互動中調節行為--以情境和社交適當方式調節與他人互動的情緒和衝動、言語攻擊和身體攻擊。
d7203._____.	根據社會規則互動--在社交互動中獨立行動，並在與他人互動中順從社會慣例以支配個人角色、地位或其他社會情況。
d7204._____.	維持社會距離--在自身和他人間，以適當情境、社會和文化地意識並維持距離。
d7208._____.	複雜人際互動，其他特定者。
d7209._____.	複雜人際互動，未特定者。
d729._____.	一般人際互動，其他特定者和未特定者
d730._____.	與陌生人關係--為特定目的與陌生人從事暫時接觸和聯繫，如要求資訊、方向或購買時。
d7400._____.	與上級關係--相對於個人社會地位，與有權力或較高階層或名望地位的人產生並維持正式關係，如雇主。
d7401._____.	與下屬關係--相對於個人社會地位，與較低階層或名望地位的人產生並維持正式關係，如員工或僕人。
d7402._____.	與同級者關係--相對於個人社會地位，與有相同權威、階層或名望地位的人產生並維持正式關係。

	d7408._____.	正式關係，其他特定者。	
	d7409._____.	正式關係，未特定者。	
	d7500._____.	與朋友非正式關係--以相互尊重和共同興趣為特徵而產生並維持友誼關係。	
	d7501._____.	與鄰居非正式關係--與住在附近住所或生活區域的人產生並維持非正式關係。	
	d7502._____.	與熟人非正式關係--與個人認識但非親近朋友的人產生並維持非正式關係。	
	d7503._____.	與同住者非正式關係--與同住在私人或公共房屋或其他住所的人，為任何目的產生並維持非正式關係。	
	d7504._____.	與同儕非正式關係--與共有相同年齡、興趣或其他共同特色的人產生並維持非正式關係。	
	d7508._____.	非正式社會關係，其他特定者。	
	d7509._____.	非正式社會關係，未特定者。	
	d7600._____.	父母-子女關係--親生和收養而成為或作為父母，如有了子女而與之有關作為父母、或收養子女而產生並維持父母關係，且對個人親生或收養子女提供身體、智力和情感的養育。	
	d7601._____.	子女-父母關係--與個人父母產生並維持關係，如年幼子女服從他或她的父母或成年子女照顧他或她年老父母。	
	d7602._____.	手足關係--藉出生、收養或結婚而與人共有單親或雙親，以產生並維持兄弟或姊妹關係。	
	d7603._____.	大家庭關係--與個人大家庭成員產生並維持家庭關係，如與堂表兄弟姊妹、姑孀和叔伯、及祖父母。	
	d7608._____.	家庭關係，其他特定者。	
活動 和 參與	d7609._____.	家庭關係，未特定者。	
	d7700._____.	浪漫關係--基於情感和身體吸引所產生並維持的關係，可能導致長期親密關係。	
	d7701._____.	配偶關係--與另一人產生並維持合法性質的親密關係，如合法結婚，包括成為或作為合法結婚的妻子或丈夫、或未婚配偶。	
	d7708._____.	親密關係，其他特定者。	
	d7709._____.	親密關係，未特定者。	
	d779._____.	特殊人際關係，其他特定者和未特定者	
	d798._____.	人際互動和關係，其他特定者	
	d799._____.	人際互動和關係，未特定者	
		<b>第八章 主要生活領域 教育(d810-d839)</b>	
		d8800._____.	獨自遊戲--自身忙於有目的、持續的從物品、玩具、器材或賽局的活動。
		d8801._____.	旁觀遊戲--自身忙於有目的觀察他人物品、玩具、器材或賽局的活動，但沒有參加他們的活動。
		d8802._____.	平行遊戲--在也從事遊戲的其他人面前從事有目的、持續的物品、玩具、器材或賽局的活動，但沒有參加他們的活動。
		d8803._____.	共享合作遊戲--參加他人共享目標或目的之持續的從物品、玩具、器材或賽局的

	活動。
	<b>第九章 社區、社交和公民生活</b>
d9100._____.	非正式社團--從事由具有共同興趣的人們所組織的社交或社區社團，如地方性社交俱樂部或宗族團體。
d9103._____.	非正式社區生活--從事與他人在遊樂場、公園、街頭咖啡廳、市鎮廣場與其他共同公共空間共同聚集。
d9108._____.	社區生活，其他特定者。
d9109._____.	社區生活，未特定者。
d9205._____.	交際--與他人從事非正式或偶然的聚集，如訪問朋友或親戚、或在公共空間非正式會面。

於策略領域的溝通能力(communicative competence)ICF-CY 核心編碼組如表 10。

表 10. 評估使用輔助溝通系統(AAC)學生溝通能力(communicative competence)ICF-CY 核心編碼組-策略領域

	策略領域 (St)	
身體功能	<b>第一章 心智功能</b>	
	b1250._____.	適應--對於新事物或經驗採接受態度而非抗拒態度之行動或反應的特質。
	b1402._____.	分配注意力--允許同時聚焦於兩項或更多刺激的心智功能。
	b1643._____.	認知彈性--改變策略或轉移心智定勢的心智功能，特別是涉及問題解決。
	b1646._____.	解決問題--確認、分析並整合不一致或衝突的資訊加以解決的心智功能。
身體結構	並無對應核心編碼組	
活動和參與	<b>第一章 學習和應用知識</b>	
	d1558._____.	獲得技能，其他特定者。
	d1559._____.	獲得技能，未特定者。
	d1631._____.	推測--基於不完整事實或資訊來猜測或假定某事以操作意念、概念或意象。
	d1632._____.	假設--操作意念、概念或意象涉及使用抽象思想以陳述假定或測試未經證明的事實。
	d1638._____.	思考，其他特定者。
	d1750._____.	解決簡單問題--經確認和分析論點、發展選項和解答、評估解答潛在效果、及執行所選解答以找出涉及單一論點或問題之簡單問題的解答。
	d1751._____.	解決複雜問題--經確認和分析論點、發展選項和解答、評估解答潛在效果、及執行所選解答以找出涉及多重並相互關聯的論點、或數個相關問題之複雜問題的解答。
d1758._____.	解決問題，其他特定者。	

d177.	作決策--從選項中作選擇、實施該選擇、並評估該選擇效果，如選擇並購買特定用品，或從數個需要完成的任務中決定從事並從事單一任務。
	<b>第二章 一般任務和需求</b>
d2102.	獨立從事單一任務--準備、啟動並安排一簡單或複雜任務的時間和空間；管理和執行個人自己任務而無他人協助，如涉及分類小物件的單獨遊戲、擺好餐桌或疊高積木。
d2103.	集體從事單一任務--準備、啟動並安排簡單或複雜單一任務的時間和空間；與涉及該任務一些或全部步驟的人管理和執行任務。如玩捉迷藏、按規則玩牌或圖版遊戲、或一起演奏樂器。
d2105.	完成複雜任務--完成不只一種要素的複雜任務，它可能按序或同時進行，如整理遊戲的地方、使用數個玩具玩裝扮遊戲、在個人房間佈置傢俱或完成學校作業。
d2108.	從事單一任務，其他特定者。
d2200.	進行多重任務--準備、啟動並安排數項任務所需的時間和空間，及同時或按序管理和執行數項任務，如在冷天自己穿好衣服或為派對作安排。
d2201.	完成多重任務--同時或按序完成數項任務，如起床及作好準備上學、購物及購物時為朋友完成差事。
d2202.	獨立從事多重任務--準備、啟動並安排多重任務的時間和空間，及個人在無他人協助下同時或按序管理和執行數項任務。
d2203.	集體從事多重任務--準備、啟動並安排多重任務的時間和空間，及與其他涉及多重任務的一些或全部步驟的他人同時或按序管理和執行數項任務。
d2204.	獨立完成多重任務--獨立完成多重任務，如完成數項家庭作業、餵寵物食物和水、擺好桌子並為家人準備晚餐。
d2205.	集體完成多重任務--集體完成多重任務，如為一運動項目計畫時間和場地、邀請參與者、固妥參賽所需運動設備及安排往返活動的運輸。
d2304.	管理日常工作改變--作適當轉變以回應平常活動順序的新要求或改變，如在公共運輸無法使用時，找另一條路行進上學或上班。
d2305.	管理個人時間--管理完成平常或特定活動所需時間，如準備離家、服藥、及使用輔助科技和支持。
d2306.	適應時間需求--在所需順序和分配時間內，適當進行行動和行為，如當有錯過火車的危險時跑到車站。
	<b>第三章 溝通</b>
d3609.	使用溝通裝置和技術，未特定者。
d399.	溝通，未特定者

