Critiquing the Logic of the Domain Section of the Occupational Therapy Practice Framework: Domain and Process

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The document titled *Occupational Therapy Practice Framework: Domain and Process* (also referred to in this document as the Framework) was approved as an official document of the American Occupational Therapy Association (AOTA) by a vote of its Representative Assembly in 2002. According to AOTA (2002, p. 609), "the impetus for the development of the Framework was the review process to update and revise the *Uniform Terminology for Occupational Therapy—Third Edition* (UT-III), published by AOTA in 1994. The two main parts of the Framework, domain and process, reflect its twofold purpose: "to describe the domain that centers and grounds the profession’s focus and actions" and "to outline the process of occupational therapy evaluation and intervention that is dynamic and linked to the profession's focus on and use of occupation" (AOTA, 2002, p. 609).

The focus of this article is the domain section of the Framework, which discusses focal terms in occupational therapy and identifies six major categories: performance in areas of occupation; performance skills; performance patterns; context(s); activity demands; and client factors (see Figure 1). Each of the categories has listed or tabled sub-categories, and often numerous sub-sub-categories. For example, the domain component labeled performance skills has three sub-categories: motor skills, process skills, and communication/interaction skills, each of which encompasses sub-sub-categories and sub-sub-sub-categories. Overall, the Framework is a complex...
document presenting numerous terms, most of which are arranged in hierarchical categories. Its intended scope is nothing less than the essential nature of the profession of occupational therapy.

The Need for Critical Review

Since the Representative Assembly’s approval of the *Occupational Therapy Practice Framework: Domain and Process*, several organizations or their spokespersons have recognized its broad implications and its potential uses in practice, education, research, and communications with organizations and individual persons outside the profession of occupational therapy. For example, an officer of AOTA referred to the Framework as the “hub” around which all AOTA documents should revolve (Glomstad, 2003, p. 1). The official statement of AOTA (2004) on Scope of Practice cited the Framework for providing a basis for occupational therapy practice. Another organization advocating the use of the Framework is the American Occupational Therapy Foundation (AOTF). In identifying “research priorities and practice parameters for occupational therapy,” AOTF and AOTA (2004, p. 20) jointly cited the Framework and the *International Classification of Functioning, Disability and Health* (World Health Organization [WHO], 2001). Other organizations that have discussed the implications of the Framework include the National Board for Certification in Occupational Therapy (NBCOT, 2003) and the Accreditation Council for Occupational Therapy Education (ACOTE®) (S. Graves, personal communication, October 11, 2002).

The Framework’s detailed exposition of the essentials of the profession and its status as an official document of AOTA will be difficult to ignore in educational curricula. As Berger and Cohn (2003) stated, “By fully incorporating the Framework in a curriculum, one naturally addresses many of the ACOTE standards” (p. 3). They went on to state: “No matter how a curriculum is designed, how courses are titled, or where in a sequence courses are offered, the new Framework should be introduced to students early in their academic program and referred to often” (p. 3).

Given the potential implications of the Framework on practice, education, research, and overall status of the profession of occupational therapy, the Framework deserves

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**Figure 1. Domain of occupational therapy as depicted in *Occupational Therapy Practice Framework: Domain and Process* (AOTA, 2002, p. 611).**

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*Also referred to as basic activities of daily living (BADL) or personal activities of daily living (PADL).*
intense scrutiny. Whenever powerful new conceptual frameworks or classification systems are introduced in the health professions or in academic disciplines, there is a need for thoughtful review and critique. For example, Whyte (1998) reviewed and critiqued the conceptual framework underlying the enabling/disabling process described by the Institute of Medicine's report on rehabilitation science. For another example, Bickenbach, Chatterji, Badley, and Ustun (1999) reviewed and critiqued models of disability as presented in the International Classification System of Impairments, Disabilities, and Handicaps (ICIDH) (WHO, 2001). Scholars proposing a revision in the ICIDH ultimately resulting in the International Classification of Functioning, Disability and Health (ICF) built criticism and evolving research into the process. These scholars drew on the philosophy of science in setting forth rules for definitions and classification (WHO, 2001).

Research concerning official AOTA policies is rare. Borst and Nelson (1993) conducted the only published research concerning Uniform Terminology (UT-III) (AOTA, 1994) over its 22-year span of approval. They found that occupational therapists frequently did not understand the terms officially labeled as “uniform.” The only research reported to date concerning the Framework has been reported orally by Reed, White, and Wong (2004). They found that terms in the Framework and occupational therapy textbooks are often defined with little or no consideration as to definitions in other publications. Another finding was that some terms appearing frequently in textbooks and the Framework are not defined at all in the Framework. Overall, there were many mismatches between occupational therapy textbook terminology and Framework terminology. Two publications have addressed the Framework via critical commentary and argument. Writing in OT Practice, Rosenthal (2004, p. 14) commented that the Framework does not adequately describe the relationships (“dynamic interaction”) among the many terms and categories in its classification system. Weinstock-Zlotnick and Hinojosa (2004) presented an eloquent argument that the top-down approach to occupational therapy advocated in the process section of the Framework has no firm support from research and is in opposition to several occupational therapy models of practice.

