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Higher education and behavior analysis in Europe: creating a unified approach for the training of autism professionals

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ABSTRACT

Training of behaviour analysts for autism services, has improved notably within a European higher education context. However, regional discrepancies associated with economic, health care, social services, and institutional policies magnify the importance of creating appropriate unified training and consumer protection. Although the European Association for Behaviour Analysis (EABA) has endorsed the Behavior Analyst Certification Board's (BACB) designations, the absence of European and national regulations, recognition, and accreditation remain significant barriers to quality training and implementation. These challenges are particularly pertinent in light of BACB decision to limit certification to residents in the USA and Canada after 2022. Advances, challenges, and future directions are discussed within the context of higher education in the United Kingdom, the Czech Republic, Greece, Iceland, Italy, Norway, and Sweden. The post-Bologna European agenda for higher education, globalization and opportunities for the training of behaviour analysts within European higher education are outlined.

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Introduction

Approximately 7.4+million Europeans (1% of the population of n = 740+million) is estimated to be on the autism spectrum, with prevalence among regions varying. For example, Iceland reports 2,67% (Autism-Europe, 2017), in the UK, a secondary data analysis of the Millennium Cohort Study (Smith & Joshi, 2002) reported autism in 3,5% of 11-year-olds (Dillenburger et al., 2015), and a recent study within the Stockholm region of Sweden reports a prevalence of 3,1% (Centrum för epidemologi och samhällsmedicin, Stockholms Läns Landsting, 2017). The enormous estimated cost in terms of individual lifetime accommodations, reduction of parental employment, and

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family well-being highlights the urgent need for societies to effectively coordinate early intervention provisions and autism services as they "have the potential to reduce later high expenditures by changing the developmental trajectory of the disorder or the needs associated with it" (Buescher et al., 2014, p. 727).

Autism-Europe (2017) emphasises the importance of developing unified and holistic strategies for early detection and effective interventions across the lifespan. Collaboration is encouraged between member states to develop best practice guidelines, common professional training standards, research agendas, as well as support networks of experts, educators, advocates, and parents. The accumulated empirical knowledge base endorses intensive behaviour analytic interventions (IBI[1]) as optimally effective for children diagnosed with autism, enhancing socio-communicative developmental trajectories, and their ability to learn from the natural environment (Dillenburger, 2011; S. Eldevik et al., 2006; Fein et al., 2013; Makrygianni et al., 2018).

The complexity of the European context in general, and in higher education in particular, makes achieving a unified approach for training behaviour analysts a daunting task. Europe is made up of differing cultures, traditions, languages, and identities between member countries that also differ in terms of geographic location, gross national incomes, religion, and ideological and political structures (pre-post communism, capitalism, socialism). The current European Union, formally established in 1992, comprises 27-member states which form a common economic and social alliance. Historical tensions and structural differences affect the acceptance, design, implementation, and advancement of training standards for all professions, including behaviour analysts generally and, specifically, those who work in the field of autism. However, while such diversity complicates matters, it also offers enormous possibilities for the exchange of expertise and perspective. The authors of this paper provide snapshots in time of perspectives and experiences from seven European countries. We explore the history, opportunities, and challenges of providing training in behaviour analysis in our countries and present suggestions for a unified way ahead.

Higher education

Essential to assuring high-quality autism interventions is the training of competent Behaviour Analysts. Competence entails both a theoretical understanding of the concepts and principles of behaviour analysis and the ability to develop and evaluate scientifically sound procedures that are effective, ethical, and responsive to the individual and his/her natural environment (Dillenburger, 2016; Leaf et al., 2016). In most European countries, behaviour analysis is not officially recognised as a profession (Kelly et al., 2018) and there are a limited number of higher education institutes with degree programmes designed to produce competent behaviour analysts, let alone with concentrations in autism.

Lack of training facilities has led to individuals with no proper behaviour analytic training claiming to be experts in behaviour analysis and inflicting harm, not only to individuals with autism and their families but also to the standing of the whole profession (see Dillenburger, Röttgers et al., 2014; Keenan et al., 2015). Lack of local training also affects the cost to families who consequently depend on foreign behaviour analysts to compensate for lack of expertise within their own country. Families lacking the economic

resources to finance this kind of expertise are particularly adversely affected (Dillenburger et al., 2016).

The Bologna Declaration (European Higher Education Area, 1999) was one means to improve the quality of higher education across Europe. The Declaration was signed by ministers of higher education from 29 countries who agreed to strengthen higher education in Europe by setting standards, promoting shared democratic values, creating a sense of EU community, and increasing international intellectual competitiveness. The Bologna Declaration has led to free movement among students, teachers and researchers, the promotion of joint curricular developments, and integrated programmes of study research and training (European Higher Education Area, 1999). Through this process, a common credit system has emerged at three-degree levels: bachelor (or equivalent), Master's (or equivalent), and doctoral (or equivalent). The European Higher Education Area (EHEA) has been extended to include 48 official signatory nations, including non-European countries such as Georgia, Turkey, and Russian Federations; Ukraine and Belarus are the most recent to sign in 2015 (European Commission/EACEA/Eurydice, 2018).

While the Bologna Declaration created standards and mechanisms for quality assurance, vast differences exist between nations in terms of political, cultural, and academic contingencies effecting the development of higher education programmes. For example, some countries invest five times more public monies per student than other countries (European Commission/EACEA/Eurydice, 2018). There are also substantial differences in regard to investments in research and development, academic freedom, and institutional autonomy.

Intervention services

There is a close relationship between intervention services and professional training in higher education. Behaviour analysts study the science of behaviour analysis on both micro and macro levels by learning to identify and arrange independent variables that influence how "organisms" relate to their environments. This knowledge promotes effective, empirically supported professional practices and at the same time helps us understand the processes that maintain ineffective practices (Dillenburger, McKerr et al., 2014). Training content in higher education should also cover cultural histories and rituals, societal policies as expressed in legislative acts, guidelines, recommendations, funding policies, and inter-organisational connectiveness (see Upvall & Bourgault, 2018).

While there have been some notable advances in behaviour analysis and autism in higher education in Europe (Dillenburger, 2015), challenges remain that are associated with differing economic, organisational systems, health care, social services, institutional policies, and inequalities. Although the European Association for Behaviour Analysis (EABA[2]) has endorsed the Behavior Analyst Certification Board's (BACB) professional designations, the absence of national and European regulations, recognition, and accreditation remains significant barriers to quality training and implementation of evidence-based behaviour analytic interventions. This problem has come into sharp focus since the BACB decided that at the end of 2022, "initial BACB certification applications will no longer be accepted from individuals who reside outside of the U.S. and Canada." (Behavior Analyst Certification Board (BACB), 2020). In other words, after 2022, those

not resident in the USA or Canada will no longer be able to become Board Certified Behavior Analysts (BCBA).

