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## Asking well-built questions for evidence-based practice in augmentative and alternative communication<sup>☆</sup>

Ralf W. Schlosser<sup>a,\*</sup>, Rajinder Koul<sup>b</sup>, John Costello<sup>c</sup>

<sup>a</sup> *Northeastern University, Boston, MA, United States*

<sup>b</sup> *Texas Tech University Health Sciences Center, Lubbock, TX, United States*

<sup>c</sup> *Boston Children's Hospital, Communication Enhancement Center, Boston, MA, United States*

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### Abstract

Evidence-based practice (EBP) is increasingly being advocated as the preferred approach to practice in augmentative and alternative communication (AAC). The EBP process involves multiple steps. The asking of a well-built question is the first step in the quest for answers. At the same time it is also often the first stumbling block for practitioners. To facilitate the asking of well-built questions it may be helpful to follow a template. The most frequently used template is PICO, which stands for patient, intervention, comparison, and outcome [Richardson, W., Wilson, M., Nishikawa, J., & Hayward, R. (1995). The well-built clinical question: A key to evidence-based decisions. *ACP Journal Club*, 123, A12–A13]. In this article, we examine the suitability of the PICO template for AAC in terms of the representativeness of the components, and the appropriateness of its subcomponents, and their terminology. Based on this analysis, we propose the PESICO template, which stands for person, environments, stakeholders, intervention, comparison, and outcome. This template is then illustrated with examples representing a range of decision-making areas in AAC. Finally, directions for future research are provided.

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\* Correspondence to: Department of Speech-Language Pathology and Audiology, Northeastern University, 151C Forsyth, Boston, MA 02115, United States. Tel.: +1 617 373 3785; fax: +1 617 373 2239.

E-mail addresses: [R.Schlosser@neu.edu](mailto:R.Schlosser@neu.edu), [rwschlosser@earthlink.net](mailto:rwschlosser@earthlink.net) (R.W. Schlosser).

**Learning outcomes:** The reader will be able to: (1) appreciate the importance of asking well-built questions, (2) name the shortcomings of the PICO template, and (3) describe the components of the proposed PESICO template for asking well-built questions.

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“You can tell whether a man is clever by his answers. You can tell whether a man is wise by his questions.”

“A prudent question is one-half of wisdom.”

The first proverb by author Naguib Mahfouz nicely illustrates that asking a good question may be intellectually more challenging than answering a question. The second proverb by author Francis Bacon highlights that asking prudent questions is already one-half of the needed wisdom among practitioners who seek to engage in evidence-based practice (EBP). EBP is increasingly being advocated as the preferred approach to practice in allied health fields (Herbert, Sherrington, Maher, & Moseley, 2001), communication disorders in general (Meline & Paradiso, 2003; Reilly, Douglas, & Oates, 2004), and augmentative and alternative communication (AAC) in particular (Schlosser, 2003a,b; Schlosser & Raghavendra, 2004). As obvious as it may seem, asking a clear and focused question is not only one-half wisdom, but also the *first* half with any answers being contingent on the question itself. At the same time, it is often also the first stumbling block for many practitioners.

In the field of medicine, EBP (called EBM here) has been defined as “the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients” (Sackett, Richardson, Rosenberg, & Haynes, 1998, p. 2). In the field of augmentative and alternative communication, EBP has been defined as “. . . the integration of best and current research evidence with clinical/educational expertise and relevant stakeholder perspectives to facilitate decisions for assessment and intervention that are deemed effective and efficient for a given direct stakeholder” (Schlosser & Raghavendra, 2003, p. 256, 2004, p. 3).

EBP in AAC has been described as a six-step process that begins with the: (a) asking of a well-built question, and proceeds to (b) selecting evidence sources, (c) implementing a search strategy, (d) appraising and synthesizing the evidence, (d) applying the evidence, (e) evaluating the evidence application, and (f) disseminating the findings (Schlosser, 2003a; Schlosser & Raghavendra, 2004). Each of these steps is necessary and important to ensure a successful EBP process. Therefore, clinicians and educators working in AAC require knowledge about and skills related to each of these steps (Schlosser & Raghavendra, 2004; e.g., see Schlosser, Wendt, Angermeier, & Shetty, 2005, about searching for evidence in AAC). Yet, the first step of asking well-built questions is arguably the most important because everything else hinges upon it.