Subject Matter for This Logical Analysis

The domain section of the Framework includes a textual discussion (AOTA, 2002, pp. 610–613) and a classification system (Figure 1 on p. 611, supported by Tables 1 through 6). The textual discussion defines and discusses several key terms, including occupation, activity, occupational performance, engagement in occupation, and participation. Some of these terms in the text appear only in the title of Figure 1 (e.g., participation and engagement), and some appear in combination with other terms in Figure 1 (e.g., performance is used twice as an adjective and once as a noun described by the adjectival phrase in areas of occupation; activity is used as an adjective once). Therefore, this article will conduct separate analyses of text-based definitions and the classification system. The textual discussion, which includes several definitions, will be analyzed according to logical rules for definition, whereas the classification system (Figure 1, supplemented by the appendices) will be analyzed according to logical rules for classification. Although the focus of this article is on the domain section of the Framework, the process section is referred to occasionally on the assumption that the two sections should be logically compatible.

Definitional Rule #1: Precision

Concepts constitute the basic building blocks of any logical system. According to Kerlinger (1986), a “concept expresses an abstraction formed by generalization of particulars” (p. 26). A particular is an instance (sometimes called a phenomenon, element or object), and a concept is a generalization (sometimes called a collection or set) applying to particulars. A concept is referred to by its label. The label of a concept might be a common term (word) or an arbitrarily assigned symbol (in formal logic and in set theory). The definition of a concept (represented by a term) specifies its particulars (a) by listing the particulars (extension), or (b) by listing a set of rules for identifying particulars (intension) (Kemmerling, 2001). For example, one way of defining United States citizen is by listing them all by name, and another way is to state that a United States citizen is defined as any person born in the United States or naturalized through a formal process.

According to Kerlinger (1986, pp. 45–46), a logical and scientifically useful definition clarifies whether each particular does or does not belong to the defined term. For example, the rules used in defining United States citizen must make it clear whether each particular person is a United States citizen or not. Kerlinger’s rule can be restated as follows: a unique term must be applicable to certain particulars and must not be applicable to others. This can be called the rule of definitional precision.

This rule is broken whenever it is impossible to make a decision as to whether a particular fits the term or not. An egregious case of breaking this rule occurs when the term is defined in two different ways. For example, if United States citizen is defined as previously stated and if United States citizen also is defined as anyone who participates in the United States system of self-government, there would be individual particulars who fit the first definition but not the second...
(native-born and naturalized persons who do not participate in government), and there would be individuals who fit the second definition but not the first (nonnative and nonnaturalized persons who do participate in government as advocates of particular policies). It would be impossible to decide whether each individual is a citizen or not. Terms used in common speech frequently do not adhere to this logical rule and have multiple, contradictory meanings, but imprecision is a fatal error of logic in science, where terms and their particulars are frequently abstractions. If a researcher cannot follow a rule for including or excluding a particular from a concept (as represented by a term), science is impossible, because no one would know precisely what anyone else is talking about.

**Applying the Rule of Precision**

Several important terms in the Framework are not defined precisely (see Table 1). The Framework glossary lists two different definitions of adaptation (AOTA, 2002). When used as a performance skill in the domain, adaptation refers to “the ability to anticipate, correct for, and benefit by learning from the consequences of errors . . .” (p. 630). When used as an outcome in the process section, adaptation refers to “a change a person makes in his or her response approach when that person encounters an occupational challenge” (p. 630). The definitions are somewhat similar to each other, but the former specifies that adaptation includes anticipation (implying a prior time frame), whereas the latter does not. The process section also describes adaptation in yet a third way. Here adaptation is an intervention approach involving modifications of the client’s environment. Therefore, the two glossary definitions refer to the response approach and ability of the client, but a nonglossaried usage of the same term refers not to the client but to changes made in the client’s external world. Widely differing particulars would fit the multiple definitions of adaptation. For example, a child’s learning, a home modification, an adult’s strategy to avoid pain, and assistive devices would all be instances of adaptation.

A parallel problem of imprecision can be seen in the definitions and descriptions of the term occupation, arguably the most important term in a profession labeled occupational therapy. In its glossary definition of occupation, the Framework first specifies that occupations are activities of “everyday life” (AOTA, 2002, p. 632). This specification appears to exclude events that are rare or unique (e.g., experiencing a spiritual transformation, finding one’s first job, getting married, saving another person’s life, walking on the moon, expressing one’s wishes upon dying, inventing the Internet). Clearly these are not “everyday” activities, but are they not occupations?

The definition also specifies that occupations are activities “named, organized, and given value and meaning by individuals and a culture” (AOTA, 2002, p. 632). Logically this implies that non–occupational activities exist that are unnameable, nonorganized, and unvalued. But what activity is unnameable? On the face of it, language appears robust enough to name anything. The contradiction

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**Table 1. Inconsistencies With the Logical Rule of Precision (i.e., a Unique Term Must Be Applicable to Certain Particulars and Must Not Be Applicable to Others)**