History, present state, and future directions in relation to higher education training and autism interventions are outlined for the United Kingdom of Great Britain and Northern Ireland, the Czech Republic, Greece, Iceland, Italy, Norway, and Sweden. The authors of each of these sections played a significant role in the development of behaviour analysis training in their respective countries. While each of their accounts provides a concise overview, we hope that in time others will contribute additional information about their efforts to establish a comprehensive picture of behaviour analysis in Europe.

United Kingdom of Great Britain and Northern Ireland (UK)

History of behaviour analysis and higher education in the UK

Although no longer in the EU since 31/01/2020, the *United Kingdom of Great Britain and Northern Ireland* (UK) still remain part of the European continent and compared to some other European countries, it has a relatively long history of behaviour analysis (Hughes & Shook, 2007). The first recorded meeting of the Experimental Analysis of Behaviour Group (EABG, 2018) was held in 1963, although it is said that this was not the first ever meeting (Hughes & Shook, 2007). During this period, the experimental analysis of behaviour and applied behaviour analysis were piloted in various settings (e.g., by Bangor University in Wales and Ulster University in Northern Ireland). However, more focused activities began with the introduction of applied behaviour analysis-based interventions in the field of autism. In Northern Ireland, this development was spearheaded by Keenan and colleagues in 1996, who were working closely with parents of children with autism (Keenan et al., 2000) to set up a local charity that delivered home-based applied behaviour analysis-based programmes (Parents Education as Autism Therapists (PEAT), 1997). Together with an European team of parents and behaviour analysts, they developed the first multimedia online resource SimpleSteps (2013), and culturally and linguistically adapted it to 10 European contexts ("STAMPPP," 2013).

The first BACB verified course sequence in the UK was approved in 2002 and run by a Learning Co-operative between 2003–2006 (Martin et al., 2007). In 2003, the MSc in Applied Behaviour Analysis at Bangor University, Wales, was the first UK University-based BACB approved course aligned to the 2nd edition of the task list (Hughes & Shook, 2007). By 2004, the first cohort of students started the verified course sequence/MScABA at the University of Ulster (now Ulster University) using the 3rd edition of the task list and by 2013 the online/blended learning course sequence/MScABA at Queens University Belfast was verified for the 4th edition of the task list. A verified MScABA course also is offered at Tizard Centre at Kent University. The verified courses at the University of Cardiff and the University of Southampton which were run for a number of years have since been discontinued. Existing courses in the UK now are verified by ABAI (2020) and cover either the 4th or 5th task list. Research centres for behaviour analysis were formed at Bangor University in Wales (WCBA, 2007) and at Queens University Belfast (CBA, 2010). The UK Society for Behaviour Analysis was formed in 2013 to provide a forum for behaviour analysts and to serve as an advocate body in public debate (United Kingdom Society

for Behaviour Analysis (UK-SBA), 2013). In 2019, the UK-SBA established a voluntary register for UK-based behaviour analysts with the aim to have this register accredited by the Professional Standards Authority (Professional Standards Authority (PSA), 2020).

Behaviour analytic autism interventions in the UK

With regards to autism services, there were some early ABA-based schools in England (e.g., TreeHouse, 1997), however, further development was mostly due to the introduction of the Free School policy (Gov.UK, 2014), where parents were able to come together with teachers and propose new ABA-based schools (Lambert, 2013). Much of this work was spearheaded by a growing community of parents (ABA4ALL, 2014), who demanded access to ABA-based interventions to all who wanted it (ABA4All, 2018). Given the structure of health funding through the National Health Service (NHS), there is a conflict of interest for the UK government being in charge of paying for and at the same time providing health services. Most of the progress of early ABA-based intervention was due to parents fighting for funding through the court system (Baker, 2016; Byrne & Byrne, 2005), with the result that some funding became available to individual children. By-and-large, these programmes were then supervised by BCBAs who had either trained in the small number of UK-based verified course sequences (VCS), or in the USA.

The Czech Republic

History of behaviour analysis and higher education in the Czech Republic

In April 2015, there was not a single-certified behaviour analyst in the Czech Republic (population of 10,6 million), when Drs Jana Gandalovičová and Sudheera Magage, Prague-based parents of a child with autism, wrote to Professor Dillenburger of Queens University Belfast (QUB) who was a member of the Board of Directors of EABA at that time (Gandalovičová, 2016). By October the same year, these parents had started collaborating with two UK-based Universities (QUB and Ulster University) and locally, with Masaryk University in Brno. This initial collaboration was possible due to Erasmus+ teacher exchange funding. Together they organised the first ABA conference in the Czech Republic, that was attended by over 400 parents and professionals and attracted considerable attention from the newspapers and Czech television. Meetings with government ministers and a Parliamentary hearing followed. Subsequently, a significant 5-year grant was secured from the Department of Education, to "bring ABA to the Czech Republic". In order to "kick start" the profession, the grant included funding for 15 Czech nationals to study ABA at international Universities (such as QUB and Florida Institute of Technology; FIT); in 2017, a QUB graduate became the first Czech national to become a BCBA. Courses to prepare students to become Registered Behaviour Technicians (RBT) started at Masaryk University and the first Czech verified course sequence was approved in 2017, with the first cohort of students starting their studies in 2018.

Behaviour analytic autism interventions in the Czech Republic

With regards to autism services, the Czech Society for Behaviour Analysis (2016) was founded, the Czech Medical Association signed an undertaking to recognise good quality training in behaviour analysis, and a law was passed in Parliament to regulate all four levels of behaviour analyst professionals (mirroring BACB designations) (Dipuglia et al., 2017; Kelly et al., 2018). This was the first such law in Europe. In 2017, Dr. Jana Gandalovičová received the Autism Speaks International Award and in 2018 she received the Hemmingway Award (Behavior Analyst Certification Board (BACB) Newsletter, 2018), one of the highest public policy awards in the discipline. By 2019, the Czech Republic had a small number of ABA centres for children diagnosed with autism and was working on writing insurance codes to ensure funding for ABA-based interventions. Translations of teaching materials were becoming available (SimpleSteps, 2013) or in progress (Cooper et al., 2020). Generally, ABA practices have become relatively well established in the Czech Republic although much work remains (Kingsdorf & Pančocha, 2020)

Greece

History of behaviour analysis and higher education in Greece

Behaviour analysis in Greece has a rather short history. It has been taught in several public Greek Universities since the mid-1990s, at times as a separate course, but more often as part of other degree courses. For example, the National and Kapodistrian University of Athens offers a graduate programme in special education with an emphasis in behaviour analysis and developmental disabilities.