Practitioners working in AAC, like clinicians and educators in related fields, are adept at coming up with important questions relevant to their decision-making. So why is it so important to belabor how to write well-built questions? It turns out that asking good questions is no simple task. In fact, the questions that get asked in clinical practice, at least

from what has been learned in the field of medicine, are often vague and open to interpretation (Bergus, Randall, Sinift, & Rosenthal, 2000; Ely, Osheroff, & Ebell, 1999; Ely et al., 2002). The asking of a well-built question will help the practitioner focus on the problem that is most important and help focus a subsequently initiated search (Onady & Raslich, 2003). A poorly constructed question, on the other hand, may result in a search that is not clear in its objective. Additionally, it may lead to the pursuit of irrelevant ideas, reveal vague conclusions, and likely is going to be too broad in its result to be useful (Logan & Gilbert, 2000; Villanueva, Burrows, Fennessy, Rajendran, & Anderson, 2001). Finally, a poorly constructed question may lead to lost time and frustration during the search process (Mazurek Melnyk & Fineout-Overholt, 2002). Given its importance, the process of asking well-built questions should be formalized, such that the ingredients of a well-built question are known, and well-built questions can be distinguished from poorly stated questions. Therefore, the purpose of this paper is to review existing formalized structures for asking well-built questions, evaluate them for purposes of AAC, propose a new structure, and illustrate this structure with several AAC examples.

## 1. Sources of clinical or educational questions

According to Law (2002), the most common origin of questions is professional practice itself. For example, a clinician may have a child on her caseload for whom she would like to explore the use of a speech generating device (SGD) on a trial basis. Although the child and his family agree with such a trial period, collectively the clinician and her team might be unsure whether to try a dynamic display, a static display, or a combination thereof. The clinician may also wonder whether only one of these options or multiple options should be tested; and if so, should it be simultaneously or successively. Law (2002) points out several other sources of questions, which may also apply to AAC, including professional trends, existing published research, or existing theory. Practitioners may attend a conference and be exposed to a professional trend that leads them to re-evaluate their practice. For instance, several years ago there was a lot of conference focus around the use of the Picture Exchange Communication System. This exposure to the professional trend may have led some practitioners to question their existing approaches with beginning communicators who have autism. Similarly, reading of a current research article in a professional journal may cause practitioners to question an aspect of clinical practice. The practitioner should then examine the issue further through the asking of a question and the subsequent consultation of research evidence.

## 2. Existing templates for asking well-built questions

The anatomy of the well-built question and any templates for composing well-built questions should be derived, in part, from the definition of EBP itself. Several definitions emphasize that EBP decisions should influence the interventions or assessments provided to *individual clients*. This then suggests that question formulation for EBP purposes needs

to occur in the context of a particular client or group of clients (Scherer & Smith, 2002). More general questions (e.g., “will the use of AAC enhance natural speech production?”) while worthy for other purposes (e.g., as background information or for implementing a systematic review (Millar, Light, & Schlosser, 2006) do not meet the client-specificity requirement. In formulating a question, the practitioner has to convert a gap in knowledge or a degree of uncertainty into a focused question. In order to facilitate the proper asking of well-built questions, workers have developed templates, which may serve as teaching mnemonics.

### 2.1. The PICO template

The most frequently cited template for asking well-built questions is the so-called PICO framework. The acronym stands for patient or problem being addressed (P), the intervention or exposure being considered (I), the comparison intervention or exposure (when relevant) or area of interest (C), and the outcomes of interest (O). PICO was first developed by Richardson, Wilson, Nishikawa, and Hayward (1995) and later applied to numerous disciplines including physical therapy (Scherer & Smith, 2002), occupational therapy (Law, 2002), and various subspecialties within medicine (e.g., Armstrong, 1999).