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## 附錄

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## REVISIT COMMUNICATIVE COMPETENCE IN AAC

**Revisiting Communicative Competence in the Field of Augmentative and Alternative  
Communication: From Perspectives of Communicative Competence in Typically Speaking  
Conversation Dyads**

**Introduction**

Conversation is interactive, dynamic, and complex (Brinton and Fujiki, 1989, Sacks et al., 1974, Gan et al., 2009). A dyadic conversation contains two conversation participants, a speaker and a listener, and modes of communication (e.g., verbal and nonverbal communication behaviors) (McTear and King, 1991, Clark, 1996, Olsson, 2004). Typically speaking conversation participants use spoken language as their primary communication mode; whereas, conversation participants who cannot speak use other types of communication means, in addition to spoken language, serve as their communication mode. These dyadic conversations heavily rely on communicative competence in order for these two participants to develop their own social identities as members of their communities (Wiemann, 1977). It has been a great increase in scholarly efforts directed to exploring the concept of communicative competence in several fields, including linguistics, psychology, communication, speech language pathology, and so on in past four decades (Tsai, 2013b). Tsai (2013b) integrated four approaches, including cognitive approach (Chomsky, 1965); behavioral/social approach (Hymes, 1974); relational competence approach (Wiemann, 1977); and language development approach (Bloom and Lahey, 1978), indicating that communicative competence should be defined as abilities from a speaker to reach his or her and conversation partner's conversation goals with using appropriate conversation behaviors selected from his or her conversation repertoires within their dyadic conversations. Essentially, communicative competence is an integrative and persons-based concept (Wilbert and Albritton, 1986, Teachman and Gibson, 2014, Solovyova, 2012). A communicatively

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3 competent dyad achieves not only his or her own conversation goal, but also accommodates his  
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5 or her conversation partner's goal by appropriately using content, form, and use of language  
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7 within their conversations. A mutual conversation goal is negotiated and completed through  
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9 appropriate conversation behaviors and turns from dyads in order to achieve their communicative  
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11 competence.  
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15 Over an extended period of time, augmentative and alternative communication (AAC)  
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17 systems and devices have been provided to individuals who cannot temporarily or permanently  
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19 speak in order for them have opportunities to regain their conversation with their family, peers,  
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21 colleagues, and communities (Calculator, 2007, Beukelman and Mirenda, 2012, American  
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23 Speech-Language -Hearing Association, 2002, American Speech-Language -Hearing  
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25 Association, 2005). The ultimate goal of introducing AAC as a communication means is to meet  
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27 conversation goals of these individuals with communication disorders, and then to attain  
28  
29 communicative competence during their dyadic conversations (Light, 1997, Yoder, 2001, Light  
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31 and McNaughton, 2014).  
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37 Often, it has been taken-for granted agreement proposed by Light (1989) and Light &  
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39 McNaughton (2014) that four domains of communicative competence is recognized in AAC  
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41 practice and communicative competence is an individual concept focusing on the individuals  
42  
43 who use AAC. Little nature and issues in measuring communicative competence of  
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45 communication involving individuals who use AAC have been undertaken. Moreover, Teachman  
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47 & Gibson (2014) argued that interpersonal, dynamic, and relational aspects of communicative  
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49 competence were not fully described in these four dominants. Although there is not a right way  
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51 to conceptualize communicative competence (Teachman and Gibson, 2014), it would certainly  
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## REVISIT COMMUNICATIVE COMPETENCE IN AAC

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3 validate to consider contributions of communicative competence in typically speaking  
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6 conversation dyads to that in the AAC field alternatively.  
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8 To date, a paucity of scholars and practitioners in AAC practice broadly investigate  
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10 diverse issues of International Classification of Function, Disability and Health (ICF) and  
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12 Children and Youth version (ICF-CY) proposed by World Health Organization to describe  
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14 individuals' health and socially well-being (2001, World Health Organization, 2007) (Fried-  
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16 Oken and Granlund, 2012, Topia and Hocking, 2012). In a similar vein, communicative  
17  
18 competence of dyadic conversation should be observed and evaluated within conversations in  
19  
20 natural environments (Williams et al., 2008). Participation and communication can be identified  
21  
22 through ICF and/or ICF-CY (Simeonsson et al., 2012). Fried-Oken and Granlund (2012) also  
23  
24 argued that functional outcomes of use of AAC resonates well with the concepts of ICF and ICF-  
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26 CY that evaluate participation in daily activities. Similarly, there should be a way to measure  
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28 communicative competence of daily conversations from the core sets of ICF and ICF-CY to  
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30 some extent. Broadly considered, in order to understand applications of ICF and ICF-CY in AAC  
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32 practice, it is necessary that communicative competence should be fully conceptualized.  
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38 As recommended by Teachman & Gibson (2014), scholars and practitioners in AAC  
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40 practice have to fully understand nature of communicative competence. Accordingly, it seems  
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42 reasonable to begin to understand those of communicative competence of typically speaking  
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44 conversation dyads, and in turn to dig those in the AAC field. Approaches to communicative  
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46 competence of typically speaking conversation dyads might be viewed as a base to access to  
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48 those in AAC field. To date, most attention has focused on four domains of communicative  
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50 competence; very little literature has critically examined conceptualizations of communicative  
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52 competence between the typically speaking conversation dyads and AAC dyads (i.e., an  
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## REVISIT COMMUNICATIVE COMPETENCE IN AAC

individual who uses AAC and a typically speaking individual). Specifically, no holistic conception of similarities and differences of communicative competence have been documented.

**Purpose**

The article primarily undertakes to highlight similarities and differences of communicative competence of typically speaking conversation dyads and those of AAC conversation dyads (i.e., an individual who uses AAC and a typically speaking individual). All of these details focus on communicative competence mainly in individuals who have English as their native language rather than in individuals who acquire English as second language.

**Similarities in Communicative Competence**

Similarities of communicative competence in typically speaking conversation dyads and AAC conversation dyads are highlighted. The first similarity is that communicative competence is learned (e.g., Dunst and Lowe, 1986, Solovyova, 2012, Tsai, 2013b). Communication competence develops as a direct result of social interactions with others (Blackstone et al., 2005). Kagan (1998) and Teachman & Gibson (2014) indicated that an interactive relationship exists between perceived communicative competence and conversation opportunities. It is generally acknowledged that there is a certain interaction among perceived communicative competence, communication opportunities, and conversation skills. If a conversation dyad perceives low communicative competence in their conversation, they might be denied from conversing with other peers. Consequently, they would not have any opportunities to practice their conversation skills that they have learned somewhere. In that case, it might make them difficult to develop their conversation skills (Gertner et al., 1994). In contrast, if individuals with good conversation skills have much more opportunities to practice these skills with others than individuals with

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2  
3 poor conversation skills. Therefore, they might have more communication opportunities than the  
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5 others, and then their dyadic conversation have great chance to be perceived as competent.  
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8         The second similarity is that communicative competence allows individuals to achieve  
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10 dyadic conversation goals and then social roles (Biklen and Kliewer, 2006, Cohen, 2010).  
11  
12 Everyday conversation is heavily based upon communicative competence for all of the  
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14 individuals in order to attain their conversation goals and then develop the social roles of the  
15  
16 members in their community (Dunst and Lowe, 1986, Light, 1997, Wiemann, 1977). These  
17  
18 conversation goals include expressing needs and wants; developing social closeness with others;  
19  
20 exchanging information with others; and fulfilling social etiquette expectations (Light, 2003).  
21  
22 Both of the typically speaking individuals and the individuals who require AAC learn  
23  
24 communicative competence through the changes of different social roles in and outside the  
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26 household (Stohl, 1989). Gertner, et al. (1994) indicated that these individuals with and without  
27  
28 communication disorders, especially preschoolers, have to use communicative competence to  
29  
30 make friends. Others have to accept these individuals as well in order that the friendship will  
31  
32 mature (Gertner et al., 1994). Conversely, individuals with poor communicative competence are  
33  
34 easily denied to access their peer groups. These social roles change across the lifespan “from  
35  
36 infancy through the preschool and school-age years to adolescence and adulthood....social roles  
37  
38 in late adulthood (Light, 2003, p. 20).” These social roles change in accordance with all stimuli  
39  
40 within conversation and with the change of conversation contexts (Hymes, 1972). In order to be  
41  
42 communicatively competent, conversation demands and resources (i.e., knowledge, judgments,  
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44 and skills) faced by these individuals increase as the range of social roles increases (Light, 2003).  
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53         The third similarity is that achievement of communicative competence requires co-  
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55 construction of dyadic conversations. The core concept of dyadic conversation is characterized  
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## REVISIT COMMUNICATIVE COMPETENCE IN AAC