<table>
<thead>
<tr>
<th>Terms</th>
<th>Framework Definitions/Descriptors</th>
<th>Implications Leading to Inconsistencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptation</td>
<td>“The ability to anticipate, correct for, and benefit by learning from the consequences of errors . . .” (p. 630).</td>
<td>(a) Implies that adaptation involves prior anticipation; (b) Adaptation is an ability.</td>
</tr>
<tr>
<td>Adaptation</td>
<td>“A change a person makes in his or her response approach when that person encounters an occupational challenge” (p. 630).</td>
<td>(a) Does not imply that adaptation involves prior anticipation; (b) Adaptation is a change of response approach.</td>
</tr>
<tr>
<td>Modify (Compensation, Adaptation)</td>
<td>“[A]n intervention approach directed at ‘finding ways to revise the current context or activity demands. . . .’” (p. 627).</td>
<td>Adaptation is something done by the therapist to modify context and demands, not a change in response by or an ability of the client.</td>
</tr>
<tr>
<td>Occupation</td>
<td>“Activities . . . of everyday life, named, organized, and given value by individuals and a culture. Occupation is everything that people do to occupy themselves . . .” (p. 632).</td>
<td>(a) Non-“everyday” (i.e., rare or unique) events in one’s life are not occupational; (b) Occupation is a subset of activity, which also includes unnameable, nonorganized, and/or unvalued phenomena; (c) Some activities are done without occupying oneself.</td>
</tr>
<tr>
<td>Occupations</td>
<td>“. . . generally viewed as activities having unique meaning and purpose in a person’s life.” . . . central to a person’s identity and competence” (p. 610)</td>
<td>(a) Occupation is a subset of activity restricted to activities that are central to a person’s identity; (b) Activities include all the things that people do that are not central to identity.</td>
</tr>
<tr>
<td>Occupations and Activities</td>
<td>“. . . the two terms are closely related yet . . . each term has a distinct meaning . . .” (p. 610)</td>
<td>(a) Here, as in the cited Pierce (2001) article about “disentangling” occupation from activity, it is implied that occupations are separate (distinct) sets that can have relationships to each other. (b) Pierce’s 2001 distinctions between activity and occupation are incompatible with other definitions of occupation above.</td>
</tr>
</tbody>
</table>

*Note. Framework = Occupational Therapy Practice Framework: Domain and Process (AOTA, 2002).*
appears to be inherent, because something unnameable could not be cited (named) as an example. Also, the distinction between organized activities and nonorganized ones might well have some unintended consequences, favoring meaningless but highly organized ritual over an existential act of disorganized freedom. Furthermore, the logical rules for separating unvalued activities from the valued ones go unspecified. If an activity had no value, why would someone do it?

A further problem is that the glossary definition is not compatible with two other Framework statements regarding occupation. The glossary definition, that occupation includes “. . . everything people do to occupy themselves . . .” (AOTA, 2002, p. 632), is not compatible with the statement that occupations are “central to a person’s identity and competence . . .” (p. 610). Would the following particular be assigned to occupation or not: A person is playing cards with friends to occupy herself but does not see card-playing as central to identity. By definition, it would seem that “central” activities would be a relatively small subset of all the activities one might do. To how many people is self-care a central activity? But is it not true that self-care occupies a person, at least some of the time? Finally, the citation of Pierce’s definition of occupation (2001) compounds the problem further. The central thesis of Pierce’s article is that occupation and activity can be and should be conceptualized as separate and distinct. It is logically inconsistent to assert that A is a subset of B, and then to discuss how A and B are separate and distinct classes.

**Definitional Rule #2: Parsimony**

The definitional rule for parsimony can be stated as follows: the particulars assigned to one term must not be assignable to another term unless there is a logical explanation. Violation of this rule occurs when definitions refer to sets of particulars that are overlapping. Ambiguous terminology makes it impossible to figure out whether a particular should be classified under one concept label (term) or another (Kerlinger, 1986, p. 26).

Redundancy is a special case of overlap, where all particulars applying to one term also apply to another term. For example, synonyms such as weightiness and heaviness are redundant to each other. The same particulars can be assigned to either term (or at least to one common definition of each). As Mosey (1970) stated, “Excessive, overlapping, and redundant terms are avoided” (p. 7). In discussing taxonomic and terminological issues, authors of the ICF put it this way: “[Definitions] must uniquely identify the concept intended by the category” (WHO, 2001, p. 217).

Often more confusing than total redundancy is the case where some but not all of the particulars of one concept have dual identities as particulars of another concept. For example, consider the definition of worker as a paid employee, and consider the definition of helper as a cooperative person who may be paid or unpaid. Given these definitions, particular people might be workers but not helpers, some might be helpers but not workers, and some might be both. Kerlinger (1986) would say that these two concepts, worker and helper, are at different levels of discourse and cannot be used as logical definitions unless the levels of discourse are logically explained. One level of discourse deals with whether the person is paid or not, and the other deals with whether the person is cooperative or not. The scientist would do best by abandoning the ambiguously overlapping concepts helper and worker, and develop concepts oriented to payment (or not) and level of cooperation. The scientist can then go on to study the relationships between these two concepts and other concepts in the domain of concern. If the scientist does not deal with this problem of partial overlap, counting is impossible, because there is no logical way of counting whether a cooperative person who is paid should count as a worker, as a helper, as neither, or as both.

**Applying the Rule of Parsimony**

In the Framework, the following terms overlap with each other in unexplained ways: occupation, activity, purposeful activity, occupational performance, engagement in occupation, and participation (please see Table 2). We have already considered the ambiguities surrounding the multiple definitions of occupation and activity. Unambiguously and operationally, can one distinguish between an occupation and an occupational performance? What rules would one use to make such a distinction? Is it possible for one to occur without the other? If the terms do indeed refer to different phenomena, what is the link between them?