#### 2.1.1. The patient or problem (P)

Armstrong (1999) offered one of the more comprehensive definitions of this component. Accordingly, P includes the patient and his or her membership in a population, age, gender, ethnic group, risk profile, and other traits the practitioner judges to be important. Armstrong (1999) argues for a sufficient characterization of the patient to allow for later comparison with the participants in research studies yielded from the search.

#### 2.1.2. The intervention or exposure under consideration (I)

The term “intervention” applies not only to therapy but also to prevention, diagnostic testing, and exposure/etiology. So, it resembles the course of clinical action that is under consideration.

#### 2.1.3. The comparison intervention/exposure of interest (C)

Sometimes the practitioner is considering an intervention or an assessment relative to another, perhaps more innovative, intervention, or assessment. This component is aimed at capturing such a comparison (Richardson et al., 1995). It is also possible that the comparison condition is “baseline” or the equivalent of “doing nothing” (Armstrong, 1999).

#### 2.1.4. The outcomes

This component targets what the practitioners seeks to accomplish in terms of treatment goals, diagnoses to refine, and adverse effects to avoid. This component is not simply “the best result,” but may also include unwanted outcomes such as the probability of side effects one seeks to avoid, and costs or effort associated with achieving an outcome (Armstrong, 1999).

## 2.2. Suitability of PICO for AAC

The PICO framework, originally from the field of medicine, is the most frequently cited template for asking well-built questions. Although many other allied health fields have adopted it for their practice, it is each field's responsibility to examine for itself whether this template is indeed suitable. In considering PICO's suitability for AAC, we will discuss: (a) the representativeness of its components and (b) the appropriateness of PICO subcomponents, and their terminology.

### 2.2.1. Representativeness of the PICO components

Do the components included in PICO cover the range of necessary components in AAC based on how the AAC field views itself as well as their definition of EBP? Two issues become evident upon examining the PICO components. First, the PICO framework places heavy emphasis on the patient and his or her problem to be solved. While the individual using AAC plays a crucial role, it is also recognized that communication is considered a transactional process where partners influence each other in the course of the exchange (Light, Datillo, English, Gutierrez, & Hartz, 1992). Given this transactional nature, it is important that the question template provides adequate space for the role of communication partners. The partners' skills, attitudes, and behaviors could also be the subject of a well-built question. The PICO template in its current form does not offer this space and is therefore inadequate for AAC purposes.

The second issue is also closely related to the patient-centered approach of PICO. In AAC it is recognized that the feasibility and viability of an assessment or an intervention are not tied to the client alone. In addition to the direct stakeholder (in most cases the individuals using AAC) there are also indirect stakeholders, immediate community stakeholders, and extended community stakeholders (Schlosser & Raghavendra, 2004). These various categories of stakeholders hold perspectives that may be relevant to a clinical or educational decision. This is consistent with the above definition of EBP in AAC, which highlights the role of relevant stakeholder perspectives. This definition emphasizes the importance of soliciting relevant stakeholder perspectives before and during the formulation of a well-built question. Stakeholder perspectives are deemed especially crucial for making explicit the clinical/educational problem as seen by stakeholders. As previously discussed, the role of communication partners may be a central aspect of a well-built question. When this is not the case, the perspectives of communication partners may still provide an important context for the selection of intervention strategies and modes. Based on this attributed significance, any template for developing well-built questions in AAC needs to provide adequate representation of relevant stakeholder perspectives. PICO seems to allow only for the preferences of the patient on its template.

### 2.2.2. Appropriateness of PICO subcomponents and their terminology

The subcomponents of the PICO template are very much oriented on the medical model. Therefore, they warrant scrutiny as to their appropriateness for AAC. Most of the characteristics listed for the P-component by Armstrong could be relevant in AAC as well. Even the less obvious "risk factors" may be applicable relative to the issue of device abandonment, for example, or the side effects of strategies used to provide opportunities for

eliciting communicative behavior (Sigafos & Meikle, 1995). In order to function well in AAC, however, this component would also need to include other information. Because this component affords consideration of any other issues the practitioner deems important, this is not problematic. The nomenclature of “patient” only describes those individuals who receive services in hospitals or other outpatient arrangements. As such, this label applies to only a small portion of the population of individuals using AAC, many of whom may receive services in non-medical settings such as schools, early intervention sites, homes, private practice, and supported employment arrangements.