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“... a collaborative operation by two or more [conversation] participants” (Damico et al., 1999, p. 670). These dyadic conversation participants cooperatively work together to achieve their conversation goals for each other through taking turns during their conversation (McTear and King, 1991, Goodwin, 1995, Bloch and Wilkinson, 2004, Leahy, 2004). Co-construction between two conversation participants is required to gain a successful conversation (McTear and King, 1991, Clark, 1996), and was defined as “a social process by which individuals dynamically alter their actions with respect to the ongoing and anticipated actions of their partner” (Fogel, 1993, p. 12). It focuses on “the behavior [that] affects the behavior of another person, is understood by that person, and is responded to in a manner that leads to a desired outcome” (Dunst and Lowe, 1986, p. 11). The processes of co-construction are completed “naturally, without preplanning precisely what will or will not be said” (Leahy, 2004, p. 71). Achieving co-construction secures highly possible successful conversation in order to get communication goals across and to gain communicative competence (McTear and King, 1991).

The fourth similarity is that measurement of communicative competence is context-specific, relative (i.e., not absolute), and dynamic (i.e., not static) (Spitzberg and Cupach, 1984, Granlund et al., 1995, Woll and Barnett, 1998, Savignon, 1983). Broadly considered, no standards are needed in measuring communicative competence. It has been an issue whether it is necessary to have a standard or prototype (i.e., a norm) of measuring communicative competence of typically speaking conversation dyads (e.g., Simon and Holway, 1985, Wiemann and Bradac, 1989, Savignon, 1983). View in this fashion, it has been also debated whether there should be a norm of communicative competence of AAC conversation dyads. Narrowly considered, having a norm of communicative competence specifically for individuals who use AAC might yield potential benefits and harms (Sutton, 1989). For example, Beukelman (1988) argued that if the



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3 IEP goals or going back to mainstream settings are needed for the individuals who use AAC,  
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5 there is a need to have a norm based on the typical speaker. On the whole, it has been taken for  
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7 granted that normative standards of communicative competence of typically speaking  
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9 conversation dyads should be considered in measuring that of dyadic conversation between the  
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11 individuals who use AAC and others (Wilbert and Albritton, 1986, Teachman and Gibson, 2014).  
12  
13 Beukelman (1988), Sutton (1989), and Hetzroni and Harris (1996) further claimed that a norm of  
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15 communicative competence in the AAC field should be established relied upon that in typically  
16  
17 speaking conversation dyads and culture-specific. Nevertheless, Duchan, Maxwell, and  
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19 Kovarsky (1999) and Light (1989) suggested that a norm should be established based upon the  
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21 individuals who use AAC (i.e., sharing the same culture) who engage in dyadic conversations,  
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23 instead of on the typical speaker in the conversation dyads. However, a lot of the individuals who  
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25 begin to use AAC or have been using AAC in their conversation for a while seldom  
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27 communicate competently as norms (Boose and Stinnett, 1999, Beukelman, 1991, Beck et al.,  
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29 2000). These might be caused by their deficits in different ways and having limited access to  
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31 models of individuals who use AAC competently in the conversations (Ballin et al., 2011). Due  
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33 to these limitations, it might be hard to have an individual who uses AAC as a norm of a  
34  
35 competent communicator, and have this norm to be generalized to all individuals with  
36  
37 communication disorders along with different other disabilities. Simon and Holway (1985)  
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39 alternatively argued that measurement of communicative competence should be based upon  
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41 criteria instead of norms. However, communicative competence changes overtime as appropriate  
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43 behaviors mastered (Granlund et al., 1995).  
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53 At the most general level, attainment of communicative competence varies according to  
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55 communication participants, communication environments, and communication goals (Light and  
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## REVISIT COMMUNICATIVE COMPETENCE IN AAC

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McNaughton, 2014). In response to this concern, measurement of communicative competence is based on the effectiveness, appropriateness, and satisfaction in achieving dyadic conversation goals (Wiemann and Kelly, 1981). It has been claimed that measurement of communicative competence is considered as a continuum and dynamic and relative concept, and a certain criterion or norm cannot fully be applied to all typically speaking individuals in the same community or culture (Savignon, 1983, Granlund et al., 1995, Tsai, 2013b). Tsai (2013b) recommended that measuring communicative competence is a concept of comparison by dyads themselves or by contexts, and no norm is necessary. Building on this discussion, we suggest, for example, in a conversation context A, dyad ONE is more communicatively competent than dyad TWO, or dyad THREE is more communicatively competent in conversation context B than in context C. These are also true for typical speakers and second language learners. On the whole, normative standards of communicative competence should not be an issue to consider. Measuring communicative competence should consider as a continuum and dynamic concept, instead of an established norm or criterion.

The fifth similarity is that communicative competence should be measured by three different methods, including: (1) actor's self-report (i.e., speaker's self-report); (2) conversation partner's judgment of the actor (i.e., speaker); and (3) third-party observation (Spitzberg and Cupach, 1989). Communicative competence involves cooperation of all of the involved participants, and stresses that different conversation skills are valued by different people in different contexts (Light, 1997, Savignon, 1983, Teachman and Gibson, 2014, Wilbert and Albritton, 1986, Light and McNaughton, 2014). Previous studies (Bedrosian et al., 1998) have involved other-oriented observers (i.e., conversation partners and third-party observers) in measuring communicative competence of AAC conversation dyads (i.e., an individual who uses

## REVISIT COMMUNICATIVE COMPETENCE IN AAC

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3 AAC and a typical speaker). Along the same lines, one study (i.e., Light et al., 1999) involved  
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5 the individuals who use AAC, conversation partners, and third-party observers in measuring  
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7 communicative competence. Although that conversation partners' observation is the most  
8  
9 appropriate method in assessing communicative competence and third-party observation is  
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11 appropriate in assessing microscopic conversation behaviors (Spitzberg and Cupach, 1989,  
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13 Wiemann and Backlund, 1980), the fact is that none of the three is superior to the others.  
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15 Interviews and observational methods can be utilized to complete these measurement methods.  
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17 Bedrosian, et al (1992) and Smith and Cascella (2007) recommended that measuring  
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19 communicative competence should involve all three roles of observers (i.e., an individual who  
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21 uses AAC; conversation partner(s); and third-party observers). To assess communicative  
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23 competence not only relies on their own actor's self-reports, but also on their conversation  
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25 partner's judgment of them and their third-party partners' observation. Self-report is of critical  
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27 value serving as customer's satisfaction in determining goals achievement (Light and  
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29 McNaughton, 2014), interpersonal awareness, and decision making in vocabulary selection and  
30  
31 target skills are required for the individuals who use AAC. It is preferred to have all potential  
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33 observers, including conversation participants (i.e., the individual who uses AAC and a partner)  
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35 and third-party observers (Bedrosian et al., 1998, Light, 1988, Roloff and Kellermann, 1984).  
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44 Light (1988) proposed two perspectives, social perspective and personal perspective, that  
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46 might affect ratings of communicative competence from three roles of observers (i.e., an  
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48 individual who uses AAC; conversation partner; and third-party observers). Factors underlining  
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50 social perspective, such as familiarity, observers' background experiences, attitudes from the  
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52 conversation partner and third-party observers, affect measurement of communicative  
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54 competence (Light, 1988). Familiarity between a conversation dyad (i.e., the individual who uses  
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## REVISIT COMMUNICATIVE COMPETENCE IN AAC