And what is the difference between occupation and engagement in occupation? The Framework’s glossary definition of engagement in occupation refers to commitment, self-choice, and motivation as well as to objective aspects of involvement (AOTA, 2002, p. 631), but all of these descriptors apply to occupation even when not accompanied by the term engagement. What precisely is added to the meaning of the term occupation by using the word engagement?

The same problem of ambiguous overlapping applies to the use of the term participation, which is defined in the Framework glossary as “involvement in a life situation” (AOTA, 2002, p. 632). Is it possible to engage in occupation without being involved in a life situation? If one is involved in a life situation, is one not engaged in occupation?

Consider the key statement: “Engagement in occupation to support participation in context is the focus and targeted end objective of occupational therapy intervention”
(AOTA, 2002, p. 611). What does “engagement in occupation to support participation” mean if the three terms engagement in occupation, occupation, and participation are synonymous or overlap with each other? Is there any good reason why one could not just as well say “participation to support engagement in occupation,” or “participation to support occupational performance,” or “occupational performance to support participation”? On page 615, the statement is made: “‘Engagement in occupation’ is viewed as the overarching outcome of the occupational therapy process.” Assuming that the “focus and targeted end objective of occupational therapy intervention” is the same thing as “the overarching outcome of the occupational therapy process,” the Framework is logically equating “engagement in occupation to support participation” and “engagement in occupation.” Given its superfluity, what can “participation” then mean?

**Classification Rule #1: Exclusivity**

In his book dealing with classification techniques, Bailey (1994) reviewed several different complex methodologies that have been developed by scholars to generate and test classification systems. Despite this complexity, Bailey (pp. 3–4) stated that all classification systems adhere to two basic rules: exclusivity (here termed Classification Rule #1) and exhaustiveness (to be discussed below as Rule #2). Hunter (2002) stated the rule of exclusivity as follows: “In a properly designed hierarchical classification system each subject should have only one place where it fits into the system” (p. 41).

Classification Rule #1 can be stated as follows: a lower-level category must be classifiable only within its assigned higher-level category. By definition, all the particulars pertaining to a sub-category also pertain to the higher-level category formed by the sub-category and parallel subcategories. For example, all particular ducks are birds. Violation of the rule occurs when particulars can be assigned not only to the appropriate higher-level category but also to other categories (higher or lower) in the classification scheme. For example, assume that the category vertebrate is composed of the following six sub-categories: mammal, bird, amphibian, reptile, fish, and warm-blooded creature. Here the sub-sub-category duck can be assigned either to bird or to warm-blooded creature. There is no logical way to count the number of vertebrates, birds, or warm-blooded creatures until this lack of exclusivity is solved by re-conceptualization of the classification scheme.

Perhaps the best-known historical example of classification in the history of science is the Linnaean system of classifying living things into major categories, and then subcategories, and then sub-sub-categories, etc., from kingdom at the top of the hierarchy to species at the bottom (Christiansen, 1994). The logical principle of exclusivity as applied by Linnaeus holds that a living thing had to be
required body functions/required body structures, Community Mobility:
(in “moving self in the community. . . .” (p. 620)
Motor Skills (in These small units of doing are necessary sub-categories of
Interests (in Client Factors)
Motivation Energy and drive functions Spiritual (in Context) Spiritual:
is described as “activities at different levels of intimacy,
Motor Skills:
including engaging in desired sexual activity” (p. 621)

Applying the Rule of Exclusivity
Figure 1 of the Framework (AOTA, 2002, p. 611) and its
associated six tables (pp. 620–626) constitute a complex
classification system with multiple levels of sub-categories.

Applying the Rule of Exclusivity
According to the rule of exclusivity, each of the sub-cate-
gories must be classifiable within one higher-level category. However, Table 3 of the current article demonstrates that
many Framework terms are easily classifiable within other
branches of the classification tree. In several cases (e.g., sexual activity, required body functions/required body structures, motivation, routines, physical) the same words used to iden-
tify a term are used to define a category in a different branch
of the classification tree. This ensures nonexclusivity. In
other cases (e.g., job performance, formal educational partic-
ipation, roles, play, functional mobility, interests, values), the
definitions of the terms fit nonassigned categories as well as
they fit their assigned categories.

Table 3. Inconsistencies With the Logical Rule of Exclusiveness (i.e., a Lower-Level Category Must Be Classifiable Only Within Its Assigned Higher-Level Category)