A number of laboratories conduct behaviour analytic research in Greece, including the Laboratory of Experimental and Applied Behavior Analysis (at Panteion University), where research focuses on behavioural variability, resistance to change, aversive control, consumer behaviour, behaviour therapy, gender identity, and the Laboratory of Special Education and Family Counselling (at the National and Kapodistrian University of Athens), where research focuses largely on Autism Spectrum Disorder. These labs have written or translated several behaviour analytic textbooks into Greek (e.g., Mellon, 2005). In 2010, the 5th Conference of the EABA was held in Crete and in 2015, EABA's first Summer School for behaviour analysis was held also in Crete. Since 2013, the Hellenic Community for Behavior Analysis organises bi-annual national conferences in behaviour analysis. Their President, Professor Robert Mellon, also is a Past-President of EABA.

Overall, teaching capacity for behaviour analysis in Greece is limited. While there are some Greek academics with doctoral degrees in behaviour analysis, due to the extreme economic austerity measures introduced in Greece in 2010–11, there has been a severe scarcity of openings for academic positions in Greek universities generally. Obviously, this had a stifling effect on academic life as well as the dissemination of behaviour analysis in Greece. Encouragingly, in 2019 the Ministry of Education announced a recruitment drive for new academic positions in Greek universities. Thus, we hope that this might be an ideal time to ensure that more behaviour analysts gain academic appointments.

Behaviour analytic autism interventions in Greece

With regards to the provision of behaviour analytic interventions to support children with autism in Greece, special education services have advanced greatly since the late 1990s. Initially, there was considerable resistance to the applications of behaviour analysis. Even though education has been mandatory in Greece since 1926, that was not the case for children with special needs until 2008, when Public Law (2008, Act number 3699) signalled a new era for special education and the inclusion movement led to a dramatic increase of children with disabilities entering public schools.

While there are some standards for the qualifications of support teachers (Greek Ministry of Education) (e.g., fluency in braille for teachers of visually challenged students or sign language for teachers of hearing challenged students), for teachers of students with autism no such standards are available. There is no national Greek accreditation or certification for behaviour analysts. Consensus about standards and credentials for staff is a prerequisite for the establishment of relevant university-based programmes, of course, this also applies to behaviour analysis.

Against this backdrop, some behaviour analytic interventions were available, e.g., at the Athenian Center for Child Development and Education (1997–2010). A number of effectiveness studies was conducted comparing child-related outcomes among preschool-age children (2,5–6,5 years of age) who receive ABA, TEACCH, or eclectic intervention. Results demonstrated improved intellectual functioning for the children who received ABA-based interventions (Makrygianni et al., 2011, 2012, 2017). In 2010, the non-profit Systemic Behavior Analytic Institute was established to (a) help toward the advancement and dissemination of behaviour analytic interventions for children with autism and other developmental disabilities by systematically educating and training professionals in the applications of the science of behaviour analysis and (b) provide therapeutic and special educational services. More than 500 children attended, with the result that almost all of them were able to be included in regular education classes with or without additional support.

In the meantime, there are no means of assessing the qualifications of professionals who claim to be proficient in behaviour analysis. For example, similar to experiences in other European countries, there are visiting professionals who offer brief workshops that lead to attendees claiming competence in the use of specific procedures (e.g., PECS or Pivotal Response Training) with no foundational knowledge or training in behaviour analysis.

In order to address these issues in Greece, (a) the Greek Ministry of Education needs to be persuaded to set standards or credentials for professionals who support students with autism in regular schools, preferably in the form of certification in behaviour analysis and its applications to autism and (b) professionals and parents need to be educated about the importance of acquiring professional credentials in behaviour analysis to ensure optimal therapeutic outcomes for children with autism. This will create recognition of behaviour analysts and the delivery of evidence-based therapeutic and educational support for children with autism.

Iceland

History of behaviour analysis and higher education in Iceland

Iceland is a large but sparsely populated (about 337,350 people) country in the Northern hemisphere. A course on behaviour principles has been taught at the University of Iceland, in Reykjavík since 1976. The pioneer, Dr. Magnús Kristjánsson, "camouflaged" the content of the course by calling it "General psychology II", because the department chair was a psychoanalyst who probably would have objected to a course explicitly on "behaviour analysis". The book "Behavior Principles" (Ferster et al., 1975) by Ferster, Culbertson, and Boren was used even after it was out of print. The name of the course was changed in the 1980s to "Analysis and modification of behaviour" by new psychology faculty who promoted behaviour modification as evidence-based practice for developmental disorders and behaviour problems in schools. However, behaviour analysis was not taught as a scientific field in its own right. In addition to the course on behaviour principles, Dr Kristjánsson taught several other courses where he systematically introduced radical behaviourism. Thus, the undergraduate programme in psychology at the University of Iceland, from its inception, was a behaviourally oriented programme that emphasised critical thinking and a radical behavioural perspective. Furthermore, in 1983, a visiting professor from the University of Minnesota, Dr. Gary Athelstan, taught a course on "Rehabilitation psychology" introducing applied behaviour analysis in the fields of health, head injury, and physical rehabilitation. In 1985, an elective course on single-case experimental methodology was offered that introduced Murray Sidman's (1960) book "Tactics for Scientific Research". These historical events established the background for what was yet to come. They instilled a general positive attitude towards radical behaviourism and a systematic introduction to behaviour principles and behaviour modification. The teaching of behaviour analysis at the University of Iceland progressed in the psychology programme from the mid- to late 1990s with the inclusion of a bi-annual and later a yearly course in single-case methodology, the hiring of a PhD level behaviour analyst, and a shift to the experimental analysis of behaviour in the introductory undergraduate level course in which behaviour analysis is introduced as a scientific field (Pierce & Cheney, 2003/2008/2013/2017; Pierce & Epling, 1998). In 2003, an additional undergraduate elective course on parent training meant that a total of three undergraduate courses with behaviour analytic content were taught every year.

Systematic teaching of applied behaviour analysis and single-case experimental methodology at the graduate level began in 1999 with two graduate courses. They included (1) behavioural assessment, functional assessment, and functional analysis of clients' problems, that is a compulsory course for the degree in clinical psychology; and (2) assessment of and intervention in behaviour and academic problems in schools, with a practicum that provides training in functional assessment of problem behaviours in elementary schools. This course-practicum combo is compulsory for students in child clinical psychology and is open to other Master's students. In addition, Research Master's students can concentrate solely on behaviour analysis since 2008. The first doctoral defence in behaviour analysis in Iceland took place in 2018 at the University of Iceland. At present (2020), every major university in Iceland is involved in teaching and conducting research in applied or experimental behaviour analysis in the field of autism and developmental disabilities, organisational behaviour management (OBM),

behavioural economics, community interventions, in elementary and pre-schools, or in stimulus equivalence.

The Behaviour Analysis Research Lab of the University of Iceland, in addition to promoting research in applied behaviour analysis, has hosted international scientists in behaviour analysis who have held lectures and workshops.