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3 AAC and his or her conversation partner) has been known affecting content of their dyadic  
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5 conversation (Roloff and Kellermann, 1984). The individuals who use AAC might share more  
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7 information with their familiar conversation partners than those with unfamiliar partners. As a  
8  
9 result, familiarity between the individuals who use AAC and their conversation partners might  
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11 influence their performance of communicative competence (Hoag et al., 1994, Light, 1988, Light  
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13 and McNaughton, 2014). Accordingly, familiarity of the conversation participants as observers  
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15 and third party observers should have similar effect on measuring communicative competence.  
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18 However, the degree of the effects of familiarity on rating communicative competence is unclear  
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20 (Bellon-Harn and Harn, 2006). Although the measurement of communicative competence might  
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22 vary across different observers which are from conversation participants and/or third-party  
23  
24 observers, it is recommended at least have family members, significant others of the individual  
25  
26 who uses AAC or AAC practitioners (e.g., speech-language pathologists) rate communicative  
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28 competence (Smith and Cascella, 2007, Light, 1988). Observers' background experience (e.g.,  
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30 individuals without and with experience in AAC) argued by Bedrosian, et al. (1992) and Hoag, et  
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32 al. (1994) also affects measurement of communicative competence. Inexperienced observers  
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34 (e.g., observers without experience interacting with individuals with communication disorders  
35  
36 who use AAC) rate higher communicative competence than experienced observers do (Hoag et  
37  
38 al., 1994). Additionally, effects of the observers' attitudes on measuring communicative  
39  
40 competence showed a vicious relationship (Beck et al., 2000). The observers with negative  
41  
42 attitudes towards the individuals who use AAC might rate lower degree of communicative  
43  
44 competence than the observers with positive attitudes do.  
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52  
53 In contrast to social perspective, personal perspective is a view from individuals who use  
54  
55 AAC (Light, 1988). In order to reflect the concept of personal perspective, self-determination  
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## REVISIT COMMUNICATIVE COMPETENCE IN AAC

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3 and interpersonal awareness should be considered (Light and Gulens, 2000, Roloff and  
4  
5 Kellermann, 1984). Self-determination concerns both personal satisfaction and personal attitudes  
6  
7 (e.g., motivation) (Light and Gulens, 2000); while, interpersonal awareness concerns whether  
8  
9 individuals are able to consider a variety of stimuli within the conversation (Roloff and  
10  
11 Kellermann, 1984, Clarke and Bloch, 2013). The individuals who use AAC need to be aware of  
12  
13 all of the stimuli within the conversation, and then make decisions in vocabulary selection and  
14  
15 target strategies desired used with their AAC systems and/or devices (Bedrosian et al., 1998). In  
16  
17 this regard, these individuals build up their own satisfactions and attitudes, and, consequently,  
18  
19 develop models of evaluating the effectiveness of intervention from their perspectives to reflect  
20  
21 their communicative competence (Light, 1988, Topia and Hocking, 2012). These individuals  
22  
23 who use AAC rate themselves with satisfaction (i.e., customers) and acceptability, and consider  
24  
25 if they attain their conversation goals (i.e., communication of needs/wants; information transfer;  
26  
27 social closeness; and social etiquette) during their conversation (Light, 1988, Light and  
28  
29 McNaughton, 2014). The role of personal perspective (i.e., self-report) is analog to customers'  
30  
31 satisfaction. Measuring communicative competence through self-report in AAC conversation  
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33 dyads is more critical than that typically speaking conversation dyads. Although McCroskey  
34  
35 (1984) pointed out that the validity of self-report from the individuals who use AAC is  
36  
37 questionable, to have them rate their own communicative competence is preferred in spite of  
38  
39 validity in a broader view. Two reasons thought of are that the individual's ratings of  
40  
41 communicative competence does not need to be compared with it of others, and he or she is the  
42  
43 only person who uses his or her own AAC systems and/or devices to reach his or her  
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45 conversation goals. In most cases, the individuals who use AAC might not be able to measure  
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47 their communicative competence due to their cognition constraints. Undoubtedly, the  
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## REVISIT COMMUNICATIVE COMPETENCE IN AAC

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3 measurement of communicative competence from conversation partners and/or third-party  
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5 observers is mandatory. Despite the dilemmas and concerns, Tsai (2013b) recommended that  
6  
7 communicative competence should be measured by the combinations of actor's self-report,  
8  
9 partner's evaluation, and third-party observation in the following ways. Whether a mutual goal  
10  
11 has been obtained during the conversation can be specifically evaluated through the actor' self-  
12  
13 report and partner's evaluation; while, whether the conversation participants appropriately use  
14  
15 language content, form, and use within the conversation can be assessed through the third-party  
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17 observation (Tsai, 2013b, Light and McNaughton, 2014).  
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22 The sixth similarity is that communicative competence is always measured from the  
23  
24 performance of conversation behaviors (Dore, 1986, Cooley and Roach, 1984, Chomsky, 1965,  
25  
26 Vygotsky, 1978). Competence and performance have been described that "competence seems  
27  
28 somewhat like a covered prize in the bottom of a cereal box, elusive but real. . . . performance  
29  
30 analogous to the inconvenient cereal, one has to dig through to get it out (Nelson, 1992, p. 3)."  
31  
32 Only performance can be measured (Dore, 1986, Cooley and Roach, 1984), and competence can  
33  
34 be predicted by performance (Vygotsky, 1978, Chomsky, 1965, Cooley and Roach, 1984).  
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39 Overall, it has been demonstrated that similarities of communicative competence in  
40  
41 typically speaking conversation dyads and AAC conversation dyads exist. These considered  
42  
43 similarities indeed reflect the nature of communicative competence in the AAC field, indicating  
44  
45 that communicative competence is learned from rich conversation opportunities, and presents a  
46  
47 relative, context-specific, and dynamic concept. It allows conversation participants to achieve  
48  
49 their conversation goals and then their social roles. Communicative competence should be  
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51 measured through a combination of actor's self-report (i.e., speaker's self-report); conversation  
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## REVISIT COMMUNICATIVE COMPETENCE IN AAC

partner's judgment of the actor (i.e., speaker); and third-party observation from the performance of dyadic conversations. View in this fashion, a standard of measurement is not needed.

**Differences in Communicative Competence**

Two primary differences of communicative competence are documented between typically speaking conversation dyads and AAC conversation dyads. The first difference is approaches to communicative competence. Communicative competence of typically speaking conversation dyads can be approached from cognitive approach, behavioral/social approach, relational competence approach, and language development approach (Tsai, 2013b). Due to several limitations (e.g., a lack of involvement of contextual factors in cognitive approach) existing in each approach, a single approach is not satisfactory to fully describe communicative competence in any way (Tsai, 2013b). Consequently, to integrate all four approaches to understand communicative competence of typically speaking conversation dyads was recommended (Tsai, 2013b). The primary difference between these two types of conversation dyads is that to take AAC systems and/or devices used by the individuals who use AAC into account is a need. These four approaches were described briefly in order to contrast approaches of communicative competence in the field of AAC.

