



Developing National Occupational Standards for Behavior Analysis

Michelle P. Kelly ^a and Irene Trifyllis^b

^aCounseling, Special Education, and Neuroscience Division, Emirates College for Advanced Education, Abu Dhabi, United Arab Emirates; ^bProfessional Licenses Department, Ministry of Education, United Arab Emirates

ABSTRACT

In order to help promote the future growth of behavior analysis, it is incumbent on behavior analysts around the world to develop country-specific standards. National Occupational Standards (NOS) are concise and readable documents that specify the knowledge an individual requires and the standard of performance that must be achieved when carrying out a specific function in the workplace. NOS are used as benchmarks of good practice across professions internationally. The current paper provides an overview of a model with 20 discrete actionable steps across five phases for developing standards: (i) preparation, (ii) development, (iii) review, (iv) validation, and (v) endorsement. A case example is provided for the development of NOS for Applied Behavior Analysts in the United Arab Emirates in the Middle East.

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In August 2019, the Board of Directors of the Behavior Analyst Certification Board[®] (BACB[®], 2022a) voted to complete substantial revisions to their entity's international focus. As of 1 January 2023, only individuals who live in the United States (US), Canada, and Australia may apply for BACB certification. Individuals in the United Kingdom (UK) may continue to apply until the end of 2025 but this date may be changed if the UK Society for Behavior Analysis seeks national recognition for UK behavior analysts, develops its own credentialing system, and transitions current BACB certificants into the UK system (BACB, 2022b). The BACB "hope[s] that the next era of behavior analyst credentialing outside of the U.S. and Canada will see a commitment to country-specific standards that help foster the future growth of the profession in many countries" (BACB, 2022a, p. 3). As of September 2022, there are over 6500 BACB certificants (including Registered Behavior Technicians) outside of the US, Canada, Australia, and the UK (BACB, 2022c). What does the BACB's decision mean for these behavior analysts?

To ensure competence, behavior analysts seek credentialing through professional certification or government regulation (Carr & Nosik, 2017; Martin & Carr, 2020). Professional certification is a voluntary credential obtained from such private entities as the BACB (Johnston et al., 2017), and are authorized by members of the professional

community, but not necessarily by the government (Cooper et al., 2020). Government regulation differs for each country and may involve “licensure” as in the US (BACB, 2022d) and the United Arab Emirates (UAE; Abu Dhabi Government, 2020) or “registration” as in Europe (Martin & Carr, 2020). This would be a mandatory regulatory requirement that behavior analysts would need to practice, not a voluntary achievement certificate (Cooper et al., 2020).

Although organisations such as the Association of Professional Behavior Analysts (APBA, 2018) have provided useful model acts for the licensure/regulation of behavior analysts, this process “can be complex, arduous, and costly” (Green & Johnston, 2009, p. 59). Before pursuing licensure in a particular state, province, emirate or country (henceforth “region”), Green and Johnston (2009) emphasized the importance of developing strategies and resources. One such important resource is the development of country-specific standards. Fortunately, there are many resources to help with this process including Carroll and Boutall’s (2011) guide and Fretwell et al. (2001) framework for standards in developing countries. The BACB (2022e) has also published several papers, including Johnston et al. (2014) that offer further guidance to international behavior analysts who are navigating this process. The current paper aims to extend upon the currently available offerings by outlining a step-by-step account for a way to develop culturally-specific professional occupational standards. Taking into consideration that these standards will need to be sufficiently sensitive to regional context, a case example will be provided using the standards for applied behavior analysts in the UAE to illustrate the current account. First, however, a description of occupational standards is warranted.

What are National Occupational Standards?

As outlined by Carroll and Boutall (2011), National Occupational Standards (NOS) are benchmarks of good practice that specify the knowledge an individual requires and the standard of performance an individual must achieve when carrying out a specific function in the workplace. NOS include knowledge of facts, principles and methods which ensure that the individual can be effective across organisations and in related job roles and work contexts, and is capable of dealing with the unusual or unexpected. Someone who has the necessary qualifications as outlined in the NOS is suitable in terms of employability and career progression within the specified field. NOS include specific knowledge, skill, and competence statements and, although not exhaustive, cover key areas that should subsequently be included in licensure examinations (Johnston et al., 2014).

The NOS document should be concise and flexible. Therefore, these documents do not include any unnecessary “clutter” (Carroll & Boutall, 2011, p. 6) and are usually no more than six pages long. NOS are most often used to develop qualifications and training programs but they may also be used for an array of other human resource management and development tasks such as employee projections, professional developmental training, and reflective practice.