<table>
<thead>
<tr>
<th>Category</th>
<th>Framework Category</th>
<th>Also Classifiable As</th>
<th>Implications Leading to Inconsistencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job Performance</td>
<td>Work (in Areas of Occupation)</td>
<td>Social Participation (in Areas of Occupation)</td>
<td>Social participation includes “activities associated with organized patterns</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>of behavior that are characteristic of . . . an individual interacting with</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>others . . .” (p. 621)</td>
</tr>
<tr>
<td>Formal Educational</td>
<td>Education (in Areas of Occupation)</td>
<td>Social Participation (in Areas of Occupation)</td>
<td>Same as above</td>
</tr>
<tr>
<td>Participation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roles</td>
<td>Performance Patterns</td>
<td>Social Participation (in Areas of Occupation)</td>
<td>Same as above</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Play                      | Areas of Occupation | Leisure (in Areas of Occupation)                 | Leisure is defined as “A non-obligatory activity that is intrinsically moti-
|                           |                     |                                                  | vating and engaged in during discretionary time, that is, time not com-
|                           |                     |                                                  | mitted to obligatory obligations such as work, self-care, or sleep” (p. 621) |
| Sexual Activity           | ADL (in Areas of Occupation) | Peer, Friend (in Social Participation)         | Peer, Friend is described as “activities at different levels of intimacy, |
|                           |                     |                                                  | including engaging in desired sexual activity” (p. 621)                     |
| Functional Mobility       | ADL (in Areas of Occupation) | (a) Motor Skills (in Performance Skills); (b) Community Mobility |
|                           |                     | (in IADL)                                        | (a) Motor Skills: “skills in moving and interacting with task, objects, and |
|                           |                     |                                                  | environment” (p. 621)                                                       |
|                           | (a) Required body   |                                                  | (b) Community Mobility: “moving self in the community. . . .” (p. 620)       |
|                           | functions          |                                                  |                                                                             |
|                           | (b) Required body   |                                                  |                                                                             |
|                           | structures         |                                                  |                                                                             |
| Motivation                | Energy and drive functions (in Client Factors) | Spiritual (in Context) | Spiritual: “The fundamental orientation of a person’s life; that which inspires and motivates that person” (p. 623) |
| Interests                 |                     |                                                  |                                                                             |
| Values                    |                     |                                                  |                                                                             |
| Routines                  | Performance Patterns | Habits (in Performance Patterns)               | An example of an impoverished habit refers to “all steps of a self-care |
|                           |                     |                                                  | routine” (p. 623)                                                          |
| Physical                  | Context             | Activity Demands                                | Activity Demands includes “materials” and “physical environmental |
|                           |                     |                                                  | requirements” of activity (p. 624)                                         |
| Performance Skills        | Performance Skills  | (a) Each of the Areas of Occupation; (b) Each of the Performance Patterns | Performance Skills are defined as “what one does, not what one has. . . .” |
|                           |                     |                                                  | These small units of doing are necessary sub-categories of Areas of |
|                           |                     |                                                  | Occupation and Performance Patterns. For example, walking, manipulating, |
|                           |                     |                                                  | sequencing, and organizing are essential elements (sub-categories) of |
|                           |                     |                                                  | each Area of Occupation and each Performance Pattern.                     |
| Performance Patterns      | Performance Patterns | Each of the Areas of Occupation                 | Each of the Areas of Occupation may or may not be a habit (hence an un|
|                           |                     |                                                  | resolved overlap)                                                          |

albeit at higher levels. So, an instance of a performance skill is part of an occupation; it is a subset, not an independent set at the same level of discourse. For example, an instance of handles (a performance skill) is part of an instance of self-feeding (an activity of daily living, within the major category performance in areas of occupation). Performance pattern as a category is also confounded by areas of occupation (and by performance skill). Whenever an instance within an area of occupation is also a habit or a routine, that instance is multiply classifiable. For example, please consider the student whose assignment is to classify the observed occupations of a person. The student observes a healthy person taking a walk with his friends. How should 2 hr of walking be classified, as both habit in one category and as community mobility in another category? Given that walking with friends is classifiable in other categories as well (e.g., functional mobility, leisure, social participation), a total of 10 hr (five categories times 2 hr) of occupation will be recorded. This would be highly misleading, and one can see how such a system could generate 50-hr days.

The category labeled context is particularly problematic. Context is defined as “a variety of interrelated conditions within and surrounding the client that influence performance. Contexts include cultural, physical, social, personal, spiritual, temporal, and virtual” (AOTA, 2002, p. 630). An immediate problem is that the definition includes many phenomena located in other categories. For example, tools are listed specifically both under context and under the category activity demands. Overall, it is difficult to think of context and activity demands as independent of each other. Are not activity demands part of the context of an occupation? But the biggest problem with context is its extreme inclusiveness: factors within the person (e.g., personal) are listed side-by-side with factors external to the person. A consequence is that concepts within the category context share little of substance with each other. Spiritual is defined as “the fundamental orientation of a person’s life. . . .” and is described as the “essence of the person. . . .” (p. 623). How can the essence of a person be considered a context? Context denotes something at the periphery; essence denotes centrality. Spiritual is not at the same level of discourse as the other concepts listed.

**Classification Rule #2: Exhaustiveness**

The rule of exhaustiveness addresses the issue of comprehensiveness (Bailey, 1994, pp. 3–4), and can be stated as follows: All relevant particulars must be classifiable. “Relevance” depends on the domain of concern. For example, each particular book is relevant to a library’s classification system. A classification system violates the rule of exhaustiveness when a relevant particular is not classifiable (e.g., when a new book has an original form or an original subject that defies classification in a library system) (Ranganathan & Gopinath, 1967, p. 157). Applying this idea to occupational therapy classification, Mosey (1970) stated: “If the phenomena of concern [are] classified in such a manner as to allow for accurate prediction, the system is adequate. The number of concepts used must be sufficient to deal with the phenomena” (p. 7).