Cognitive approach claimed that nature of communicative/linguistic competence is innately biological function of mind (Chomsky, 1965). The generative grammar is a universal grammar which is innate that all individuals are born with, and all children are born with the same set of universal grammar, and can be viewed as a speaker-hearer's linguistic competence (Chomsky, 1965). In a broad sense, all languages have a universal grammar in a particular homogenous language-using community (Romaine, 1984). Conversely, our community is heterogeneous rather than homogeneous. Wiemann and Kelly (1981) pointed out that knowledge



## REVISIT COMMUNICATIVE COMPETENCE IN AAC

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3 of grammar alone as a criterion is not sufficient to explain the concept of communicative  
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5 competence when individuals live with the interactions of their behaviors. Obviously, linguistic  
6  
7 competence cannot be viewed as communicative competence, and linguistic competence itself is  
8  
9 insufficient to set grammar rules to approach communicative competence. In the AAC field, the  
10  
11 representations of symbols on AAC systems and devices are obviously not innate for individuals  
12  
13 who use AAC; instead they have to learn the representations of the symbols in addition to their  
14  
15 native language. Clearly, the cognitive approach (i.e., linguistic competence equals to  
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17 communicative competence) cannot be sufficient to describe communicative competence in  
18  
19 AAC conversation dyads.  
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24 In contrast to the cognitive approach (e.g., universal grammar), Hymes (1971, Hymes,  
25  
26 1972) expanded Chomsky's perspective with notions of context, and proposed behavioral/social  
27  
28 approach. Hymes (1972) defined communicative competence as appropriateness of when to talk,  
29  
30 when not, when to talk about with whom, when, where, in what manner. These skills have been  
31  
32 described as the term of a repertoire of communication skills; in other words, "ways of speaking  
33  
34 (Hymes, 1974, p. 199)." The repertoires of conversation behaviors include linguistic aspects in  
35  
36 pragmatic, semantic, morphological; para-linguistics (e.g., stress and intonation); nonlinguistic  
37  
38 (e.g., facial expressions and gestures); and sociolinguistic skills (Savich, 1983). From the  
39  
40 perspective of a behaviorist, Skinner, it can be assumed that competent communicators have  
41  
42 learned certain behaviors reflected to various environmental stimuli according to the previous  
43  
44 positive and negative experiences in interaction (Wiemann and Bradac, 1989). Specifically,  
45  
46 highly competent communication behaviors have been greatly reinforced and received as  
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48 positive from others and these communicators carry these reinforced positive behaviors with  
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50 them in their conversation. In brief, behavioral/social approach combines the knowledge of  
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## REVISIT COMMUNICATIVE COMPETENCE IN AAC

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3 language grammar and the ability to use the knowledge (i.e., conversation repertoires), and is  
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5 able to access communicative competence of typically speaking individuals along with the  
6  
7 concept of conversation repertoires. However, this approach can only describe some portions of  
8  
9 communicative competence in the field of AAC. First, knowledge of language means the  
10  
11 knowledge on the native language of the individuals who use AAC instead of the knowledge of  
12  
13 the representations of symbols used in their AAC systems and/or devices. Second, the concept of  
14  
15 conversation repertoires means the skills and abilities in the use of pragmatics, semantics,  
16  
17 morphology; para-linguistics; nonlinguistic; and sociolinguistic skills. However, the individuals  
18  
19 who use AAC have to deal with not only “speaking”, but the other issues related to aids (i.e.,  
20  
21 devices), techniques (i.e., ways to transmit messages), and strategies (i.e., ways to convey  
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23 message effectively). Clearly, behavioral/social approach only partially accesses communicative  
24  
25 competence in the individuals who use AAC.  
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32 The third approach, relational competence approach, has been proposed to lie in the  
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34 relationship between others (i.e., conversation partners) and an actor (i.e., a speaker) (Wiemann,  
35  
36 1977). Communicative competence was defined as “... a dyadic concept. It is not necessarily  
37  
38 competent to force one’s self/situation definition on others (Wiemann, 1977).” Communicative  
39  
40 competence is viewed in a concept of dyad instead of only judging on the individual himself or  
41  
42 herself (Kagan, 1998, Wiemann, 1977, Woll and Barnett, 1998, Clarke and Bloch, 2013).  
43  
44 Similarly, a concept of “three-place relation” proposed by Granlund, Björck-Åkesson, Brodin,  
45  
46 and Olsson (1995) includes the persons (e.g., typically speaking individuals), the goal of an  
47  
48 action, and the circumstances surrounding this action (e.g., conversation partners). Measurement  
49  
50 of communicative competence is based upon the systemic effectiveness, appropriateness, and  
51  
52 satisfaction in achievement of goals (Wiemann and Kelly, 1981). The two dyadic conversation  
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## REVISIT COMMUNICATIVE COMPETENCE IN AAC

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3 participants, including the speaker and the conversation partner, can be viewed as competent  
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5 when both of their goals are achieved. In sum, relational competence approach views  
6  
7 communicative competence as a goal achievement.  
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11 Typically speaking conversation dyads, including an individual and his or her partner, are  
12  
13 able to use different nonlinguistic, paralinguistic, and linguistic conversation behaviors to have  
14  
15 their dyadic conversation goals attained without concerning diverse challenges that individuals  
16  
17 with communication disorders who use AAC have. These challenges include physical  
18  
19 constraints, cognitive deficits, complexities of use of AAC systems and/or devices, recognition  
20  
21 of symbols used in the systems and/or devices, energy-consumption of conveying messages, and  
22  
23 any regarding factors (James and Stojanovik, 2007). These, which the typically speaking  
24  
25 individuals do not need to confront, have to be dealt with by the individuals with communication  
26  
27 disorders who use AAC, and any single piece might cause their conversation goals not able to be  
28  
29 reached. Alternatively, it is questionable that those who cannot attain their conversation goals  
30  
31 probably still have certain level of communicative competence in different ways outside the goal  
32  
33 achievement due to these challenges “mask” their goal achievement. Sutton (1989) conversely  
34  
35 argue that the individuals who use AAC should have some level of communicative competence  
36  
37 in some way. It seems that relational competence approach along with goal achievement is not  
38  
39 sufficient to describe communicative competence completely.  
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46 Language development approach integrates content, form, and use of language into  
47  
48 communicative competence (Bloom and Lahey, 1978). Language development approach  
49  
50 conceptualizes communicative competence as a mental plan in the behaviors of saying and  
51  
52 understanding in a hierarchical process. Children learn these rules of a mental plan by integrating  
53  
54 content, form, and use into language that they hear and speak in diverse situations At the same  
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## REVISIT COMMUNICATIVE COMPETENCE IN AAC

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3 time, the mental plan is influenced and modified developmentally by the same skills of speaking  
4  
5 and hearing (Bloom and Lahey, 1978). This is a reciprocal effect between mental plan (i.e.,  
6  
7 communicative competence) and skills. These individuals use the plan, which is knowledge of  
8  
9 language and knowledge to use language, in selecting the appropriate content, form, and use of  
10  
11 language to achieve their goals. In sum, language development approach views communicative  
12  
13 competence as the development of content, form, and use of language, and the knowledge or  
14  
15 ability to achieve conversation goals by using different content, form, and use of language. This  
16  
17 approach is especially true to describe communicative competence in typically speaking  
18  
19 conversation dyads, but, again, cannot be sufficient to describe communicative competence in  
20  
21 AAC dyadic conversations. First, content of conversation (e.g., symbols) in their AAC systems  
22  
23 and/or devices is preprogrammed by others instead of the individual who uses AAC, and this  
24  
25 depends upon the anticipated forthcoming conversation contexts. In some situations, the pre-  
26  
27 chosen and preprogrammed content (i.e., messages on the systems or devices) before the  
28  
29 immediate occurrence of conversation contexts cannot really reflect the actual conversation  
30  
31 contexts. Second, although the individuals who use AAC start with a different length of  
32  
33 messages depending on their cognitive and native language abilities, the forms of language for  
34  
35 the individuals who use AAC is not really in the developmental hierarchy. Third, in terms of use  
36  
37 of language, the typically speaking conversation dyads have a lot of conversation repertoires  
38  
39 (e.g., rephrase the speech) to be used to reach their conversation goals, but it might not be the  
40  
41 case for the individuals who use AAC due to their limitations (e.g., preprogrammed messages or  
42  
43 cognitive/language deficits).  
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53 Clearly, these four approaches of communicative competence have strongly tied with a  
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55 spontaneous spoken speech sample and with a little understanding of language, but randomly  
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## REVISIT COMMUNICATIVE COMPETENCE IN AAC