NOS are national because they are not individual organisation standards; they apply to the whole of a specific region, although usually a specific country. NOS should, therefore, only be developed by entities that have been recognized by the relevant authority such as

the Ministry of Education, National Qualification Framework, or Sector Skills Advisory Councils, with a sample of service users and organisations representing the occupation to which the standards will apply (Carroll & Boutall, 2011). NOS are occupational because they define all of the key functions someone should be able to carry out in a specific occupation (e.g., child protection officer, social worker) and are designed with input from employers and others who have a close interest in the occupation, including practitioners and professional bodies (Carroll & Boutall, 2011). NOS are standards because they represent a consensus view of best practice and the outcomes that must be achieved by practitioners in the field. As well as technical requirements, NOS also include a wider repertoire of socially significant personal skills, such as effective collaboration, communication skills, and the ability to solve problems. Once the NOS are published, their use should be monitored by the developing body and incrementally changed over time. To accommodate advances, it is recommended that a periodic update is completed depending on the needs of the occupation (Johnston et al., 2014; Shook et al., 2004). This updating process may take place every 5 years, for example, and includes a reevaluation, examination by the sector committee, and approval by the endorsing entity (Mesleki Yeterlilik Kurumu, n.d.).

Objectives of NOS

NOS provide guidance and frameworks that describe good practice and supports an occupation and its developers to raise the standard of their professional practice, improve services, and shape future services across all settings and sectors. NOS need to be fit-for-purpose for practitioners working within a particular occupation and support the development and delivery of consistently high-quality services, to ensure the protection of service users. NOS also help a region's regulatory body, and those contracting services to assess, monitor and evaluate practice. NOS may be used by employers to create job descriptions for new staff, for workplace coaching, or performance appraisal (Carroll & Boutall, 2011). They may also be useful for individuals when researching different jobs that match their skills or experience, and for awarding bodies when creating qualifications for training (Carroll & Boutall, 2011; UK Commission for Employment and Skills, 2014).

NOS in Context

i. NOS and Existing Standards and Organisations

When working towards licensure of behavior analysts, Martin and Carr (2020) outlined how virtually all current licensure systems incorporate BACB standards. Similarly, it is likely that countries developing NOS in applied behavior analysis (ABA) may decide to utilize (but not replicate) publicly available BACB documentation (e.g., task list, ethics code) as resources when developing their NOS. It is prudent for behavior analysts to explore professional licensure in other countries also as they make plans to develop their NOS. For example, behavior analysts completing benchmarking in Europe may look to the Czech Republic which, in September 2017, became the first country in Europe to recognize the profession of behavior analyst within its legal system, with levels that align

with BACB designations (Pančocha & Vaďurová, 2018; Roll-Pettersson et al., 2020). Additionally, European behavior analysts should liaise with other national associations, such as affiliated chapters of the European Association for Behavior Analysis (European Association for Behavior Analysis, 2022), to contextualise and align efforts in the development of NOS.

ii. NOS and Education

Roll-Pettersson et al. (2020) outlined the importance of an appropriate unified approach to training in higher education, especially since the BACB's change in international focus. The BACB task lists had provided behavior analysts in academia with a minimum training standard related to behavior analytic content and professional and ethical standards. Given that the establishment of behavior analysis as a profession depends on how behavior analysts are trained (Martin & Carr, 2020), it is crucial that the quality of ABA training is maintained at a high level as countries develop their own local, national or regional NOS.

Qualifications for training that are developed based on NOS may potentially promote mobility of credentialed individuals within and across different national/international systems. In Europe, behavior analytic faculty may consult with the website of the European Network of Information Centres in the European Region and the National Academic Recognition Information Centres in the European Union (ENIC-NARIC, 2022). This website was developed by the European Commission, the Council of Europe and UNESCO with a goal to provide information on current issues related to international academic and professional mobility, including the recognition of foreign qualifications.

The NOS developed at national level will need to be recognised within the context of the country's National Qualifications Framework (NQF), and for behavior analysts in EU countries, the NOS should also be mapped on to the European Qualifications Framework (EQF) to promote mobility across member states (European Union, n.d. a). The EU developed the EQF to make national qualifications easier to understand and to support the mobility of professionals across Europe. The EQF "helps improve transparency, comparability and portability of people's qualifications" (European Union, n.d. a). and makes it possible to compare qualifications across levels of education from different countries and institutions. This comparison can be made across levels of education, as opposed to the specific content being taught. For academics establishing coursework in behavior analysis, it is recommended to communicate with other established programs in the region to ensure alignment with the necessary frameworks.

Challenges Faced when Developing NOS

Green and Johnston (2009) believe that "the critical issue is not whether licensing applied behavior analysts is appropriate, but how and when it should be pursued" (p. 63). Both developed and developing countries face a number of challenges, both in designing national professional occupational and training standards, and related assessment systems:

i. Local, National, or Regional Approach

NOS should be created to be appropriate for the local conditions, given that each region has its own culture, legal framework, regulatory requirements etc., and this is an important consideration even across a unitary organisation such as the European Union (EU; see, Roll-Pettersson et al., 2020). It is also necessary that NOS reflect the availability of resources needed to sustain the established standards framework. Fretwell et al. (2001) outline challenges that may specifically be faced by developing countries and suggest that these countries may decide to first start with pilot activities at the local level in occupations that are high priority, before then moving to a national approach. One potential risk with such local development is that it “may lead to fragmentation and duplication and may not promote internal and external labor mobility” (Fretwell et al., 2001, p. vii). In other words, portability or mobility for a professional may be limited when the standards met locally are not recognized nationally, and the standards met or license earned in one region may not have any legal merit if they move elsewhere to work (Green & Johnston, 2009; Moore & Shook, 2001).