A classification system need not include all the terms that have appeared in past classification systems; it needs only to be able to account for all particulars. Mosey (1981, pp. 34–35) provided an example by citing an overlap (nonexclusivity) between the terms body image and body concept. Even though both terms have a history in the literature, both terms must not appear in the same classification system if their definitions overlap. What is important is that all relevant particulars are classifiable (persons’ actual thoughts and feelings about their bodies), not that all past terms are classifiable. The rules of exclusivity and exhaustiveness can and must be used in conjunction.

**Applying the Rule of Exhaustiveness**

The rule of exhaustiveness is important to consider when critiquing a classification system, but it is relatively difficult to apply this rule because sources external to the classification system must be cited. Table 4 appeals to four sources that are external to the Framework: (a) the United States Department of Labor Bureau of Labor Statistics (BLS) 2003 survey of time use (last revised in 2005); (b) the Framework text surrounding Figure 1, but not included in Figure 1; (c) UT-III (AOTA, 1994); and (d) basic texts of human development (e.g., Schuster & Ashburn, 1992).

The BLS survey is instructive in that its authors developed methods to classify things that people do into mutually exclusive categories. Religious observance is a BLS category that appears to defy categorization in the Framework, implying nonexhaustiveness if particular instances of religious observance (e.g., praying alone or going to a formal religious service) are occupations.

Concepts deemed important in the Framework text, including meaning and purpose, are not fully reflected in the classification system represented by Figure 1. Although some aspects of meaning and purpose might fit the subcategory spiritual (e.g., a feeling of connection with a higher power), other aspects do not. For example, the many feelings and intentions experienced by a woman trying desperately to fulfill multiple roles (parent, worker, spouse) in the course of a day do not fit the definition for spiritual, yet they are critical for full understanding of her daily occupations. Moreover, the major categories of Figure 1 do not reflect experiential phenomena, such as meaning and
Table 4. Inconsistencies With the Logical Rule of Exhaustiveness (i.e., All Relevant Particulars Must Be Classifiable)

<table>
<thead>
<tr>
<th>Concept</th>
<th>Framework Category</th>
<th>Implications Leading to Inconsistencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Religious Observation</td>
<td>Areas of Occupation</td>
<td>The U. S. Dept. of Labor Statistics determined that 8.1% of the U.S. population spent 1.75 hr per day engaged in religious and spiritual pursuits in 2003 (U.S. Dept. of Labor, 2005).</td>
</tr>
<tr>
<td>Meaning</td>
<td>None</td>
<td>This term is referred to in the text but not comprehensively in the classification system.</td>
</tr>
<tr>
<td>Purpose</td>
<td>None</td>
<td>This term is referred to in the text but not comprehensively in the classification system.</td>
</tr>
<tr>
<td>Engagement</td>
<td>None</td>
<td>This term is referred to in the text but not comprehensively in the classification system.</td>
</tr>
<tr>
<td>Quality of Performance (Accomplishment, Success, Failure)</td>
<td>None</td>
<td>This term is referred to in the text but not the classification system.</td>
</tr>
<tr>
<td>Levels of Body Function/Dysfunction</td>
<td>None</td>
<td>The text implies that each Client Factor reflects an ability that might be intact or not. Framework Client Factor category is based on ICF (2001), which classifies levels of function.</td>
</tr>
<tr>
<td>Stereognosis, body scheme, right–left discrimination, form constancy, visual closure, figure ground, depth perception, topographical orientation, crossing midline, spatial operations, social conduct, interpersonal skills, self-expression, self-control</td>
<td>Client Factors</td>
<td>These terms were included in UT-III (AOTA, 1994) but excluded from Client Factors in the Framework. Many terms at the same level of discourse in UT-III can be found in Client Factors in the Framework. There is no explanation for selective exclusions.</td>
</tr>
</tbody>
</table>


Purpose, even though these phenomena are repeatedly cited in the text of the domain as well as in the text of the process section of the Framework. This omission reflects an essential problem: the concepts in Figure 1 are incapable of dealing with the individual person’s point of view. The classification system within the Framework does not posit a major category that might include the lived fears, doubts, angers, hopes, joys, affections, and intentions of the person. The reference here is not simply to emotional capacity; the reference is to actual lived experience. How does the individual’s point of view influence classification of the areas of occupation (if at all)? If a person sees an instance of hair styling or shopping as spontaneous and enjoyable, should this occupation be classified as play or ADL [activities of daily living]? If a person drives from job site to job site with the convertible top down and the radio blasting, is this work, leisure, or IADL [instrumental activities of daily living]? Experiential factors can also interact with other major Framework categories, including performance patterns (can something be a habit only from the person’s point of view?); performance skills (is there a role for the individual in rating one’s skills?); context and activity demands (what is the individual’s perspective on the environment, society, and culture?); and client factors (what is the person’s experience of his or her body?).

The Framework should provide explanations for excluding some UT-III terms while retaining others. What was the basis for excluding phenomena previously considered to be essential? Without such an explanation, it can be argued that the Framework’s incorporation of many highly specific performance skills (e.g., calibrates, heeds, gazes) results in an unbalanced system of great detail in some areas and little detail in others. This is not an error on the parts of those who developed the assessments from which the performance skills are drawn, because each assessment is valid only for certain uses. But why should a researcher be able to use the Framework for classifying calibrates, heeds, and gazes while being unable to use the Framework for classifying phenomena often associated with terms listed in Table 4?