In terms of intervention or exposure under consideration (I), the issue of prevention and diagnostic testing are not as relevant to AAC as they are in medical fields or other allied health fields. Therapy-related aspects, however, are very much at the center of AAC, although they may be referred to as teaching, instruction, or intervention. In addition, there are other subcomponents that bear relevance in AAC. In terms of the comparison intervention under consideration (C), there appear to be no specific subcomponents defined. This openness allows this component to accommodate many different subcomponents, which makes it conducive to AAC-relevant questions.

### 2.3. The proposed PESICO template

We would like to propose a modified template for AAC purposes, which is called the PESICO template (see Table 1). While this template does include several components of PICO it also offers more pertinent and/or re-labeled components.

#### 2.3.1. Person (and problem)

This component, abbreviated with P for person, includes many characteristics pertaining to “patient” under PICO such as membership in a population, age, gender, ethnic group, and risk profile. In addition, to meet AAC needs, the person’s diagnosis or classification, sensory status, motoric status, and cognitive status are also included. Additional information concerning the individual’s current and desired communication status, history of AAC uses, existing and desired language skills (receptive and expressive)

Table 1  
The PESICO template for asking well-built questions

Template components	Definitions
Person (problem) (P)	Describe: (a) the person who is most directly affected by the decision and (b) the problem to be solved
Environments (E)	Delineate the client’s current and future environment/s and communication partner/s knowledge, skills, and behaviors
Stakeholders (S)	Describe relevant stakeholders, including the person in P (and their perspectives about and attitudes towards the problem, intervention, or outcome), who may directly or indirectly influence the decision
Intervention (I)	Describe the proposed steps to change persons, interaction, events, procedures, and environments
Comparison (C)	Depict the comparison intervention/exposure (if applicable)—could be an alternative intervention or a “do nothing” (baseline) condition
Outcomes (O)	Delineate the desired outcomes

are included. It may be fruitful to describe the person's existing and desired communication/language status in terms of the four categories of communicative competence: operational, social, strategic, and linguistic competence (Light, 1989).

Along with a description of relevant characteristics of the individual using AAC or considering AAC, it is essential to state the problem that one hopes to solve through a focused search for evidence. In terms of an appropriate label, instead of "patient" we considered the use of the broader term "client" or "direct stakeholder" or person. The term "direct stakeholder" may best accommodate circumstances in which communication partners represent the problem that requires a well-built question (rather than the person with disability). However, we opted for the term "person" because it is more understandable and more accessible to the practitioner. Also, most likely "clients" themselves prefer to be called persons rather than clients.

### 2.3.2. *Environments*

This component, abbreviated with E, is not included in the PICO template. This missing component may be explained by the tendency of the medical model to attribute less importance to environmental or setting-related issues. That is, the medical model considers most problems to be intrinsic to the individual. In AAC there is a great emphasis placed on the individual's current and anticipated future environments when conducting an assessment or preparing an intervention (e.g., Beukelman & Mirenda, 2005; Glennen & DeCoste, 1996). Take, for example, a preschooler who is currently enrolled in a self-contained classroom but the school team is anticipating a move into an integrated preschool classroom. This will have major ramifications for building up communicative competence and everything related to this effort (e.g., vocabulary selection). This emphasis on environmental issues is, in part, an acknowledgment that communication is context-bound (Lloyd, Quist, & Windsor, 1990).

As part of the environment, the AAC field also recognizes that communication is a transactional process where partners influence each other in the course of the exchange (Light et al., 1992). Some partners may do better than others in communicating with individuals using AAC. It is therefore not surprising that, if one considers a map to commonly used intervention strategies in AAC, many of the strategies try to work through the partners' behavior to indirectly change the behavior of individuals using AAC (see Schlosser & Rothschild, 1999). In summary, the environment includes current and anticipated future environments as well as the experiences, knowledge, and skills of communication partners.