ii. Stakeholder Involvement

Fretwell et al. (2001) outline the need for involvement by stakeholders (e.g., service users, employers, professional associations, government employers and regulators, education and training institution representatives) to ensure that the process is demand- and output- driven. This stakeholder involvement should be formalized at an early stage in the NOS development process. Maintaining employer involvement may be difficult, however, especially given that “national systems can take 3–5 years to develop before they have an impact on education, employment and training” (Fretwell et al., 2001, p. vii). It is advisable that multiple sources of market information be employed to prioritize standards for development. If other sources of data cannot be obtained, Fretwell et al. (2001) recommend the use of qualitative employer surveys.

iii. Number of ABA Practitioners

The region should have enough ABA practitioners to warrant the initial development of NOS. Green and Johnston (2009) warn that there is little need to advocate for regulation or licensure of the field if the number of behavior analysts who would actually qualify is relatively small. This is also something that needs to be considered when developing a rationale for the creation of the NOS.

iv. Obtaining Assistance

Green and Johnston (2009) outline the potential challenge of recruiting “friendly legislators” and “skilled lobbyists” when trying to secure licensure, as collaboration with non-behavior analysts is also key when developing NOS. Few behavior analysts are trained in the development of such standards, and therefore it is wise to seek assistance from professionals in the fields of standards-development testing and assessment (such as

psychometricians) who are also organized and skilled facilitators of productive discussion.

v. Funding

Green and Johnston (2009) warn about the need for “bags of money” (p. 61) when pursuing licensure laws. Similarly, funding must also be available for development of the NOS and the recurrent expenses to ensure sustainability. Costs will vary depending on the region and the size and type of the occupational sector. These costs would mainly be dedicated to any hospitality requirements as well as consultancy fees when: (i) forming and convening a Sector Advisory Council (SAC) or national equivalent; (ii) paying professional consultants to work with the SAC, conduct additional benchmarking research etc.; (iii) convening Subject Matter Experts (SMEs) to develop and review the standards, and (iv) convening more senior SMEs as validators – ideally individuals with many years of professional experience and high level qualifications. These costs should all be covered by the Qualification Authority at national level, not by the industry sector requiring the standards.

The Five Phases of NOS Development

There are five phases for developing standards – preparation, development, review, validation, and endorsement – which can be broken down into 20 discrete actionable steps (see, [Figure 1](#)). The model outlined applies to regions that have an existing infrastructure in place to support NOS development.

A case example will be used to illustrate these five phases, describing the development of NOS for Applied Behavior Analysts (ABAs) in the UAE in the Middle East. As of September 2022, there are over 900 BACB certificants in the UAE (including Registered Behavior Technicians), which is approximately 14% of the current total number of BACB certificants outside of the USA, Canada, Australia and the UK (BACB, 2022c). The authors acknowledge that there is likely to be substantial variability across regions based on culture, regulatory frameworks, and current behavior-analytic infrastructure, which may necessitate different approaches to the development of NOS. The purpose of the current case study is to demonstrate how the steps outlined in [Figure 1](#) were followed by a group of behavior analysts in a region which has a supporting and existing infrastructure in place to develop standards for the practice of ABA and the training of future behavior analysts outside of the USA, Canada, Australia, and UK.

The first author has a doctorate in ABA, is a Board Certified Behavior Analyst®, and is the coordinator for the only university-based academic training program in behavior analysis in the UAE at the time of writing. The second author is not a behavior analyst but a Standards and Qualifications Development Expert, with previous experience of successfully coordinating eight other NOS in the UAE (including standards for special and inclusive education teachers, teachers of the deaf/hard of hearing, educational and vocational counsellors, vocational teachers, early childhood educators, educational psychologists, gifted and talented teachers, and child protection officer/specialists).