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3 with strategies (e.g., operation of AAC devices) to use conversation repertoires to attain  
4  
5 conversation goals. These can be drawbacks, which might affect these approaches not enough  
6  
7 accessing communicative competence of AAC conversation dyads. Different from natures of  
8  
9 these four approaches to accessing communicative competence of typically speaking  
10  
11 conversation dyads, second language approach can be mostly beneficial to access  
12  
13 communication competence of second language conversation dyads (i.e., an individual speaks  
14  
15 second language and a typically speaking individual). This approach concerns the concept of two  
16  
17 kinds of languages, native language and second language, which also plays an important role in  
18  
19 communicative competence of the AAC conversation dyads (Light, 1989). These individuals  
20  
21 who use AAC need to have certain abilities in two language systems. One is the language (e.g.,  
22  
23 English) spoken in their communities, and the other one is the representations of symbols (e.g.,  
24  
25 Picture Communication Symbols, PCS) used on their AAC systems and/or devices. Learning  
26  
27 these language systems (i.e., symbols) with their AAC systems and/or devices is analogous to  
28  
29 learning a second language (Woll and Barnett, 1998). Savignon (1983) argued that  
30  
31 communicative competence is achieved through second language learners willing to converse  
32  
33 with their second language on their resourcefulness of lexical, syntactical, and paralinguistic  
34  
35 knowledge. This is quietly true for the individuals who use AAC who are willing to  
36  
37 communicate with the use of their AAC systems and/or devices with diverse learned  
38  
39 conversation skills (e.g., strategies to use AAC and convey messages). In addition, language  
40  
41 learning must involve not only learning knowledge of language (e.g., manipulation of linguistic  
42  
43 forms), but the culture of the second language (e.g., culture meaning) (Savignon, 1983, Hetzroni  
44  
45 and Harris, 1996). It is generally acknowledged that conversation through a second language has  
46  
47 to be practiced in an authentic second language culture (Savignon, 1983, Hetzroni and Harris,  
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## REVISIT COMMUNICATIVE COMPETENCE IN AAC

1996). Similarly, in order to communicate competently through the use AAC systems and/or devices in conversation, the individuals who use AAC have to practice using their AAC systems and/or devices to communicate with others using AAC as well, not with non-users (i.e., typically speaking individuals).

Second language learners initially attain vocabulary and then use it to convey the meaning from their experiences in interpreting meanings of the vocabulary (Savignon, 1983). The more positive experiences that these learners have, the more meanings of the same vocabulary or different vocabulary mutually increase (Savignon, 1983). Savignon further concluded that communicative competence increases accordingly with the increased meanings. Individuals who require AAC initially learn meanings of symbols used on their AAC systems and/or devices, and then they practice these meanings of symbols in cultural conversation contexts (i.e., conversations with others using AAC). Subsequently, the individuals who require AAC have more opportunities to learn different ways or more effective ways to make use of the symbols. These learned experiences silently increase the individuals' skills or strategies to use their AAC systems or devices in a more "natural" way.

Savignon (1983) proposed four domains of communicative competence of second language learning conversation dyads, including grammatical competence, sociolinguistic competence, discourse competence, and strategic competence. Light (1989) followed this concept to propose four specifically domains of communicative competence of the individuals who use AAC, including linguistic competence, operational competence, social competence, and strategic competence.

Linguistic competence and operational competence are defined to deal with "knowledge and skills in tool use (Light, 1989)", and social and strategic competencies are used to deal with

## REVISIT COMMUNICATIVE COMPETENCE IN AAC

1  
2  
3 “functional knowledge and judgment in interaction (Light, 1989).” Linguistic competence is  
4  
5 similar to the grammatical competence proposed for second language learners refers to “an  
6  
7 adequate level of mastery of the linguistic code (Light, 1989).” The second language learners and  
8  
9 the individuals who use AAC learn more than one language, which is not spoken in their original  
10  
11 community. Individuals with communication disorders who use AAC converse through their  
12  
13 augmented language (i.e., symbols used in AAC systems or devices). However, these symbols  
14  
15 are not born with, but have to be learned (Drager et al., 2003). These individuals who use AAC  
16  
17 should process input of native language (e.g., English) spoken in their community and the output  
18  
19 of the representations of symbols (e.g., Picture Communication Symbols, PSCs) preprogrammed  
20  
21 on their AAC systems and devices. Simply speaking, the individuals who use AAC should be  
22  
23 able to visually encode at least two symbols in order to have their messages read across (Nelson,  
24  
25 1992, Hetzroni and Harris, 1996). The individuals who use AAC seem “by default, bicultural and  
26  
27 have to learn to function adequately in at least two environments (Hetzroni and Harris, 1996, p.  
28  
29 55). ” However, the second language learners have intact cognition without any disorders and  
30  
31 might often have native speakers speak that second language around them to model the use of the  
32  
33 second language. They also have infinite vocabulary in mind to be used. On the contrary, as  
34  
35 noted, the individuals who require AAC mostly communicating with the typically speaking  
36  
37 individuals not with others who use AAC, they might have limited opportunities to develop these  
38  
39 knowledge of language (i.e., symbols) used in their AAC communication systems and/or devices  
40  
41 (Smith and Grove, 2003). There is clear evidence of attention to a situation where the individuals  
42  
43 who use AAC are “... performing multi-lingually within a monolingual setting (Woll and  
44  
45 Barnett, 1998).” Additionally, these individuals do not have any model to communicative  
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47 through the symbols preprogrammed on their systems and/or devices. Furthermore, limited  
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## REVISIT COMMUNICATIVE COMPETENCE IN AAC

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3 vocabulary selected and preprogrammed in their AAC systems and/or devices by others not  
4  
5 themselves, and, sometimes, these individuals who use more than one AAC systems and/or  
6  
7 devices might need to recognize more than one set of symbols simultaneously. Therefore, more  
8  
9 cognition demands might be posed. Clearly, the achievement of this type of competence for the  
10  
11 individuals who use AAC is more challenging than that for the second language learners when  
12  
13 considering these disparities (Light, 1989).  
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15

16  
17       Operational competence is the only competence specific to individuals who use AAC in  
18  
19 order to access their communicative competence, not to typically speaker and second language  
20  
21 learners. Operational competence requires the individuals who use AAC to have technical skills  
22  
23 necessary to operate their AAC systems and devices. These include "...skills to use the access  
24  
25 method(s) or transmission technique(s), as well as skills to operate specific device features (e.g.,  
26  
27 on/off switch, volume control, coding systems, output mode selection, etc.) (Light, 1989)."  
28  
29 These skills (e.g., coding systems) require individuals who use AAC to bound not only to  
30  
31 technology, but also to culture (Hetzroni and Harris, 1996). Hetzroni and Harris also indicated  
32  
33 that the preferred operational skills are varied among different cultures. For example, selection of  
34  
35 a coding system (e.g., semantic categorization, contextual relationships, idiosyncratic  
36  
37 relationships) might be influenced by cultures (Hetzroni and Harris, 1996). Obviously, these  
38  
39 required operational skills pose a lot of cognitive and physical demands to the individuals who  
40  
41 use AAC (Light, 1989). Some of the individuals who use AAC can be operationally competent  
42  
43 in physical use of their AAC systems and devices, but some do not due to their severe  
44  
45 communication disorders and/or not willing to learn these operational skills (Beukelman, 1991,  
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47 Bailey et al., 2006).  
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## REVISIT COMMUNICATIVE COMPETENCE IN AAC

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Social competence is the third component and consists of socio-linguistic and socio-relational skills, which are influenced by culture as well (Hetzroni and Harris, 1996). These two skills, similar to sociolinguistic competence and discourse competence proposed for second language learners, are broadly applicable to all types of conversations among typically speaking individuals, second language learners, and individuals who use AAC. The socio-linguistic skills are the involvement of knowledge (ability) to the use of language with which is used to initiate topics, repair communication breakdown, exchange communication turns (i.e., turning taking), communicate related pieces (Buzolich and Lunger, 1995), and initiate conversation with using AAC systems or devices (Bailey et al., 2006). The socio-relational skills are defined as “interpersonal aspects of communication (e.g., demonstrating an interest in others, putting partners at ease, developing a positive rapport) (Drager et al., 2003, p. 361).” More advanced, demonstrating the value or ownership of the AAC systems and devices and using these with a variety of conversation partners from the individuals who use AAC were considered underlining this skill (Bailey et al., 2006).