### 2.3.3. *Stakeholders*

This component, abbreviated S, is also not available in the PICO template. For AAC purposes, this component should include a description of the individual's perspective related to the problem. Schlosser and Raghavendra (2004) defined stakeholder perspectives as "the viewpoints, preferences, concerns, and expectations relative to aided and unaided approaches, intervention strategies, symbols, and devices of those stakeholders who, either directly or indirectly, control the viability of an assessment or intervention (p. 4). More often than not, the individual using AAC or considering AAC directly controls the feasibility of an assessment or intervention. That is why it is important that the perspectives of the individual relative to the problem be specified.

In AAC, it has been recognized that individuals other than the client (e.g., parents, siblings, friends, employers, and teachers) may hold *perspectives* that indirectly influence the feasibility of an assessment or intervention (Schlosser, 1999a). Therefore, it becomes important to state these perspectives and attitudes as part of the well-built question template. In addition to the direct stakeholder (in most cases the individuals using AAC) there are also indirect stakeholders, immediate community stakeholders, and extended community stakeholders. Definitions have been supplied in Table 1. These various categories of stakeholders may hold perspectives that may be relevant to a clinical or educational decision. Schlosser and Raghavendra (2004) emphasized the importance of soliciting relevant stakeholder perspectives before and during the formulation of a well-built question. The field of knowledge dissemination and utilization has been acutely aware that research stands a greater chance of being utilized if it satisfies a consumer need (National Institute for the Dissemination of Disability Research, 1996). Involving other stakeholders permits the team to make explicit the clinical/educational problem as seen by these stakeholders.

Often, the prescription of AAC services and devices necessitates the need for funding. While it is sometimes the individual using AAC and his or her family who pay for these services and devices, usually funding agencies are solicited. Thus, funding agencies should be viewed as a legitimate group of stakeholders who may bring unique perspectives to the decision-making process. And the question becomes at what point during the formulation of a well-built question should the perspectives of these funding agencies be considered? It is proposed that a well-built question concerning feature-matching for a particular client should not be driven by a funding sources limitations. Rather, their perspectives may come into play after the question has been answered leading to a reworking or compromise of the best feature match.

Returning to the role of communication partners discussed earlier—even when partner skills and behavior are not central to a well-built question (i.e., as might be the case when partner behavior is believed to affect communicative performance by the individual using AAC), the perspectives and attitudes of communication partners may provide an important context for the selection of intervention strategies and modes. Their inclusion may help focus a successful search and/or assist in determining the relevance of the yielded evidence. The perspectives of other relevant stakeholders may relate to the problem to be solved, the proposed solutions, as well as the anticipated outcomes (Schlosser & Raghavendra, 2004). While the S component may include perspectives and attitudes of communication partners, their knowledge, skills, and behaviors are described under the E-component.

#### 2.3.4. Intervention

This proposed component, abbreviated I, is available in PICO as well; where it applies not only to therapy but also to prevention, diagnostic testing, and exposure/etiology. The PICO template does not offer a definition of intervention, but merely lists these exemplars of interventions. We propose to adopt the following definition of intervention as a basis for this component: an intervention is “a super-ordinate concept for the different intentional steps taken to change [the behaviors or attitudes of, added by these authors] persons, interaction [*procedures, added by these authors*], events or environments in a desired direction” (Granlund & Björck-Åkesson, 2005). This definition allows for this component to encompass actions pertaining to assessment (e.g., functional assessment, current



communication skills and ecological assessment), intervention development (e.g., vocabulary selection, vocabulary organization, symbol selection, feature-matching, selecting a response mode in functional communication training, etc.), and the intervention itself (i.e., treatment, therapy, and instruction). The notion of “exposure,” highlighted in PICO, is relevant to AAC in that learning may occur incidentally through the mere presence of stimuli or events such as the presence of speech output.