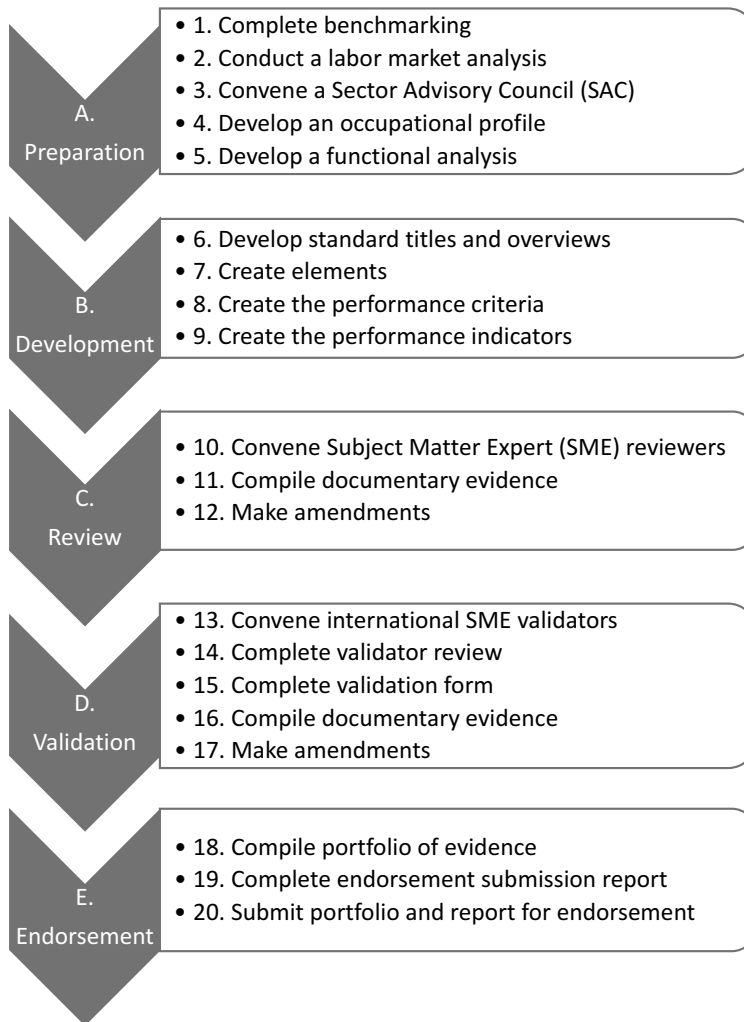


Figure 1. An overview of the 5 phases of developing national occupational standards.

Phase A: Preparation for Development of NOS

Step 1: Complete Benchmarking

Developing NOS “from scratch” and trying to “reinvent the wheel” is effortful, time-consuming and ultimately is unnecessary and does not make sense (Carroll & Boutall, 2011, p. 42). Therefore, the first step in developing NOS is to conduct desktop research by benchmarking (i) within the same region across disciplines with existing developed standards, and/or (ii) within the same discipline from other regions. Adapting selected standards can “save resources, speed development, help ensure the quality of standards, and facilitate labor mobility” (Fretwell et al., 2001, p. 41).

Given that many countries and organisations may have invested a significant amount of time, money and effort into developing standards, professional associations may be necessary to facilitate such benchmarking linkages (Fretwell et al., 2001). Alternatively,

many international NOS are publicly available. For example, the EU provides links to access the NQF of 36 countries (European Union, n.d. b) and there are almost 23,000 NOS which have been developed by the standard setting organisations in the UK and are available in a publicly accessible repository (The Skills Development Scotland Co Limited, 2022). Fretwell et al. (2001) reviewed the following standards systems in their framework (pp. 53–60): Canada, Chile, Germany, Japan, Malaysia, New Zealand, Philippines, Romania, UK, and the USA.

Step 2: Conduct a Labor Market Analysis

Prior to the development of NOS, the project coordinator and SAC need to gather labor market information to ensure that the standards adequately reflect the current state of the occupation within the region in question. A labor market analysis is conducted in order to identify the need for NOS and provide the basis for a needs statement, to establish the scope of the profession, and to identify a representative sample of stakeholders from across the region to participate in a standards review. When conducting the analysis, the following elements should be considered: (i) Is the occupation in high demand? If so, this makes it a high priority for standards development; (ii) Is the occupation changing rapidly? If so, this means that existing standards likely need updating; (iii) Does the specific occupation represent a large percentage of the work force? (iv) Does the occupation require specialized skills for their performance?; and (v) Is the occupation in a new emerging field of work? (Fretwell et al., 2001). The outcomes of the labor market analysis will provide the starting point for the development of an occupational profile, a functional analysis, and eventually the NOS.

Step 3: Convene a Sector Advisory Council

The next step is to recruit a panel of occupational SMEs residing within the specific region to form the SAC. These SAC members should be representative of the field and selected on the basis of a variety of representational dimensions such as gender, location, employer, expertise, and qualifications. SMEs are typically volunteers who have sufficient experience and wish to give something back to their field (Johnston et al., 2014).

Step 4: Develop an Occupational Profile

After conducting a labor market analysis, the next step is to complete an “occupational profile”. This provides a summary overview of an occupation at a national level (National Qualifications Authority, 2014) and “identifies the key functions and basic job duties of a profession at a particular point in time [...] the mainstream activities generally accepted by practitioners” (Johnston et al., 2014, p. 5). It does not represent a specific job (e.g., clinical supervisor, behavior therapist), but represents the national combination of an array of jobs that align to the occupation. When developing this occupational profile, check with the relevant authorities in your region of residence to ascertain if they have a template you must use. For example, in the UAE, the NQA (2014) provides a template (pp. 71–72).

An occupational profile may include the following: title, description and summary; main activities; knowledge, skills and attributes required; likely work context; qualification/education requirements; required experience; occupation size (e.g., approximately how many behavior analysts are working in the region); indicative salaries; employment outlook/job prospects; and related occupations/job titles/career progression (NQA, 2014, p. 25). The profile would also contain the occupation title as well as the International Standard Classification of Occupations (ISCO) code (International Labour Organisation, 2012). The ISCO organizes all jobs within a country into a clearly defined set of groups according to the tasks and duties required in the job. If the occupation does not align closely enough with anything listed in the ISCO, then it should be a derivative of an ISCO title.