Behaviour analytic autism interventions in Iceland

Systematic application of behaviour analytic services for children with autism began with the Iceland multi-site young autism project in 1995 (Jónsdóttir & Einarsson, 2005). Undergraduate psychology students were systematically hired to work as teachers because of their knowledge of behaviour principles and this trend continued for several years after the project ended. As a consequence of the multi-site project, some version of Early and Intensive Behavioural Intervention (EIBI) has been offered to parents of toddlers with a diagnosis on the autism spectrum in conjunction with the child's pre-school despite protests from many. Depending on needs assessment of each child, a child with autism is offered from 25 to 40 hours per week of Early Intensive Behaviour Intervention (EIBI) may be offered by the community. In addition, some parents also hire psychology students additionally to work in their home.

Supervision provided to psychology students hired to provide EIBI in preschools and homes in the nineties and early 2000s has decreased. Instead, the National Diagnostic and Counselling Centre (NDCC) offers short courses for parents and staff involved in EIBI programmes. Unfortunately, these have replaced most regular staff supervision resulting in the fact that the NDCC cannot ensure that the child is actually receiving EIBI with the fidelity that is necessary. Only two BCBAs provide supervision more regular, high-quality, and systematic on-site supervision by appropriately and sufficiently educated and trained staff delivering EIBI is greatly needed. A special private school for children with developmental disabilities, run by three BACBs and three research masters in behaviour analysis, recently opened.

With regards to staff qualifications, there is no official certification for behaviour analysts in Iceland. A verified course sequence has been available at the University of Reykjavík graduate programme in clinical psychology but graduates have tended not to take the BCBA exam after they receive their license to practice as clinical psychologists. This means that only a small number of BCBAs (n = 8), who are educated and trained in the USA, work in Iceland. Instead, graduates with a Research Master's degree, who are educated in behaviour analysis at the University of Iceland, and psychologists provide schools and pre-school counselling to teachers and parents. In the Fall of 2018, the University of Reykjavík started a Master's programme in behaviour analysis with emphasis on the BACB standards. In the Fall of 2020, the University of Iceland plans to start a course that meets VCS standards.

The Icelandic Association for Behaviour Analysis (Ice-ABA) was founded in 2004 and is a sub-chapter of ABAI. Ice-ABA has invited professionals, some with BCBA certification, to give workshops once or twice per year to staff working in pre-schools and schools, to teach them about EIBI and Applied Behaviour Analysis-based interventions in schools. This has led to a steep increase in demand from teachers for professional development and continuing education in behaviour analysis. These

courses, however, are far from enough to establish enduring best practices. Systematic-basic education and training of teachers that builds solid and sustainable skills still is lacking, but underway, in Iceland. To occasion a paradigm shift, contingencies need to be established through laws and regulations with a legal requirement that teachers use evidence-based teaching methods. Collaboration between behaviour analysts at the universities, the State, communities, unions, and service providers can occasion a cultural change. To insure quality, this is a necessary part of establishing systematic education and training of teachers and supervisors of behaviour analytic services. Such developments would benefit those providing supervision, teachers, schools, students, their families, and society at large.

Italy

History of behaviour analysis and higher education in Italy

The birth of Italian behaviourism can be traced back to 1942, when Virgilio Lazzeroni, a professor of General Psychology at the University of Siena, published a paper in which, for the first time in Italy, behaviour was addressed as the subject matter of psychological research (Moderato & Presti, 2006). However, it was not until the 1970s that the term behaviour analysis (and behaviour modification) became better known among a small group of Italian psychologists.

The spread of behaviour analysis in Italy is related to key international meetings, like the Experimental Analysis of Behaviour Group (EABG) meetings in Liege in 1983 and 1988, and the series International Congress on Behaviour Studies, particularly the inaugural one in Guadalajara, Mexico, in 1992. Those meetings offered the opportunity for a small group of pioneers to meet scholars such as B. F. Skinner, Fred S. Keller, William N. Schoenfield, Charles A. Catania, Peter Harzem. Sidney W. Bijou's visits to Italy and his contextualistic approach to developmental behaviour analysis were particularly influential for Italian behavioural psychologists (Bijou, 1984, 1993).

The 2nd International Congress on Behaviour Studies, that took place in Palermo, Italy in 1994, offered to a large Italian community the chance to get in touch with the most influential scholars of international behaviour analytic community, including Fred Keller, who delivered at that meeting his last speech before his death. Noteworthy, the first International Conference of ABAI took place in Venice in 2001, at which the first nucleus of the European Association for Behaviour Analysis (EABA) was established, followed by the official founding of EABA that took place in Parma two years later (Arntzen et al., 2009). Thus, though small, the Italian behaviour analytic community played a significant role in the European development of behaviour analysis.

Until the beginning of the twenty-first century, the history of behaviour analysis in Italy was mainly academic, even though behavioural applications to support persons with intellectual and developmental disabilities have always been a primary focus of research. Despite this, Italian academia in 2019 does not have a Professor of Behaviour Analysis. There are, however, three Professors and two Associate Professors of Psychology, who consider themselves behaviour analysts and their course of General and Developmental Psychology include substantial amounts of teaching in "Principles of Behaviour and Learning". However, the degree designation is Laurea Magistrale in Psychology, which is

the equivalent of a Master's degree in psychology; there are no Master's degree programmes in behaviour analysis.

With regards to professional verification, the first BACB verified course sequence (VCS) in Italy was approved in 2007 and run as an alternative pathway by the *European Institute for the Study of Human Behavior* (IESCUM). BACB requirements are, in many respects, not in line with Italian university regulations. As an example, the term Master's, which in the USA defines a graduate-level degree, in Italy it is used for any postgraduate course, delivered either by Universities or private organisations and has no legal value. Similarly, the term "certification" has no status in the Italian welfare system because general state licenses regulate health professions (e.g., physicians, psychologists, speech pathologists, physiotherapists). Special educators are regulated by the Ministry of Education. These kinds of differences can be a source of misunderstandings between the US-based BACB and European institutions devoted to training behaviour analysts and they can be obstacles to define common professional standards.

Behaviour analytic autism interventions in Italy

For the most part, in Italy, autism has been considered a childhood disorder. Consequently, young adults with autism and their families face severe challenges in Italy just as much as in other countries. Clearly, a lifespan perspective is needed. Adolescents and adults with high-functioning autism, represent a complex and underserved population. A multitude of co-occurring psychiatric (e.g., anxiety, depression), psychosocial, and functional issues, co-occur frequently with autism symptomatology and often go unrecognised. Many behaviours commonly conceptualised as challenging are actually "symptoms" of mental health problems that require skilled therapeutic interventions consistent with behaviour analytic principles.