### 2.3.5. *Comparison intervention/exposure*

This component, abbreviated C, is taken from PICO and is very much relevant to AAC. In AAC, practitioners and other stakeholders frequently face decision-making scenarios that involve a comparison of two or more options, including the following: (a) iconic versus abstract symbols, (b) digitized versus synthetic speech, (c) dynamic versus static displays, (d) pointing-based systems versus exchange-based systems, etc. (Schlosser, 1999b; Schlosser & Sigafoos, 2006). Sometimes the practitioner is considering an AAC intervention relative to “baseline” or relative to a “doing nothing” condition. Assessment-related issues may include an alternative method of testing or a modified testing protocol such as a symbol assessment protocol. Similarly, in terms of intervention development, an existing method may be compared to a more recent approach such as a new method of vocabulary selection.

### 2.3.6. *Outcome*

This component, abbreviated O, is also present in the existing PICO framework, and essential for this proposed framework as well. In AAC, this component might include outcomes related to the any of the four broad categories of communicative competence: operational competence, social competence, linguistic competence, and strategic competence. In addition, the outcomes could be concerned with effectiveness (acquisition, generalization, and/or maintenance) of skills or efficiency considerations (Schlosser, 1999b). Outcomes should also focus on the behavior of the communication partner. Other outcomes such as participation, self-determination, quality of life, may also be considered as part of this component. Finally, the outcomes could be perspectives of stakeholders who speak to the social validity of the outcomes attained. For further discussion on plausible treatment-related outcomes, the reader may consult Schlosser (2003a,b). In addition to these intervention outcomes, this component should also encompass desired results from assessment-related problems such as increased sensitivity in identifying a need or better individualization. Outcomes pertaining to intervention development may yield better vocabulary organization strategies, vocabulary selection strategies, feature-matching strategies, etc.

In summary, while the proposed PESICO template for AAC features several PICO components, it defines some of these components differently. Additionally, PESICO incorporates a greater emphasis on the perspectives of other relevant stakeholders as well as the role of current and future environments, including settings and communication partners. Next, this template will be illustrated with several examples.

## 2.4. *Illustration of PESICO template*

In order to facilitate uptake by practitioners, we have provided illustrative examples of well-built questions using the PESICO template in Table 2. Care was taken to select

Table 2

Illustrative examples of well-built questions using the PESICO template

Practice	Person/problem (P)	Environments (E)	Stakeholders (S)	Intervention (I)	Comparison (C)	Outcomes (O)
A <sup>a</sup>	In a 75-year old man, who sustained a massive left middle cerebral artery stroke 5 years ago resulting in global aphasia and right hemiplegia, and who does not typically initiate communication and requires a great degree of assistance in routine conversation	Who uses a wheelchair full-time and lives with his 72-year old spouse at home and	Whose spouse and children are concerned about their inability to communicate with him	What kind of assessment of the man's communication capabilities and needs and the communication partners' ability	N/A	Will enable the development of a functional communication system for him that will be adequately supported by the communication partners?
	In a 25-year old man who is unable to handwrite because of cervical spinal cord injury in the region of C5–C8	Who is a graduate student in Journalism and	Who is concerned, along with his instructor, whether he can continue to write research papers and investigative reports	Is it more appropriate for him to use a speech recognition software	Or a light-based head pointing option with standard computer system	To best meet his writing needs?
	In a 7-year old boy with profound mental retardation who exhibits self-injurious behavior	Who is currently in a self-contained classroom	And whose teacher and aides suspects that his behavior is communication-based	Is it sufficient to rely on informant-based assessment methods	Or is it necessary to also conduct descriptive and experimental assessments	In order to identify the communicative functions that maintain his problem behavior in a valid and reliable manner?
ID <sup>b</sup>	In a young adult with severe mental retardation and an existing signing repertoire and episodes of escape-motivated challenging behaviors	Who works in a sheltered workshop (with only some of the current staff knowing sign) but increasingly moving to community-based worksites	Whose administrative programming staff would prefer a more easily readable response mode (in light of staff turnover)	Will the selection of graphic symbols (as a duplicate mode)	As opposed to selecting his existing signing repertoire during functional communication training	Result in an unwanted increase in challenging behaviors rather than a replacement with appropriate communication?