Step 5: Develop a Functional Analysis

Behavior analysts are very familiar, of course, with the term “functional analysis” as it relates to behavioral assessment and the identification of variables that influence the occurrence of problem behavior (Hanley et al., 2003). The usage of this term in the current paper however is specifically related to occupational standards development and starts with identifying the key purpose of a specific occupation and its main functions and subfunctions (Fretwell et al., 2001). Given that the focus is on the function or outcomes, a functional analysis describes what people have to achieve, rather than what they have to do. When conducting a functional analysis, one may start with functional mapping (although this is optional). This begins with the key purpose statement and then the identified functions are mapped out, typically in an illustrative flow chart (see examples in Fretwell et al., 2001, p. 49; Carroll & Boutall, 2011, pp. 26–28). As mentioned earlier, it is likely that BACB standards and documentation will be used as resources. It will be necessary to (i) edit the NOS to ensure that ABA can grow within that particular region taking into account its available resources, and (ii) contextualize the NOS to ensure they are “sufficiently sensitive to practices across cultures” (BACB, 2022a, p. 2).

Phase A: UAE Case Example

The second author completed desktop research and benchmarking with the other NOS developed in the UAE. The first author was recruited to lead the SAC and selected and recruited three additional female SMEs and one male SME, including three practitioners and one academic employed at four different organisations, from across two Emirates of the UAE. The current authors conducted a labor market analysis (needs analysis) by compiling the following data: (i) the number of behavior analysts working in the UAE; (ii) the number of centers that deliver ABA-based intervention; (iii) the number of clients being served (and on waiting lists) for ABA centers; and (iv) the different roles served by behavior analysts.

Phase B: Development of NOS

This phase of development should be streamlined so that NOS are produced quickly enough so they remain up-to-date and relevant to the needs of the occupation in

question. Carroll and Boutall (2011, pp. 55–57) offer the following useful, practical tips for writing style when developing NOS:

- Avoid long sentences by making the average length of sentences 15–20 words
- Use words your readers are likely to understand
- Use only as many words as you really need
- Use the active voice unless there is a good reason for using the passive
- Reduce cross references to a minimum
- Use vertical lists to break up complicated text (as in this list)
- Be consistent in the words you use, as synonyms can lead to confusion.
- Avoid abbreviations and acronyms
- Don't refer to specific legislation or regulations as these might change before the NOS are updated
- Check “gender, ethnic, or other bias [...] and that the language is inclusive and does not limit access” (NQA, 2014, p. 101)

These tips should be considered when developing the key components of a standard which include: (i) title and overview, (ii) elements, (iii) performance criteria, and (iv) performance indicators. It is possible that specific standards-setting organisations may require additional components such as a glossary, values, and links to other NOS (Carroll & Boutall, 2011), so it is wise to research requirements during phase A.

Step 6: Develop a NOS Title and Overview

The NOS title should be an accurate description of the content and it should be immediately apparent to the reader what it will include. Although it is fine to use technical language, it is wise to remember that non-experts in your field might need to understand the standard titles and content if their occupation is related (Carroll & Boutall, 2011). The brief overview supplements the NOS title by providing extra detail, including the standards purpose, what it contains, and also may explain some of the terminology used in the main body of that particular standard (see examples in Carroll & Boutall, 2011, p. 60).

Step 7: Create Elements

The NQA (2014) recommends that each standard has between three to ten elements which “describe the more detailed outcomes that learners’ knowledge and skills are assessed against” (NQA, 2014, p. 100). To successfully master each standard, an individual must achieve all of the learning outcomes described in the elements. The NQA (2014) emphasize the importance of elements being written using short sentences and to be “clear, unambiguous and accessible” (p. 100) as they inform individuals of expectations for what they need to know and do, as well as guide assessment plans for each specific standard within the NOS. Elements should be measurable and observable and ideally begin with a single action verb such as the following examples taken from the UAE standards for ABAs: “select”, “implement”, “measure”, “analyze”, “design”,

“supervise” and “identify”. The NQA (2014, pp. 102–103) provides a comprehensive list of 186 verbs that could be used that align with Blooms Taxonomy and span across cognitive, affective and psychomotor learning preferences.

Step 8: Create the Performance Criteria

Once the elements are written, the next step is to construct performance criteria. These are evaluative statements which detail the required level of performance to successfully achieve the elements. For example, in the UAE Standards for ABAs, one of the three performance criteria for the element “Interpret data from experiments” is “Interpret statistical analysis (where applicable)”. The criteria outline what is required for competent performance of the elements and include the activities, skills, and knowledge needed. Performance criteria should include three parts: (i) observable and measurable behavior, (ii) the condition (e.g., using ____, given ____), and (iii) the standard, that is, how well the individual is expected to perform the behavior. These performance criteria need to be applied to and consistently practiced within the employment setting.

Step 9: Create the Performance Indicators

Performance indicators are not always required when developing NOS and it is advised that NOS developers check with the awarding entity in their region before proceeding with this step.