In 2011, the Higher Institute of Health (l'Istituto Superiore di Sanità; ISS) published Guide Line 21 (LG 21). ISS is a public law body that, as the technical-scientific body of the National Health Service in Italy under the Ministry of Health, carries out research, experimentation, control, consulting, documentation, and training in the field of public health. LG 21 acknowledges ABA-based procedures as Evidence Supported Treatment (EST). Unfortunately, the Italian Guideline has been edited by a Board of Child Psychiatrists of the Italian public health service (SSN), very few of whom are trained in behaviour analysis and have the minimum knowledge to understand basic principles of behaviour analysis without bias or misrepresentations (90% are psychoanalytically trained). A new panel of experts was nominated, but none of the three Professors and two Associate professors mentioned above were allowed to apply for the nomination because Departments of Psychology, which are institutionally responsible for research, were excluded and only personnel from the Health Services were admitted.

Beyond the "classical" criticisms and caricatured misrepresentations of behaviour analysis, like those well described and confuted by Morris (2009), what emerges in general is a description of ABA confined to procedural applications, and therefore rather impoverished with respect to its theoretical and methodologically rich corpus. The term ABA is used as a synonymous of "Lovaas method or protocol". Thus, there is confusion between the level of process analysis, i.e., ABA as a corpus of applied technology derived from an experimental science, and the level of procedural analysis, i.e., a specific method

of intervention. Consequently, the image of applied behaviour analysis that is portrayed in Guideline 21 is erroneous in that it is painting a narrow and insensitive picture of the fields developmental, naturalistic, and contextualistic evolution.

Moreover, in GL 21, ABA is referred to as a technique and a method for the treatment of autism spectrum disorder. This has led to some parents of children with autism claiming that ABA is the best technique or the best method for "curing" autism (State of Mind, 2020). The main problem with this kind of misrepresentation is that it entails a category mistake, where things that belong to different levels of analysis are mixed up and given the same status and importance. This means that ABA is placed into the same category as parent training, social skills training, the Early Start Denver Model (ESDM) (Rogers & Vismara, 2008), and Pivotal Response Training (PRT, Koegel & Koegel, 2006). In reality, the latter are specific models for implementing very specific procedures based on the former. The use of certain ABA principles is not the same as the discipline of ABA itself. Actually, ESDM, PRT should be placed within the same category as Early Intensive Behaviour Intervention (EIBI), or MIPIA, the Italian model for early intensive intervention (Todone et al., 2012), while ABA should be considered a higher level, overarching category. Indeed, the principles and procedures of behaviour analysis are core components of all the models mentioned above. The term "model" defines how the basic principles are used in specific, often manualised procedures, and how the different procedures are mixed and packaged in different contexts.

There are at least two reasons behind this confusion. The first is related to commercial aspects of autism interventions (Keenan et al., 2010). Advertising a model, such as ESDM or PRT, as something different/better/softer than ABA, but at the same time as effective, is a marketing-oriented strategy, particularly effective in countries with a well-established non-behaviouristic tradition. The second reason requires self-critical reflection. The behaviour analysis programmes, including those approved/verified by BACB or ABAI, commonly are very focused on procedures; perhaps too little time is devoted to teaching relational skills and basic philosophical concepts of radical behaviourism. This state of affairs creates the risk that students will not grasp fully the contextualistic, functionalistic, and idiographic nature of behaviour analysis.

The Ministry of Health is over-ordinate the National Health Service (SSN), but the 21 regions of Italy are autonomous in defining how services are delivered. Thus, different models are applied in each of the regions. The common denominator is that a Child Neurologist or Psychiatrist of SSN can deliver an early preliminary diagnosis and eventually prescribe the intervention, which usually consists of 45 minutes twice a week with a speech pathologist and/or psychomotricist (a kind of developmental physiotherapist). The National Health Service does not officially acknowledge the BCBA and BCaBA certifications.

In 2014 the Italian Society of Experimental and Applied Behaviour Analysis (2014) (SIACSA) was funded. SIACSA established a directory of behaviour analysts (AC), assistant behaviour analysts (aAC) and technicians (Tac) that meet minimum professional standards. There are 221 behavior analysts (AC), 152 assistant Behaviour Analysts (aAC), and 232 Technicians (TAC). The Associazione Tecnici ABA (ASSOTABA) (2014) is an association mostly for behavioural technicians that groups 3192 members. The ASSOTABA (2014) is an association mostly for behavioural technicians, that has more than 3000 members. The two associations (SIACSA and ASSOTABA) were endorsed by

the two leading family associations in the field, Associazione Nazionale Genitori Oggetti Autistici (ANGSA) (2020) and Associazione Nazionale Famiglie di Persone con Disabilità Intellettiva e/o Relazionale (ANffAS) (2020). In February 2020, the two groups merged to create the new association ABA-Italia (ABAIT).

Norway

History of behaviour analysis and higher education in Norway

In Norway, there is only one university that offers degrees that are explicitly behaviour analytic in nature; Oslo Metropolitan University (formerly Oslo and Akershus University College of Applied Sciences) offers a bachelor's degree, a Master's degree and a doctoral degree in behaviour analysis through the Department of Behavioral Science. The department has five behaviour analytic research groups with somewhat overlapping research areas in (a) Behavioral Economics/OBM/Cultural Selection, (b) EIBI/Verbal Behaviour/Functional Analysis, (c) Complex Human Behaviour/Equivalence, (d) Rat lab/Verbal Behaviour and, (e) Large-scale school-based interventions (e.g., Aggression Replacement Training).

At any given time, there are about 35 students enrolled in the doctoral programme in Behaviour Analysis; about half of the students have scholarships through the university, while the others are externally funded. These students are recruited internationally and most of the coursework and research group meetings are conducted in English. Doctoral research projects are part of one of the research groups, with the requirement of a minimum of three research papers. At least one of the papers must be published/in press in a peer-reviewed journal, the other papers must be publishable. The papers have to be joined together with a common introduction and discussion.

The Master's programme admits 45 students per year. It is a two-year programme exclusively with behaviour analytic content. The Master's programme covers advanced topics in behaviour analysis and complex human behaviour (e.g., Naming, RFT, and stimulus equivalence) and offers some elective coursework (OBM, rat lab, risk management, behavioural economics, EIBI). Master's students can attend one of the department's research groups and are required to write a thesis comprising two papers, one review paper, and one empirical study. The course sequence is verified and approved by the ABAI. At present, the university does not offer supervised practica.

The bachelor programme admits 35 students per year. The students are in the same class throughout the three-year full-time study and follow the same obligatory courses. The courses cover traditional areas of psychology from a behaviour analytic perspective and include philosophy and ethics, applied behaviour analysis, scientific methods, social psychology and cultural selection, organisational behaviour management, and developmental psychology. The programme includes 400 hours of behaviour analytic practicum. As part of their final 300-h practicum in the last semester the students have to do a research project and write it up as a scientific paper (bachelor thesis). The course sequence is one of the few bachelor programmes to be approved by the ABAI, and it is a BACB VCS.

A total of 11 universities or colleges offers a bachelor's degree in social education. Social Educator is a protected title and requires licensing from the Norwegian authorities.