I <sup>c</sup>	In a 4-year old child with autism and some vocal imitation skills in need of acquiring linguistic communication	Who is placed in a segregated preschool (disabled peers) seeking to move to an inclusive preschool (non-disabled peers without experience in interacting with disabled children)	And whose preschool teacher and SLP are primarily concerned with communication whereas his parents wish to enhance his speech as well	Will the use of AAC	As opposed to not using AAC	Enhance natural speech production while increasing communication skills?
	In a 77-year old woman with moderate dysarthria and a soft voice as a consequence of Parkinson's disease, who has difficulty communicating with nursing staff and physicians	Who lives in a nursing home	Whose medical staff is concerned about their ability to deliver proper care because they are unable to completely understand her	Will it be more effective to use a word and an alphabet board	Or a SGD	In terms of supplementing her spoken communication?
I	In a 52-year old woman with bulbar amyotrophic lateral sclerosis and poor speech intelligibility	Who has been working as a high school teacher and	Whose supervisors are concerned about her ability to teach (because of unintelligible speech and weak voice)	Will her use of a SGD	As opposed to no SGD	Allow her to continue to serve as a teacher?
	In a 10-year old child with developmental disabilities and little or no functional speech but good fine-motor skills	Who is currently attending a self-contained classroom and part-time included in regular class activities	Whose interdisciplinary support team has determined to target manual signing as an appropriate mode of communication	What strategy is most effective or efficient for introducing manual signs	As compared to other strategies	In terms of expressive signing, and/or expressive natural speech, and/or receptive speech?

Notes: a, assessment; b, intervention development; c, intervention.

examples that fit within one of the three broad practice areas in which decisions are made, including assessment, intervention development, and intervention. Moreover, examples were selected to represent a range of populations as well as the range of activities in which the practitioner has to make decisions in AAC (Schlosser & Raghavendra, 2004). This includes the selection of appropriate assessment tools, the selection of efficient forms of communication to replace challenging behavior, the selection and organization of graphic symbols and vocabulary, and the selection of an access method. The examples were included irrespective of whether there is actually research evidence available.

### 3. Directions for future research

Several directions for future work are suggested. For one, it would be prudent to study whether the proposed PESICO framework aids clinicians and educators in formulating more focused questions which in turn lead to improved retrieval of relevant evidence and greater satisfaction with the EBP process. Another approach might explore how clinicians and educators currently formulate questions. This will not only allow for the identification of pre-service and in-service training needs for asking well-built questions, but also reveal the practicality or “face validity” of the proposed framework.

### Appendix A. Continuing education

#### Self-study questions

1. The asking of a well-built question:
  - a. is what researchers do when they plan a research study.
  - b. will help practitioners focus on the clinical problem that is most important.
  - c. will help focus a subsequently initiated search for evidence.
  - d. b and c.
  - e. none of the above.
2. A poorly constructed question may:
  - a. result in a search that is not clear in its objective.
  - b. lead to the pursuit of irrelevant ideas.
  - c. reveal vague conclusions.
  - d. likely be too broad in its result to be useful.
  - e. a–d.
3. The PICO template for asking well-built questions:
  - a. is *not* very popular in medicine and allied health fields.
  - b. presents with several weaknesses in terms of its suitability for AAC.
  - c. has been adopted for the AAC field by the authors.
  - d. has been developed based on empirical evidence.
  - e. has been rejected by medicine and allied health fields.
4. The PESICO template for asking well-built questions differs from the PICO template:
  - a. in terms of its consideration of relevant stakeholder perspectives.
  - b. in terms of its inclusion of current and future environments.

- c. in terms of its recognition of the role of communication partners.
  - d. all of the above.
  - e. none of the above.
5. The PESICO template for asking well-built questions:
- a. has been fully validated.
  - b. is currently being validated.
  - c. remains to be empirically validated.
  - d. does not need to be validated because it is based on the PICO template.
  - e. is very popular in medicine and allied health fields.

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