Implications of This Logical Analysis

The domain section of Occupational Therapy Practice Framework: Domain and Process is repeatedly inconsistent with logical rules of precision, parsimony, exclusivity, and exhaustiveness. Writing from the perspective of the growing field of formal logical analysis within sociology, Bruggeman and Vermuelen (2002, p. 193) stated that a conceptual system that contains logical inconsistencies cannot describe any possible state of affairs in the world. Inconsistency...
makes research impossible, because any proposition containing illogical reasoning can neither be supported nor rejected through research.

The practical implications of logical inconsistency are profound. A quantitative researcher cannot use ambiguous guidelines when operationalizing independent or dependent variables (e.g., in a study of the effects of an occupationally based intervention on a person's occupational profile). A qualitative researcher cannot use the Framework's definitions or classifications when coding and categorizing phenomena. A student cannot use the Framework to classify the occupational phenomena in an educationally oriented case study. A practitioner receives no logical guidance in trying to identify the essential features of the profession and the relationship of specific practice areas to this central core. An educator, particularly one in a program for educating certified occupational therapy assistants, must abandon the presentation of alternative, possibly logical terminologies in order to have the time to teach the many complexities of the Framework. The outsider (client or professional colleague) loses confidence in a profession that advocates logical inconsistencies.

If the analyses above are largely or even partly correct, the Occupational Therapy Practice Framework: Domain and Process (AOTA, 2002) might be an example of the difficulties in doing conceptual work by committee, while attempting to reflect (or create) the central ideas of a complex profession. Definitions and terms may be included based partly on political processes within the committee and within the profession. Compromise is not a friend of logic. An alternative point of view is that a committee can develop a logical framework if it consistently applies the logic. An alternative point of view is that a committee can develop a logical framework if it consistently applies the logic.

Recommendations Toward a Logical Framework

"Science has traditionally proceeded by classifying and analyzing. The importance of classification is maximal when the area of inquiry is diverse and amorphous, as is often the case in the behavioral sciences. Defined classes are not simply notational; they connect the content of science to the real world" (“Taxonomic systems,” 1984, p. 403). The profession of occupational therapy, with its broad scope, needs a branch of scholarship focusing on definitions and classifications. It does not follow from this critique of the Framework's logic that a logically consistent conceptual system for occupational therapy is impossible. The following recommendations are made toward the goal of logically consistent conceptual frameworks:

1. Developers of conceptual frameworks should make clear decisions at the outset concerning the relationship of the framework to the many frames of reference/models of practice in occupational therapy. The recommended approach for authors of a conceptual framework is to specify in advance that the framework deals only with concepts that all the frames of reference/models of practice have in common, the essentials of the profession, while leaving lower-level concepts to each model. A great advantage of such an approach is the relative ease with which the logical principle of exhaustiveness can be met. Another approach, not recommended, is to assert that the framework is universal, such that frames of reference/models of practice are no longer necessary. As Mosey (1985) said, such an assertion, if accepted broadly, would lead to professional stagnation, with no adaptability to changes in the greater culture and with little encouragement of new conceptual breakthroughs. Moreover, it is difficult to imagine a single framework capable of incorporating all the ideas from all the areas of practice within occupational therapy.

2. Whoever develops new conceptual frameworks or revises old ones should begin by explicitly setting out criteria that the framework must meet. The four logical principles presented in this article are suitable criteria. Another criterion for any framework should be interrater reliability: can trained observers independently agree when applying definitions and classifications to real-world particulars? After reviewing rules concerning scientific terminology, Reynolds (1971) concluded: “...The most important feature of any scientific term, used to indicate a concept, is the degree of agreement about its meaning...” (p. 48). Initial publication of a new framework ought not to be dependent on completed research, because this requirement would inhibit new approaches. But initial publication should include a plan for subsequent research. The development of the International Classification of Functioning, Disability and Health (ICF) (WHO, 2001) provides a model for setting out logical rules in advance (pp. 211–218) and for planning extensive field testing that led to important changes from early drafts to the final product (pp. 246–249).

3. A framework should specify the sources of its ideas in a scholarly way. Judged by this criterion, ICF in its present form fails, whereas the Framework succeeds, at least partially, because it cites references as well as a selective bibliography. Criticism of the completeness and balance of the Framework's citations is beyond the scope of this article but would be a useful exercise in future scholarship. An example of a classification system that meets all the previously mentioned criteria is the environmental taxonomy developed by Lawton (1999). The WHO might have improved its final product if early drafts of ICF sections dealing with
the environment had been drawn from Lawton's research-based work.

4. The logical concept of cross-partitioning (Kerlinger, 1986, p. 51) can be profitably used when classifying occupation. Christiansen (1994) is among those who have shown that a given particular of occupation can be classified on one dimension and then reclassified on another dimension. For example, an occupation could be classified according to sociocultural criteria (e.g., work versus play, etc.), reclassified in terms of the individual's unique perspective on the occupation (e.g., type of affective meanings), reclassified once again in terms of the level of social participation involved, and reclassified a fourth time in terms of the degree to which the occupation was habitual. Cross-partitioning thus would solve several of the logical flaws cited in the critique (e.g., the 50-hr week). An advantage of cross-partitioning is that examination of the multidimensional matrix is frequently heuristic in generating new propositions about the relationships of the matrix's cells to other concepts. For example, the four-dimensional matrix described above might generate hypotheses concerning the interactions between types of occupation and life satisfaction.