Two out of these programmes include broad training in applied behaviour analysis. The curriculum is similar to the BCaBA requirements, but none of the course sequences is currently verified by the ABAI. Most of the other nine colleges offer some training in applied behaviour analysis, but the amount and quality varies depending on the available academic staff. There are about 20,000 social educators in Norway, about half of them work part-time. Most work with persons with an intellectual disability or autism, in schools or in residential settings.

The Norwegian Association for Behavior Analysis (NAFO) has about 1000 members. Norway has a population of 5 million. This means that Norway probably has the highest per capita membership in a behaviour analytic association in the world with two members per 10,000 people. Most of the members are social educators, and approximately 5% of the members are academics. NAFO has an annual three-day conference with around 800 attendees. The association also publishes the Norwegian Journal of Behavior Analysis, a peer-reviewed journal that goes out to all members of the association.

Only a handful of Norwegians are BCBAs. The main reason for these low numbers is probably that most professionals that practice behaviour analysis are either social educators or psychologists. Both social educators and psychologists are already licensed and in high demand. At present, there is not much to be gained by getting a certification as a behaviour analyst in addition to the licence. Also, there is limited knowledge about BCBAs among employers and no requirements for employers to hire BCBAs.

Behaviour analytic autism interventions in Norway

Early and Intensive Behavioural Intervention (EIBI) is offered in some regions of Norway through the public health care system and/or the public education system. Some of the health regions and the larger cities have established early intervention teams or centres that employ EIBI supervisors (bachelor or Master's level) and sometimes EIBI consultants (psychologist and/or doctoral level). In 2017, the Norwegian authorities published guidelines for implementing EIBI. However, it is up to each health region if and how much of it they want to implement (Vea et al., 2017). In Norway, most children with autism under the age of six are enrolled in their local mainstream pre-school. Pre-schools that enrol a child with autism get additional resources to provide special education services, typically, 20–30 weekly hours of extra staff. These extra hours are then divided between 2 and 3 people who comprise the EIBI team for the child. The local pre-school EIBI team is supervised and trained by the supervisors and consultants from the early intervention teams. A number of studies has been published that evaluated the effects of EIBI when delivered according to this model (Eikeseth et al., 2002, 2007; Eldevik et al., 2006, 2012). Considering that many children receive only low-intensity EIBI (10–15 hours a week), the results are generally very favourable when compared to other types of interventions (Eldevik et al., 2019).

Sweden

History of behaviour analysis and higher education in Sweden

The evolution of behaviour analysis in higher education in Sweden can mainly be attributed to the work of Professors Lennart Melin and Per-Olov Sjödén in the

Department of Psychology at Uppsala University beginning in the 1970–80s. Lars Göran Ost was a key person for the establishment of the field at the Department of Psychology at Stockholm University in the 1990s. These three professors encountered considerable difficulties due to the strong foothold of psychoanalytic theory within Swedish universities. At that time, the field of special education was caught up in philosophical discourses, e.g., do special needs exist or are they social constructs? (Granlund et al., 2005). Nevertheless, a number of behaviourally based dissertations were published during this period, including Fredrika Miranda-Linné's (2001), the first to focus on autism and behaviour analysis.

In 2001, representatives from the Stockholm Autism Parental Organization met staff at the Stockholm Institute of Education to advocate for the inclusion of applied behaviour analysis in special education degree coursework. They expressed concern and dissatisfaction about special educators' lack of knowledge of evidence-based teaching practices, such as IBI, low-quality teaching practices, ineffective supervision, leading to adverse effects on the learning, well-being and development of children with autism (Roll-Pettersson, 2003). Though this meeting did not directly affect content in special education coursework, it led to the development of the first graduate-level verified course sequence (VCS) based on BACB Tasklist (3rd edition). This VCS was commissioned by the City of Stockholm, launched at the Karolinska Institute 2004, subsidised through charities, and taught in collaboration with international colleagues from the USA, Norway, UK, and Ireland, using both on-site as well as blended learning technologies (Roll-Pettersson & Ala'i-Rosales, 2009; Roll-Pettersson et al., 2010). Students had backgrounds in speech-language therapy, special education, psychology, social work, and occupational therapy.

In 2006, the course sequence was moved to the Stockholm Institute of Education, and in 2010, to Stockholm University, where it is delivered jointly by the Psychology Department and the Department of Special Education (Roll-Pettersson et al., 2010). As of 2017, Stockholm University offers the only master program in Sweden in applied behaviour analysis with a focus on autism interventions. While behaviour analysis still is not taught in special education degree programmes, these programmes are mandated to include some training in autism (Regeringskansliet, 2014, 2017).

The Swedish Association for Behavior Analysis (SWBA) is an affiliate chapter of Association for Behavior Analysis International (ABAI). SWBA was founded in 1996 and has approximately 200 members and an autism special interest group. In collaboration with Stockholm University, SWABA hosted the 2014 European Association for Behavior Analysis (EABA) conference. The second International Summit on Behaviour Analysis and Autism in Higher Education was held at Stockholm University in 2018 (financed by the Swedish Research Council with support from the University of North Texas), and ABAI's 10th International conference took place in Stockholm in 2019.

Behaviour analytic autism interventions in Sweden

Intensive behavioural interventions (IBI) were introduced in the early 1990's by Örjan Svahn, a psychologist who provide behavioral supervision in some habilitation centres. In 1997, he initiated a two-year IBI pilot project (Swahn, 2000), that generated awareness of IBI leading to some parents employing supervisors from Norway to provide support to their child and preschool staff.

At present, the majority of children with autism under 6 years of age attend mainstream pre-schools. Implementation of IBI within these settings is based on collaboration between habilitation (health care services) and preschool (education system) entailing that parents and preschool staff (often a paraprofessional) participate in weekly to bi-weekly supervision sessions mainly at a habilitation centre. However, healthcare services and the education system are not in alignment and work under different guidelines based on dissimilar conceptual theoretical frameworks. While evidence and best practice are mentioned in the Swedish Education Act (Education Act, 2010), there are no sanctions for non-compliance and there is no definition of what best practice entails for children with autism (Keenan et al., 2015).

The Swedish National Curricula for pre-school Lpfö, (2018) offer very general guidelines, e.g., pre-school should prepare all children for lifelong learning, be enjoyable, safe, and states that all children should be offered opportunities to develop language and communication, however clarity on what this means for children with disabilities such as autsim is not clear. On another note, the Health and Medical Service Act (1982), by which habilitation services abide, states that personnel within the health care system must provide interventions based on scientific evidence and best practice. On the basis in these guidelines, the Swedish habilitation administration specifically recommends early, comprehensive, intensive, interventions based on applied behaviour analysis, preferably in inclusive settings, using teaching strategies, such as discrete-trial teaching (DTT), incidental teaching, peer-mediated, and naturalistic methods (Bromark et al., 2012). While habilitation recommendations are clearly supportive of evidence-based interventions, they indirectly assume staff to be competent in applied behaviour analysis and IBI, however as noted earlier, there are no official national competency requirements. Thus, quality assurance for consumers i.e. families and children is lacking.