Performance indicators are used to assess the performance and progress of a person against the performance criteria within a standard. Performance indicators communicate the expectations for each responsibility area of a job through the performance criteria. When a performance indicator addresses the performance criteria, a specific element is simultaneously addressed. In addition, a performance indicator is a type of performance measurement that helps to identify the level of performance within a standard. Therefore, it is very important that performance indicators are written clearly and are specific so that employees can more easily adhere to them.

Performance indicators also need to be written so they are “measurable” and conform to the SMART goals and criteria concepts. SMART goals are those which are: “1) Specific – define exactly what is being pursued?, 2) Measurable – is there a number to track completion?, 3) Attainable – can the goal be achieved?, 4) Realistic – doable from a business perspective, and 5) Timely – can it be completed in a reasonable amount of time?” (Lawlor & Hornyak, 2012, p. 259).

When creating performance indicators, there should be a focus on the position and the job functions, and not on the actual individuals, so that multiple people in the same position should all have the same performance standards to be held accountable to. There needs to be a decision about which tasks are important enough to warrant inclusion in the standards and then performance indicators should only be created for these tasks with parameters set for performance level.

Phase B: UAE Case Example

The development of the NOS are generally a reflection of the functional analysis and map created but are not necessarily a complete duplication. In the case of the UAE standards for ABAs, the functional analysis and the standards were the same, and a functional map was not completed. The SMEs researched and identified the knowledge, skills, and competencies in the forms of elements, performance criteria and performance indicators.

The five SMEs developed the occupational profile using the template provided by the NQA (2014, pp. 71–72). Upon reviewing the handbook published by the Ministry of Presidential Affairs/ Ministry of Presidential Affairs/ National Qualifications Authority (2012), the SMEs labelled the occupation as “Applied Behavior Analyst (ABA)” and indicated that its closest related occupation was “Psychologist” (ISCO #2634; International Labour Organisation, 2012, pp. 162–163). For related occupations we included the following list (and specified that there may be other titles not listed that would also be suitable): behavior analyst, behavior support specialist, behavioral consultant, behavior technician, ABA therapist, behavioral scientist, behavioral engineer, behavioral psychologist, behavioral instructor, researchers, and assistant/associate/full professors.

The SAC listed the examples of allied occupations as including (but again, not limited to): speech and language pathologist, occupational therapist, physical therapist, medical doctor, psychologist, psychiatrist, social worker, learning support assistant, and educator. The Occupational Profile also required a discipline code (see, NQA, 2014, p. 97) and the SMEs decided to select “O- Education Services”. The SAC selected sector code “F-Education, Learning and Social Development” and sub-sector “F-22- Educational Consultancy” (see, NQA, 2014, p. 98).

The SAC reported that the indicative salary for ABAs in the UAE was “higher than the industry average (5% to 30% higher)” (NQA, 2014, p. 71). The other options provided were “The same as the industry average” and “Significantly higher than the industry average (over 30% higher)”. We rated the employment outlook/ job prospects as “very good”, on a 4-point likert scale ranging from “below average” to “very good”.

When developing the titles for the standards called National Occupational Skills Standards (NOSS) by NQA (2014), the SAC was informed that the NQA required that they include standards related to ethics, knowledge and practice. They were also supplied with established standards in other disciplines to align with and refer to. See, [Table 1](#) for a list of the standard titles and overviews created by the SAC in the UAE, which includes a standard related to “professional growth, community collaboration, and dissemination”.

Phase B was a lengthy stage of development for the SAC and required multiple meetings to discuss, review, and edit the elements, performance criteria, and performance indicators. See, [Table 2](#) for examples from each of the six standards developed, reviewed, validated, and endorsed for the UAE.

Phase C: Review of NOS

The objective of this stage is to seek and convene SMEs and practitioners to review the NOS content and technical development appropriateness.

Table 1. Title, overview, number of elements, and page length of each unit in the UAE standards for Applied Behavior Analysts (ABAs).