5. Developers or refiners of a framework ought not to worry about getting all key terms into the framework, both those that have arisen within the profession as well as those with popularity outside the profession (e.g., the term participation). Such a practice inevitably leads to violation of the logical principles of parsimony and exclusivity. As Mosey (1981, pp. 34–35) pointed out, there is a difference between exhaustiveness (providing terms for all relevant particulars) and inclusion of all the profession’s terms. Identification of the precise relationships among the key terms used within the profession is an important scholarly task that should be undertaken, but it is an entirely different task from developing a unified, logical conceptual framework.

6. It is beyond the scope of this article to compare currently existing conceptual frameworks for occupational therapy to Occupational Therapy Practice Framework: Domain and Process, but it is entirely possible that logically superior frameworks already exist. The problem is that the Framework’s status as an official document of the American Occupational Therapy Association inadvertently inhibits the study and possible adoption of these frameworks. How many practitioners or students want to learn alternative, unofficial frameworks if it is so difficult to master all the complexities of the “official” framework? These same four logical criteria (and perhaps other criteria) should be applied systematically to conceptual frameworks that already exist. This kind of scholarly work will pave the way for advances in the profession’s knowledge base through the tried-and-tested methods of peer review.

7. The final recommendation is that the community of scholars within the profession assert their responsibility for developing, analyzing, and improving conceptual frameworks within the profession. No “official” framework would result, but one or more coherent frameworks might emerge. A corollary to this recommendation is that the American Occupational Therapy Association cease the sanctioning of some ideas and the rejection of others. Establishment of an official classification system is not the proper role of a professional association. Yes, a professional association can be helpful in communicating with the public concerning principles that are well established by consensus among the profession’s scholars. For example, the profession may well be ready to proclaim to the world that occupation is its central idea. And, yes, a professional association must establish standards for practice, entry-level education, and ethics. But members of the profession do not have to be told what to think, and practitioners and educators should use the professional literature, not “official” documents, for their clinical and educational reasoning. Science is not established by a vote.

**Limitations of the Logical Analysis**

It can be argued that the logical rules for definition and classification discussed and applied in this article are idealistic, and that no classification system in the natural world (as opposed to the domain of mathematics) matches up perfectly and permanently to the rules of logic. “Classification is inherently temporary and artificial... Few systems endure, and those that do undergo modifications in keeping with current thought” (“Taxonomic systems,” 1984, p. 403). Sometimes a newly identified particular fits all the rules for two supposedly distinct classes, as can happen in biology when an animal has the otherwise-exclusive characteristics of two distinct species. The exception to the rule arouses enthusiasm in scientists. At minimum, there must be a clear discussion of the overlap. Inquiry into the presence of multiple overlapping features often leads to a new classification system. So, the fragility of one classification system leads to a superior system, but only if scientists are motivated by the resolution of logical inconsistencies.

Given this article’s focus on logic, it is fair to ask whether the two rules for definition and the two rules for classification are themselves logical. In response to such a question, it can be argued that all four rules can be stated more parsimoniously in a single sentence: Each particular must be classifiable within only one category. If the sub-categories of a major category can be defined as particulars of the major category, and if the term category implies parallel nonnull categories, this single sentence appears to subsume
all four rules. As Foucault (1970) said, “To know what properly appertains to one individual is to have before one the classification—or the possibility of classifying—all others” (p. 36). The reasons this article separates the fundamental relationship between particulars and concepts into four distinct rules are: (a) to show various types of logical errors; (b) to reflect the fact that the logic of definitions is often discussed separately from the logic of classification; and (c) to correspond with the structure of the Framework, where defined terms appear in the text but not in the main classification system.

Another question arises as to the exhaustiveness of the four rules. Are there other rules that should apply? A possible but controversial rule is that the organization of subcategories must be parallel across different categories (e.g., each particular organism in the biological classification tree should belong to a species, a genus, a family, an order, and so forth). Applying such a rule to the Framework would result in questions concerning how ADL and IADL subcategories are organized differently from subcategories in work, leisure, and play. Consideration of this rule might be helpful in developing classification systems in occupational therapy, but this article did not adopt this rule in accordance with an argument by Ranganathan and Gopinath (1967, p. 175). They argued that the relationships among major categories and sub-categories should reflect the relevant differences among particulars in each branch of the classification tree, with no assumption that the same categorizations found effective in one branch are the most effective in another branch.

Conclusion

It is hoped that this article leads to enhanced conceptualizations of the essence of the profession of occupational therapy. This article is critical in nature. The assumption is that science and science-based professions need scholarly critiques just as they need scholarly formulations; indeed, conceptual formulation and critiquing are mutually interacting subprocesses within a higher-level iterative process of knowledge development that takes place over time. A finding that the Occupational Therapy Practice Framework: Domain and Process is illogical is not an ending point; it constitutes a small marker on the long trail of professional development.

References