Low levels of knowledge regarding autism and behaviour analysis among pre-school staff can lead to lack of treatment fidelity (Långh et al., 2017). Systemic barriers in Swedish pre-schools affecting implementation of IBI, include (1) physical learning environment are not adapted to needs of child with autism, (2) on-site supervision is lacking, (3) paraprofessional and child are isolated, and (4) there is a disconnect between preschool (educational sector) and habilitation (health care) recommendations/guidelines (Roll-Pettersson et al., 2016). Taken together these issues have a negative impact on staff morale and consequently hamper the quality of IBI. On a more positive side, the Karolinska Institute of Neurodevelopmental Disabilities and the Department of Special Education at Stockholm University recently obtained funding from the National Research Council to examine pre-requisites for implementation of IBI for children with autism.

Clearly, in order for lasting change and systemic scale-up to occur, it is necessary that policies are aligned between health care and education, that quality assurance is introduced through formal training, and that behaviour analysts receive professional recognition nationally.

Discussion

The aim of this paper was to contribute to the European dialogue about behaviour analysis. Europe is a complex conglomerate of nations who have many commonalties but also many differences. This raises very specific issues for the training and dissemination of behaviour analysis. In this paper, we focused on issues related to higher education and autism interventions within seven European countries. These descriptions may not be complete, and we encourage others to continue to write about the history, culture, and application of behaviour analysis in Europe (cf., Keenan & Dillenburger, 2018; Keenan et al., 2015; Kelly et al., 2018; Wang et al., 2019).

For now, we will focus on four common issues that determine future directions for behaviour analysis, higher education, and autism interventions in Europe; (1) historical precedents and systemic alignment; (2) national outreach and lobbying; (3) international collaboration; and (4) higher education policy and quality assurance.

Historical precedents and systemic alignment

Historically, regardless of country or political structure, the application of behaviour analysis to serve the needs of individuals with autism has advanced primarily through parental advocacy and consumer awareness. This is true not only in Europe but also elsewhere, e.g., USA (Unumb, 2013). These efforts were supported by practitioners and academics, who recognised the important role of behaviour analysis and also the ineffectiveness of prevailing intervention approaches to autism. In many places, this meant that behaviour analysts entered into professional practice domains that were occupied by others (Claypool & McLaughlin, 2017). There were many challenges that needed to be overcome, including competing theoretical traditions as well as ideological standpoints, some of which were counterproductive to empirically supported autism interventions. Prevailing financial and organisational structures and regulations in health care and education as well as in higher education provided further barriers (Upvall & Bourgault, 2018).

One of the key problems prevalent across most European countries is the effect of persistent category mistakes, where applied behaviour analysis is mistakenly categorised as a specific model or method of autism intervention, instead of the underlying scientific framework. This has led to a view, that short courses or brief conference attendances are sufficient to qualify practitioners. This "quick-fix" has become a lucrative business for those selling short courses and packaged interventions (Freeman, 2003) that is particularly damaging in countries that lack good quality higher education in behaviour analysis and that do not have legal and professional regulation.

With regards to developing national infrastructure and policy, behaviour analysis-based interventions are often side-lined or not accepted. These exclusionary practices are exemplified by behaviour analysts being actively excluded from contributing to national autism guidelines or governmental reports (cf., Kennan & Dillenburger, 2018). This state of play may in part provide an explanation for the systemic disconnect in autism services across Europe.

To address these issues, implementation science identifies both external and internal organisational factors that affect the degree to which change is implemented. "[O]utside

factors include service system policies, funding, and client advocacy … Factors internal to the organisation that affect implementation include leadership, provider characteristics (e.g., openness to change), and quality of fidelity monitoring and support" (Odom et al., 2019, p. 3). Thus, to achieve Europe-wide implementation of behaviour analytic, evidence-based interventions in autism requires systemic change (Bertram et al., 2015) that is informed by practice and research.

The implantation of broad cross-systemic policy and scale-up of behaviour analytic interventions to support individuals with autism across Europe is imperative for sustainability across time. Key elements for successful implementation need to be identified and considered on all levels and parts of the service delivery system. Without these adjustments, implementation will most likely prove to be ineffective, inefficient, and unsustainable (Bertram et al., 2015). Odom et al. (2019) point out that this requires knowledge, connectiveness, and linkages between organisations. This is a difficult task because of the lack of policy alignment between and within countries in Europe. In fact, the Czech Republic is the only country, so far, that introduced a law for professional recognition of behaviour analysts; and again, the movement started off with parental advocacy that drew in academic support, and, eventually (after much lobbying) governmental recognition (Gandalovičová, 2016). An in-depth analysis of this process may provide invaluable information for other nations in the process of establishing the field legally and practically.

National outreach and lobbying

Building awareness and protecting against misconceptions about behaviour analysis, in both legal and educational settings, and the wider society, has become a major focus within European countries. For example, in 2013 The UK Society of Behaviour Analysis (UK-SBA) was formed to, among other things, advocate and educate legislators and community members about the importance of high interventions standards for families and children with autism and the dangers of ineffective and substandard conditions. In 2019, UK-SBA established a voluntary register for behaviour analysts. This is a necessary step towards obtaining accreditation from the Professional Standards Authority (PSA), a nationally recognised regulator of professions accountable to UK Parliament. This register is the first of its kind in Europe.

Though not always affiliated with universities, many European countries have national associations for behaviour analysis that arrange conferences, workshops, and support research. A good example is the Norwegian association, which hosts two peer-reviewed journals, the *European Journal of Behaviour Analysis* (EJOBA), that publishes in English, and the *Norwegian Journal of Behavior Analysis*, that publishes in Norwegian, Danish, or Swedish. Both of these journals are free for members of the respective associations and offer a perfect outlet for dissemination of behaviour analytic research across Europe.

International collaboration

International collaborations are essential for European countries to strengthen and develop the field, both with regard to higher education and practice. In fact, most European countries foster some degree of collaboration across Europe and with other

international colleagues or groups through professional networks, conferences, visiting scholars, and student exchange programmes, (e.g., much of this is funded through European Commission Erasmus+ programmes).

The European Association for Behaviour Analysis (EABA) (2019) has a key role to play to foster collaboration across Europe. The bi-annual EABA conference and the bi-annual EABA Summer school are hosted in different European countries to encourage dissemination, networking, and collaboration. The UK-based Experimental Analysis of Behaviour Group (EABG) hosts bi-annual conferences attended by colleagues from across Europe and further afield and most European colleges invite international students into their Master's and doctoral programmes.

One example of a specifically successful EU-funded collaborative project is the multimedia online training resource SimpleSteps (2013). SimpleSteps first was developed by behaviour analysts and parents of children with autism in Northern Ireland and, since then, has been culturally adapted and translated into 11 different languages in collaboration with colleagues and parents from across Europe and Canada (STAMPPP, 2013).