The final competence is strategic competence similar to one proposed for second language learners. It was defined as allowing individuals who use AAC to minimize and compensate restrictions of linguistic, operational, and/or social competences. In turn, it allows them to communicate effectively and appropriately among these restrictions (Drager et al., 2003, Light, 1989). This is also true to second language learners that they have to make use of the learned strategies to compensate their limited skills (Savignon, 1983). These compensatory strategies obviously are of importance both for the second language learners and the individuals who use AAC in novel conversation contexts in which there may have un-expectations during conversation (Light, 1989). These strategies are similar to the concept of conversation repertoires



## REVISIT COMMUNICATIVE COMPETENCE IN AAC

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2  
3 proposed in the behavioral/social approach (Hymes, 1974). However, these individuals who use  
4  
5 AAC with cognition and/or language impairment might have big challenges to gain and make  
6  
7 use of these compensatory strategies. Furthermore, these compensatory strategies might be  
8  
9 selected by clinicians dependent upon the clinicians' cultures not on the cultures of the  
10  
11 individuals who use AAC (Hetzroni and Harris, 1996). These difficulties might not be  
12  
13 confronted by the second language learners. In conclusion, Beukelman (1991) argued that that  
14  
15 individuals who use AAC are competent in one of these four domains of communicative  
16  
17 competence (i.e., linguistic competence, operational competence, social competence, and  
18  
19 strategic competence) does not guarantee to gain communicative competence. For example, the  
20  
21 individuals who are operationally competent in a certain level do not necessarily show  
22  
23 communicative competence (Beukelman, 1991). In light of this particular interrelationship, this  
24  
25 interrelationship was recognized as "an increase in one component interacts with the other  
26  
27 components to produce a corresponding increase in overall communicative competence. ...the  
28  
29 whole communicative competence is always something other than the simple sum of its parts  
30  
31 (Savignon, 1983, p. 45 & 46)."

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39 The second difference is pattern of co-construction of conversation to achieve  
40  
41 communicative competence. Conversation is collaboratively operated by a conversation dyad  
42  
43 (Damico et al., 1999). Typically speaking conversation participants in dyadic conversations use  
44  
45 spoken language as their primary communication mode; in contrast, an individual who cannot  
46  
47 speak converse with a typically speaking individual might use gestures and/or their AAC devices  
48  
49 and/or systems serve as his or her communication mode. Several conversation features, such as  
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51 non-dominated discourse management; non-flexible communicative functions; limited mode of  
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53 conversation; and limited content or form of messages, might probably cause them difficult to  
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## REVISIT COMMUNICATIVE COMPETENCE IN AAC

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3 fully complete their conversations (Beukelman, 1991, Light, 1988). Consequently,  
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5 communicative competence might not be able to be fully achieved. Within this broad framework,  
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7 there is a general recognition that the individuals who use AAC are often in passive conversation  
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9 roles, with possible that typically speaking partners actively lead the conversation in order to co-  
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11 construct their dyadic conversation and achieve their conversation goals, and then gain  
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13 communicative competence (McTear and King, 1991). Tsai (2013a) also indicated that  
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15 conversation participants who are both familiar and unfamiliar to individuals who use AAC  
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17 construct their dyadic conversation in different ways. The familiar partners who have shared  
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19 similar experiences with the AAC users might like to fill the conversational gaps (e.g., play roles  
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21 of speaking for the AAC users) that the AAC were obligated to respond to achieve their  
22  
23 conversation goals and then gain the communicative competence. This has been contrasted with  
24  
25 the unfamiliar conversation dyads. These unfamiliar partners who have not shared similar  
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27 experiences with the AAC users might experience many communication breakdowns during the  
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29 conversation with the AAC users. Thus, as Buzolich and Wiemann (1988) stated that the  
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31 unfamiliar partners might take more non-obligated conversation turns with verbal and nonverbal  
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33 communication behaviors (e.g., asking many questions) to repair communication breakdowns to  
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35 get their conversation goals achieved. In this spirit, in order to gain communicative competence,  
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37 these familiar and unfamiliar conversation partners in conversation with the individuals who use  
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39 AAC show different patterns of conversation co-construction.  
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48 The third difference is behaviors of measuring communicative competence. Measuring  
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50 communicative competence of typically speaking conversation dyads primarily determines if  
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52 individuals are able to use their conversation repertoires in order to achieve their conversation  
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54 goals (e.g., meeting wants and needs) in typically speaking conversation dyads (Simon, 1979,  
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## REVISIT COMMUNICATIVE COMPETENCE IN AAC

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3 Wiemann and Backlund, 1980, Tsai, 2013b). Particularly, these conversation repertoires include  
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5 receptive and expressive conversation behaviors (Simon and Holway, 1985). Abilities to  
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7 integrate information within and among conversation and then to use these to engage in  
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9 conversation in receptive conversation behaviors, and abilities to appropriately use form and  
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11 content of language in proper conversation contexts in expressive conversation behaviors are  
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13 both targeted (Simon, 1979, Wiemann and Backlund, 1980, Tsai, 2013b). On the contrary,  
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15 measuring communicative competence of AAC conversation dyads focuses on not only abilities  
16  
17 to use conversation repertoires to achieve conversation goals, but also linguistic, operational,  
18  
19 social, and strategic skills of the individuals who use AAC. These four skills (i.e., competences)  
20  
21 are impossible to be separated from each other and assessed individually due to a possible  
22  
23 interrelationship of these competencies (Savignon, 1983). Overall, these four competencies are  
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25 preferred to be assessed in one checklist or protocol with considering the interaction of these four  
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27 competencies of communicative competence.  
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**Conclusions and Implications**

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36 This paper represents an attempt to highlight similarities and differences of  
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38 communicative competence of typically speaking conversation dyads and those of AAC  
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40 conversation dyads (i.e., an individual who uses AAC and a typically speaking individual).  
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42 Communicative competence is a dyadic concept rather than focusing on individuals and presents  
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44 as relative, context-specific, and dynamic. Conversation participants have to learn appropriate  
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46 conversation behaviors in order to have their conversation goals achieved, and then have  
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48 communicative competence gained. Speech allows the typically speaking conversation dyads to  
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50 achieve their communicative competence; while, AAC systems and/or devices allows individuals  
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52 with communication disorders to remain continuously communicatively competent (Beukelman,  
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## REVISIT COMMUNICATIVE COMPETENCE IN AAC

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3 1991, Beukelman, 1992). Use of AAC systems and/or devices provides the individuals with  
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5 communication disorders opportunities to meet their and their conversation partner's goals and  
6  
7 then to attain communicative competence (Light, 1997, Yoder, 2001). These AAC systems  
8  
9 and/or devices serve as their "speaking" machines (Tsai et al., 2011). Like the typically speaking  
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11 individuals learning how to communicate through articulating speech, these individuals who  
12  
13 use AAC have to learn how to communicate through their AAC systems and/or devices. This  
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15 notion is supported by that simply providing the individuals with communication disorders with  
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17 AAC does not guarantee the development of communicative competence (Kraat, 1984). These  
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19 individuals using AAC might need more conversation opportunities to practice their "speaking"  
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21 (i.e., have messages on AAC systems or devices conveyed) with other individuals who use AAC  
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23 in order to achieve a certain level of communicative competence. As can be expected,  
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25 conversation participants who are familiar or unfamiliar to the individuals who use AAC  
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27 construct their dyadic conversation in different ways to have their conversation goals achieved  
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29 and then communicative competence gained (Tsai, 2013a). With achievement of communicative  
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31 competence, both the typically speaking conversation dyads and the AAC conversation dyads are  
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33 able to gain their social roles.

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41 Actor's self-reports (i.e., speaker's self-report) and conversation partners (i.e., speaker)  
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43 and third-party observers are recommended to measure competence from the performance of  
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45 dyadic conversations without considering a norm and a criterion. In the narrowest view of  
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47 individuals, linguistic, operational, social, and strategic skills of the individuals who use AAC  
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49 should be measured as reflect their individual communicative competence. These four  
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51 competencies are preferred to be assessed in one checklist or protocol with considering the  
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53 interaction of these four competencies of communicative competence.  
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## REVISIT COMMUNICATIVE COMPETENCE IN AAC

Several implications of this article are noted. First, scholars and practitioners in AAC practice are able to modify and adjust measuring protocols to fully measuring communicative competence of AAC conversation dyads (i.e., an individual with communication disorders who use AAC and a typical speaker). Second, communicative competence is learned and measured through these individuals' participation and conversation in their environment contexts. Fried-Oken and Granlund (2012) argued that functional outcomes of participation in daily activities with use of AAC by individuals with communication disorders resonates well with the classification sets in ICF and ICF-CY. As such, scholars and practitioners are able to use these similarities and differences of communicative competence proposed in this article to develop core sets of ICF and ICF-CY for the individuals who use AAC. Specifically, the core sets of ICF and ICF-CY should be developed to reflect communicative competence, and then the communicative competence can be measured based on these core sets. Finally, practitioners are in the business of providing hope-hope for AAC systems and/or devices that allow for communicative competence of the individuals with communication disorders (Yoder, 2001). It is required that not only the individuals who use AAC have to learn how to achieve their communicative competence during their conversation with others, but also the practitioners in AAC practice are in the positions of providing them a hope to communicate competently with their family, friends, teachers, and colleagues; to learn how to read and write; the hope to express thoughts and ideas; and to return to original social roles (Yoder, 2001).