Standard #	Standard Title	Standard Overview	No. of Elements	Page Length
1	Professional and Ethical Conduct	Applied Behavior Analysts (ABAs) demonstrate commitment to the UAE heritage and cultural values; and personal and professional ethics, exemplified by integrity, respect, fairness and commitment. ABAs engage in responsive ethical and professional decision-making; collaborate with other professionals; and apply professional work characteristics needed for effective practice as ABAs, including respect for human diversity, appropriate business etiquette, communication skills, effective interpersonal skills, and responsibility, adaptability, initiative, dependability, and technology skills.	3	2.5
2	Professional Knowledge in Applied Behavior Analysis	Applied Behavior Analysis (ABA) is a science grounded in several core principles of behaviors. These core principles include reinforcement, punishment, extinction, motivation and stimulus control. This section is focused on establishing a professional knowledge base of applied behavior analysis, which includes philosophical underpinnings of the science, concepts and principles, measurement, data display, and interpretation, experimental design, and assessment.HT	5	4
3	Professional Practice in Applied Behavior Analysis	Applied Behavior Analysts (ABAs) demonstrate skills that provide services consistent with ethical, legal, and professional standards in many fields of practice including, but not limited to education, special education, health and performance, and organizational behavior management. In all professional practice, ABAs should adhere to the standards below related to assessment, selecting and implementing interventions, behavior change procedures, measurement, data analysis and evidence-based practice.	6	6
4	Professional Growth, Community Collaboration, and Dissemination	Applied Behavior Analysts (ABAs) engage in professional development activities that will expand their behavior-analytic skills beyond the requirements for initial certification and help them stay up to date on developments in the profession. ABAs reflect on their own performance and seek professional supervision from more experienced and qualified behavior analysts and professionals from other fields. ABAs collaborate and engage with community stakeholders and other licensed service providers by developing potential solutions to address goals of the client and the community at large. ABAs take responsibility to disseminate the science of human behavior to the public at large through the use of easy-to-understand explanations. ABAs promote behavior analysis in a positive and accurate light, to help society realize its potential.	4	1
5	Personnel Supervision and Management	Applied Behavior Analysts (ABAs) engage in regular supervision and collaboration with other professional colleagues to ensure performance of targeted behavior analytic tasks are of expected quality and proficiency. ABAs use supervision as an essential tool for developing, maintaining, and expanding their behavior analytic repertoires. This includes identifying and improving areas of limited experience or knowledge, gaining a deeper understanding of the application of behavior analytic principles, understanding the past and present uses of behavior analytic principles, and engaging in activities that support the growth in the field.	3	2
6	Research in Applied Behavior Analysis	Applied Behavior Analysts (ABAs) at all levels are encouraged to participate in research to add to the existent literature base and to publish findings that may be particular to the UAE culture. For those who are engaging in research, the following standards apply.	4	1.5

Step 10: Convene SME Reviewers

The SAC convene a review process to select other SMEs across the relevant region. Such reviewers are identified by vetting potential reviewers' curriculum vitae to check appropriateness of individual reviewers' experience and qualifications.

Step 11: Compile Documentary Evidence of the SME Review Process

According to the NQA (2014, p. 18), the following information should be documented and saved during the review process: (i) details of the review sessions including dates, times, locations; (ii) information about the reviewers including their names, job titles, employers, qualifications, and experience; (iii) records of the documents given to reviewers as well as their responses, comments and any amendments made resulting from their feedback; and (iv) the final approved version of the NOS to be forwarded for validation.

Step 12: Make Amendments

The SAC amends the NOS as required based on the feedback provided by the SME reviewer groups and produces a second draft of the standards.

Table 2. Examples of elements, performance criteria, and performance indicators for the UAE standards for Applied Behavior Analysts (ABAs).

Standard	Element	Performance Criterion	Performance Indicator
1	1.1 Respect and promote UAE values	1.1.1 Respect and promote UAE heritage and culture, including Islamic values and laws.	1.1.1.2 Implement policies and procedures that promote appreciation of the heritage and culture of the UAE into behavior analytic services within the context of schools, clinics, agencies, and other community-based programs.
2	2.5 Develop knowledge regarding Experimental Design	2.5.3 Demonstrate knowledge regarding Single Subject Experimental Designs (SSED)	2.5.3.5 Demonstrate knowledge of data interpretation, including the identification of functional relations, from common SSEDs.
3	3.1 Plan and conduct ethical assessment	3.1.4 Work with others during the assessment process.	3.1.4.3 Demonstrate the ability to interpret and explain assessment results to stakeholder/funder in non-technical language
	3.3 Implement behavior change procedures	3.3.5 Implement behavior change procedures for groups	3.3.5.2 Use Active Student Responding strategies during group instruction.
4	4.2 Engage in self-reflection	4.2.1 Self-assess to identify areas of required professional development in relation to national and international standards of practice.	4.2.1.2 Seek supervision/collaboration from more experienced/qualified Applied Behavior Analysts to address areas of growth that are not within one's scope of knowledge.
5	5.1 Supervise personnel	5.1.1 Define expectations for supervisory relationship between supervisor and supervisee.	5.1.1.5 Model professional behavior by acknowledging and following up on supervisee feedback.
6	6.2 Design and monitor experiments in ABA	6.2.1 Design experiments in ABA.	6.2.1.1 Match experimental design to research question.

Phase C: UAE Case Example

At the beginning of Phase C, SME reviewers were invited to participate in a 3-day standards' review committee process by the second author. Due to the COVID-19 pandemic, this process was all conducted online, to ensure the safety of the reviewers. Background information on the process was provided online during Day 1. During Days 2 and 3, the reviewers were placed into groups of 5/6 and asked to review the knowledge, skills, and competencies and additional information in the NOS to meet current and future industry requirements and standards. Reviewers were instructed by the second author to make edits, deletions and insertions on each standard using track changes which each reviewer considered necessary based upon their expertise. At the end of Day 3 (at the latest), each SME group submitted a draft of revised standards. A total of 53 SME stakeholders in the UAE were involved in and signed off on the review of the NOS.

Phase D: International Validation of NOS

The objective of this stage is to obtain validation that the NOS are well suited for their designated purpose and meet the needs (present and near future) within a particular occupational field and sector within a region (NQA, 2014).