Higher education policy and quality assurance

The examples of higher education and behaviour analysis described in this paper illustrate the need for European as well as national policy and regulations in higher education and in-service provision. This is important for quality assurance, sustainability, and consumer protection. Ultimately, the establishment of behaviour analysis as a profession in Europe depends on how behaviour analysts are identified as a professional group and how they are trained (Martin & Carr, 2019).

There are relatively few higher education courses that focus exclusively on behaviour analysis in Europe. Where they exist, they often are only one or two courses for an entire country. The UK is an exception, in that it has a relatively large number of universities providing ABAI verified course sequences (VCS), although these are unevenly distributed across the nations that make up the UK. In the Republic of Ireland, there are five such courses. This relative proliferation may be due to the ease of access of teaching materials in the English language. Teaching materials in other European countries require translation of existing English language texts or authoring of new texts (e.g., see Mellon, 2005 for original textbook in Greek). The lack of apposite teaching materials (Wang et al., 2019) means that some European courses only admit students who are competent in English as a second language. For example, within the Nordic region, there is relatively widespread integration of teaching of behaviour analysis in higher education. A good example was the Nordic-Baltic funded higher education graduate course that used blended learning technologies to provide students in remote areas with course content not otherwise available (Käck et al., 2014).

While BACB task lists provide a minimum training standard, they are not aligned with European university systems and therefore challenging to implement for fledgling higher education programmes in Europe. Nevertheless, they provide standards concerning behaviour analysis content and professional and ethical standards and this has been a model for curricula development across Europe. Higher education courses in behaviour analysis in Europe have been established largely according to BACB or ABAI standards, through the hard work and efforts of committed individual behaviour analysts and some

private funding initiatives. The provision of the Bologna Declaration and Erasmus+ funding has used to promoted free movement and access to teacher exchanges between and across European Universities.

Of course, the impact of the decision by BACB to limit new BCBA certifications to behaviour analysts who reside in USA or Canada after 2022, impacts on the developments in Europe and further field. The exact impact cannot be predicted, suffice to say that European countries now need to forge their own way ahead and set their own standards. Decisions about the future shape of behaviour analysis training and professional approval in Europe need to be taken either jointly (pan-European) or in isolation (by each European country). The former holds much promise for the field, while the latter would mean that behaviour analysis in Europe would become even more fragmented.

Conclusions and future directions

This paper offers a brief overview and discussion of present provision and future directions for behaviour analysis in higher education and autism services in Europe. We specifically focussed on the history of behaviour analysis with regards to higher education and the contribution to the enhancement of the lives of people with autism. We explored the challenges for further expansion and made some practical suggestions of how to overcome some of these challenges.

The European Higher Education Area (EHDA) has established the European Credit Transfer System (ECTS) and the three-degree system. This foundation has made it possible to transfer higher education credits from one member country to another. Behaviour analysts have benefited from this arrangement and also from the funding incentives for collaboration and exchange among European countries.

Behaviour analysis is a maturing science and profession in Europe, developing its own disciplinary boundaries and edging its way into the practice domains previously held by others. This is particularly so in the field of autism interventions, where traditionally different professional groups were responsible for services, e.g., clinical psychologists, occupational, or speech/logopedic therapists, special educators (Dillenburger, Röttgers et al., 2014; McCormack, 2015). If behaviour analysts want to develop supportive national infrastructures, it is critical that they form collaborations with these professions. Of course, the alliances will differ depending on which bodies control decision making, delivery, and educational process within each country and/or region. Ultimately, it will depend on successful collaboration with those who hold the power and the purse strings.

There are also other global factors that are relevant in this context. Europe is experiencing an influx of immigrants and refugees, mostly from North Africa and the Middle East. There are issues related to culture and diagnosis of autism in these populations that may lead to inequalities concerning access to behaviour analytic services. Questions also arise about the most effective ways to support children with autism who have experienced trauma and other "newcomers" who are not fluent in the languages of their new country of residence.

Of course, there are many other important factors that are not specifically addressed here, such as funding of autism interventions, i.e., whether or not

they are covered through public health policies, health insurance, or private funds. In a survey involving parents of 1680 children with autism in 18 European countries, Salomone et al. (2016) found that approximately one-third reported that their child obtained behaviour intervention services, however, differences were noted between region of residency concerning the total number of hours per week. Children in Northern Europe obtain more hours than those who live in Western, Eastern and Southern European countries. Salomone et al. also note possible inequalities concerning availability and accessibility of interventions, and found that parents with lower educational levels, report limited use of interventions in comparison to those with higher educational levels. Consequently, and in keeping with goals of Autism-Europe (2017) to develop best practice guidelines, common professional training standards and research agendas need to be developed across Europe.

In order to achieve a common European policy with a lifespan perspective for autism, there clearly is the need for any new national and European policies to include accurate representations of behaviour analysis. This needs to start with early detection of risk factors (Gale et al., 2019; Jobs et al., 2018), early intervention (Tanner & Dounavi, 2020), and the adoption of policies that recognise the supports and needs of youth and adults with autism and their families.

We need to conduct cross-national systemic policy comparisons in order to obtain clarity concerning policy affecting training, and implementation of behaviour analysis-based interventions.

Generally, it can be said that behaviour analysis is making progress in Europe, at least to some extent. This progress, however, is marked in contrast to relatively rapid growth and support of the discipline in the USA and Canada. This is mainly due to political, economic, and cultural differences. The full impact of the BACB's recent disengagement from global certification is not yet apparent in Europe. There clearly are a number of contingencies that are specific to Europe that require consideration and reconciliation in order to advance higher education initiative as well as service provision. EABA is perhaps the best vehicle for applying the Bologna Declaration to behaviour analysis and autism and creating unified initiatives. It may well be that a first venue to unify and obtain formal recognition in Europe is through collaboration between EABA, and Autism Europe, as both organisations aim to achieve effective interventions across the lifespan for persons with an autism diagnosis, best practice guidelines, and common professional training requirements. For the discipline of behaviour analysis, this could be a time for growth or decline. Ultimately, the direction of travel will be shaped by the behaviour of behaviour analysts in Europe.

Notes

1. In the present paper, IBI is used as an umbrella term covering a broad range of empirically supported comprehensive intervention models based on the methods and research findings of Applied Behaviour Analysis (ABA) (National Autism Centre (NAC), 2015). IBI services are most ethically provided by individuals who have been trained specifically in Behaviour Analysis and autism.

2. There are at present 38 universities in 16 European countries that offer graduate-level course work verified as meeting either the Behavior Analyst Certification Board (BACB, 2018)/the Association for Behavior Analysis International (ABAI) standards of behavior analysis content and professional and ethical standards (Martin & Carr, 2019).

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Ethics Statement

The research reported here has been performed in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

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