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REVISIT COMMUNICATIVE COMPETENCE IN AAC

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### What this paper adds

Four domains of communicative competence proposed by Light (1989) in augmentative and alternative communication (AAC) practice has been recognized as an individual concept focusing on the individuals who use AAC. Little information is available about the interpersonal, dynamic, and relational aspects of communicative competence. This paper added information that communicative competence is a dyadic concept rather than focusing on individuals and presents as relative, context-specific, and dynamic. Actor's self-reports (i.e., speaker's self-report) and conversation partners (i.e., speaker) and third-party observers are recommended to measure competence from the performance of dyadic conversations without considering a norm and a criterion. Scholars and practitioners are able to use these new concepts of communicative competence proposed in this article to develop core sets of ICF and ICF-CY for the individuals who use AAC.

# 科技部補助計畫衍生研發成果推廣資料表

日期:2014/07/25

科技部補助計畫	計畫名稱: 應用 ICF-CY 為藍圖, 建構評估使用輔助溝通系統(AAC)學生的溝通能力 (communicative competence) 指標: 跨兒童到青少年
	計畫主持人: 蔡孟儒
	計畫編號: 102-2410-H-040-012- 學門領域: 特殊教育
無研發成果推廣資料	

102 年度專題研究計畫研究成果彙整表

計畫主持人：蔡孟儒		計畫編號：102-2410-H-040-012-					
計畫名稱：應用 ICF-CY 為藍圖，建構評估使用輔助溝通系統(AAC)學生的溝通能力(communivative competence)指標:跨兒童到青少年							
成果項目		量化			單位	備註（質化說明：如數個計畫共同成果、成果列為該期刊之封面故事...等）	
		實際已達成數（被接受或已發表）	預期總達成數(含實際已達成數)	本計畫實際貢獻百分比			
國內	論文著作	期刊論文	0	0	100%	篇	
		研究報告/技術報告	0	0	100%		
		研討會論文	0	0	100%		
		專書	0	0	100%		
	專利	申請中件數	0	0	100%	件	
		已獲得件數	0	0	100%		
	技術移轉	件數	0	0	100%	件	
		權利金	0	0	100%	千元	
	參與計畫人力 (本國籍)	碩士生	0	0	100%	人次	
		博士生	0	0	100%		
		博士後研究員	0	0	100%		
		專任助理	0	0	100%		
國外	論文著作	期刊論文	0	0	100%	篇	
		研究報告/技術報告	0	0	100%		
		研討會論文	0	0	100%		
		專書	0	0	100%		章/本
	專利	申請中件數	0	0	100%	件	
		已獲得件數	0	0	100%		
	技術移轉	件數	0	0	100%	件	
		權利金	0	0	100%	千元	
	參與計畫人力 (外國籍)	碩士生	0	0	100%	人次	
		博士生	0	0	100%		
		博士後研究員	0	0	100%		
		專任助理	0	0	100%		

<p>其他成果 (無法以量化表達之成果如辦理學術活動、獲得獎項、重要國際合作、研究成果國際影響力及其他協助產業技術發展之具體效益事項等，請以文字敘述填列。)</p>	<p>研究成果國際影響力</p> <p>在過去二十幾年，溝通能力(communicative competence)於輔助溝通系統(augmentative and alternative communication, AAC)領域都依據美國學者 Light (1989)所提出的四個領域(即，語言能力(linguistic competence)、操作能力(operational competence)、社交能力(social competence)、策略能力(strategic competence))的概念，認為溝通能力是一個以輔助溝通系統使用者個人化的概念。本研究計畫子計畫一回顧相關國外文獻，提出與美國學者 Light (1989)認為的個人化概念相反的想法。計畫主持人認為溝通能力是一個至少是兩位會話者的概念，需要兩個會話者共同建構而成，而非是個人化概念，溝通能力是學習來的，允許達到兩人會話的目標，進而達到其扮演的社會角色。溝通能力的評量是需要依據特定情境、相對的(即，非絕對的)、與動態的(即，非靜態的)，且總是需藉由自我報告、夥伴評量和第三方觀察所有外顯行為表現(performance)的整合性分析。子計畫一已經投稿，待刊出後，將提供國外輔助溝通系統領域研究學者對於溝通能力於輔助溝通系統領域有不同的想法，但也可能會出現不同意的聲音等。</p> <p>子計畫五建構 ICF-CY 於使用輔助溝通系統(AAC)兒童與青少年的核心位碼組。研究成果將可以提供臨床實務者分類評估使用輔助溝通系統兒童與青少年的溝通能力。將計畫於 103 年底完成投稿，待出刊後，將提供國內外輔助溝通系統領域研究學者與臨床實務者清楚如何評估輔助溝通系統領域的溝通能力。</p>
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	成果項目	量化	名稱或內容性質簡述
科 教 處 計 畫 加 填 項 目	測驗工具(含質性與量性)	0	
	課程/模組	0	
	電腦及網路系統或工具	0	
	教材	0	
	舉辦之活動/競賽	0	
	研討會/工作坊	0	
	電子報、網站	0	
	計畫成果推廣之參與(閱聽)人數	0	



# 科技部補助專題研究計畫成果報告自評表

請就研究內容與原計畫相符程度、達成預期目標情況、研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）、是否適合在學術期刊發表或申請專利、主要發現或其他有關價值等，作一綜合評估。

## 1. 請就研究內容與原計畫相符程度、達成預期目標情況作一綜合評估

達成目標

未達成目標（請說明，以 100 字為限）

實驗失敗

因故實驗中斷

其他原因

說明：

因以下因素，故未執行三項子計畫。

1. 依據初審委員們的建議

2. 核定執行為一年期計畫，非原申請三年期計畫

3. 核定經費僅為申請經費的 1/10

子計畫二：探析不同專業人員對於使用輔助溝通系統(AAC)兒童其溝通能力(communicative competence)的評估指標與方式。

子計畫三：探析不同專業人員對於使用輔助溝通系統(AAC)青少年其溝通能力(communicative competence)的評估指標與方式。

子計畫四：探析不同外在/環境因素對於使用輔助溝通系統(AAC)兒童與青少年其溝通能力(communicative competence)的影響。

## 2. 研究成果在學術期刊發表或申請專利等情形：

論文：已發表 未發表之文稿 撰寫中 無

專利：已獲得 申請中 無

技轉：已技轉 洽談中 無

其他：（以 100 字為限）

已經投稿一篇文稿，目前正準備第二篇文稿

## 3. 請依學術成就、技術創新、社會影響等方面，評估研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）（以 500 字為限）

學術成就

第一、 此研究成果將呈現與輔助溝通系統(AAC)使用者其溝通能力(communicative competence)相關的國內外使用的評估指標與方式。

第二、 此研究成果將建構輔助溝通系統使用者其溝通能力的評估指標與方式。

第三、 此研究成果將指出外在/環境因素對於使用輔助溝通系統兒童與青少

年其溝通能力的影響。

第四、此研究成果將提供專家學者依據使用輔助溝通系統兒童與青少年的溝通能力指標的分數差異招募研究對象。

臨床成就

第一、此研究成果將提供專業人員能夠清楚與快速地完整評估使用輔助溝通系統兒童與青少年於其外在社會環境的溝通能力。

第二、此研究成果將提供專業人員能夠依據溝通能力的評估指標判定所需的輔助溝通系統介入技巧。

第三、此研究成果將提供專業人員另一種比較介入技巧成效的方式。