Step 13: Convene International SME Validators

A list of high-level international SME validators is researched and produced to participate in the specific professional standards validation process. Ideally, highly credentialed validators are invited from across the globe who possess a doctoral level and a significant number of years' experience in the specific professional standards field. Validators then accept (or reject) their invitation to participate in the validation process.

Step 14: Validator Review

The validators will assess if the standards are appropriate and of the quality and level required for that particular occupation or profession. The SME validators' role is to assess if the NOS meet the needs of industry, education, society, employers and employees. If a set of NOS are not validated during this phase, they should be sent back to the SAC for further review and editing as required (NQA, 2014).

Step 15: Complete Validation Form

Validators review the draft of the specific NOS in accordance with criteria set out in the validation form supplied. Validators complete the validation form after analyzing the NOS content in terms of knowledge, skills, competencies and technical appropriateness to ensure the standards are fit-for-purpose. Validators are also permitted to make comments, recommendations and changes to the NOS before signing off on the validation form. Validators forward the validation form and any recommended amendments to the SAC to embed final changes, if applicable, and to produce the final draft of the NOS.

This validation form and the NOS are then submitted to an NQA (or equivalent authority) for endorsement and listing on a regional database.

Step 16: Compile Documentary Evidence of the International Industry Validation Process

Similar to phase C, Step 11 outlined above, the following information should be documented and saved during the validation process: (i) details of the validation sessions including dates, times, locations; (ii) information about the validators including their names, affiliations, and relevant qualifications and experience; (iii) records of the documents given to validators, (iv) completed validation forms, and (i) the final validated version of the NOS to be forwarded for endorsement (NQA, 2014, p. 19).

Step 17: Make Amendments

The NOS coordinator amends the NOS as required based on the feedback provided by the SME validators and produces a third draft of the standards.

Phase D: UAE Case Example

The SAC recommended a wide range of international validators and ten BCBA-Ds from the UK, USA, Australia, and Ireland, agreed to validate the UAE standards for ABAs. The signatures of the 63 reviewers and validators were submitted to the Ministry of Education and NQA under the following text drafted by the second author and signed by the first: “The Applied Behavior Analyst Standards for the UAE have been developed, reviewed and validated as per the below listed Reviewers and Validators to ensure Applied Behavior Analysts, at different career stages, can demonstrate professional competence that aligns with the aspirations of the UAE Vision 2021 and international best practice. This document outlines the standards and elements elaborated through performance criteria. The performance indicators are provided as samples of activities that address each standard. The list of performance indicators is not exhaustive, is not intended to be prescriptive, and is not intended to be an assessment checklist. Furthermore, professionals/practitioners are not expected to demonstrate each performance indicator. The standards detail the specific expectations pertaining to all Applied Behavior Analysts in order to enable them to accomplish a high standard of behavior analysis within an educational context”.

Phase E: Endorsement Process by a NQA and Framework

The objective of this stage is to obtain official endorsement by an NQA in the relevant region.

Step 18: Compile Portfolio of Evidence

The NOS coordinator should provide the NQA with a portfolio of evidence for each step completed. This should include a cover letter and an executive summary (NQA,

2014). The executive summary should include a brief summary of the NOS development, including information about the initiating entity, key aspects about the industry in question, any noteworthy issues experienced during the development process, and the rationale for why particular occupations/functions were selected.

Step 19: Complete Endorsement Submission Report

The NOS coordinator should also complete an endorsement submission report presented in a commentary style outlining the story of the development and validation of the NOS being submitted (NQA, 2014). The report should also confirm that the NOS are unique to the region, and are specifically designed for the region, even if they comprise international standards.

Step 20: Submit Portfolio and Report for Endorsement

The NOS coordinator should then submit the portfolio and report for endorsement. At this point, the NQA will review the evidence provided to ensure it is complete and appropriate. They will also check to ensure that adequate consultation has been completed with industry and other relevant stakeholders throughout phases A to D, that is, during the preparation, development, review, and validation steps of the process (see, [Figure 1](#)). There are two possible outcomes of this endorsement phase: (i) endorsement is denied and detailed actions are provided to the SAC, or (ii) the NOS are approved and published as “Endorsed NOS” on the relevant regional database. If edits are required, these should be completed to ensure that the standards receive full endorsement.

Phase E: UAE Case Example

The final NOS document in its entirety is 20 pages long, much longer than the typical 6 pages suggested by Carroll and Boutall (2011), and was officially endorsed by the National Qualifications Council in November 2021.

Conclusion

Given the BACB’s decision (BACB, 2022a) to revise their international focus, it is now incumbent on behavior analysts to develop their own regional and culturally relevant standards for the practice of ABA that will help promote the future growth of the science. Twenty discrete actionable steps for developing NOS were described across five phases: preparation, development, review, validation, and endorsement. The UAE case example provides an overview of this model for creating NOS in the hope that this information will act as a useful resource for behavior analysts who need to know where to start with such a mammoth task, although this is just one way in which this considerable task may be accomplished in a region with an existing and supportive infrastructure.

Ethical Statement

The current submission is a conceptual paper with no human participants. Therefore, no approval was required from an Institutional Review Board.

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ORCID

Michelle P. Kelly  <http://orcid.org/0000-0001-9235-7389>

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