

Operants



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**from the
president**



I was recently talking with a researcher in child development. Naturally, I mentioned Skinner. The researcher said, “of course his science works in the lab, but I have to work in the real world.” Scientific principles, I pointed out, are universal. Gravity does not work just in a lab. Nor do the laws of operant conditioning. Skinner made his discovery in a lab, but selection by consequences operates with all organisms and in all settings. This issue of *Operants* illustrates places around the world where behaviorology is “working.”

**Julie S. Vargas, Ph.D.
President, B. F. Skinner Foundation**

Chinese Traditional Translated by Kiwiya Zhang

最近我与一位儿童发展领域的研究者聊天。很自然地，我提起了Skinner。这位研究者说：“当然他的科学在实验室里说得通，但我却是要在真实世界里工作。”我指出，科学的原则是具有普遍性的。万有引力不仅仅在实验室里有用，操作制约也是。Skinner在实验室里发现了后效对行为的作用，但该作用在所有场合、对所有生命体都有效。本期Operants就阐释了行为学在哪些地方“有用”。

Czech Translated by Helena Vadurova

Nedávno jsem mluvila s jedním výzkumníkem, který se zabývá vývojem dítěte. Přirozeně jsem zmínila Skinnera. Ten výzkumník mi řekl: „jeho práce samozřejmě funguje v laboratoři, ale já musím pracovat ve skutečném světě.“ Vědecké principy, poznamenala jsem, jsou univerzální. Gravitace funguje nejen v laboratoři. Stejně je to se zákony operantního podmiňování. Skinner svůj objev učinil v laboratoři, ale výběr na základě následků funguje u všech organizmů a ve všech prostředích. Toto vydání časopisu Operants představuje různá místa na světě, kde behaviorální věda „funguje“.

French Translated by MarieCeline Clemenceau

J'ai récemment échangé avec un chercheur dans le développement de l'enfant. Naturellement, j'ai mentionné Skinner. Le chercheur a déclaré: «Bien sûr, sa science fonctionne dans un laboratoire, mais je dois travailler dans le monde réel». Les principes scientifiques sont universels, ai-je souligné. La gravité ne fonctionne pas uniquement dans un laboratoire. Les lois du conditionnement opérant non plus. Skinner a fait sa découverte dans un laboratoire, mais la sélection par les conséquences fonctionne avec tous les organismes et dans tous les environnements. Cette édition de Operants illustre les lieux dans le monde où le behaviorisme «fonctionne».

Hebrew Translated by Shiri Ayvazo

דיברתי לאחרונה עם חוקר בתחום התפתחות הילד. באופן טבעי הזכרתי את סקינר. החוקר אמר, "ברור שהמדע שלו עובד במעבדה, אולם אני חייב לעבוד בעולם האמיתי." אני ציינתי כי עקרונות מדעיים, הינם אוניברסליים. כוח המשיכה לא עובד רק במעבדה. גם לא חוקים של התנייה אופרנטית. סקינר גילה את תגליותיו במעבדה, אולם בחירה על פי תוצאות פועלת עם כל האורגניזמים ובכל הסביבות. מהדורה זו של אופרנטס מתארת מקומות ברחבי העולם בהם התנהגותולוגיה "עובדת".

Icelandic Translated by Kristjan Gudmundsson

Ég talaði nýlega við fræðimann á sviði þroskasálfræði barna. Auðvitað nefndi ég Skinner. Þroskasálfræðingurinn svaraði, "auðvitað virka vísindi hans á tilraunastofunni, en ég verð að vinna í hinum raunverulega heimi." Ég bendi honum þá á að vísindaleg lögmál eru almenn. Þyngdarlögmálið virkar ekki bara á tilraunastofunni. Lögmál virkrar skilyrðingar ekki heldur. Skinner komst að sínum niðurstöðum á tilraunastofunni, en val með afleiðingum virkar á allar lífverur við allar aðstæður. Þessi útgáfa af Operants lýsir vel ýmsum stöðum hvaðanæva í heiminum þar sem atferlisfræði "virka."

Italian Translated by Anna Luzi

Recentemente ho parlato con un ricercatore esperto di età evolutiva. Ovviamente gli ho citato Skinner. Questa la sua replica: "sicuramente la scienza di Skinner funziona in laboratorio, ma io devo lavorare nel mondo reale". I principi scientifici, ho sottolineato, sono universali. La legge di gravità non funziona solo in laboratorio. E questo vale anche per le leggi del condizionamento operante. Skinner ha scoperto tali leggi attraverso prove di laboratorio, ma la selezione per conseguenze funziona con tutti gli organismi e in tutte le situazioni. In questo numero di Operants si parlerà dei luoghi in tutto il mondo in cui la scienza del comportamento "lavora".

Japanese Translated by Naoki Yamagishi

私は最近発達心理学の研究者と話をしました。そこで私は当然Skinnerについて話しました。その研究者は「彼の科学はもちろん実験室ではうまくいくでしょう。でも私は現実の世界で研究しなければなりません。」といました。私が指摘した科学原理は普遍的なものです。重力は実験室だけで働くわけではありません。そしてオペラント条件づけの法則も同じです。Skinnerは実験室で発見したわけですが、結果による選択はすべての生体そしてすべての状況において作用します。今号のOperants誌は、行動学 (behaviorology) が世界のあらゆる場所で「機能している」ことを説明しています。

Korean Translated by Theresa Yunhee Shin

저는 최근 아동발달에 대해 한 연구가와 이야기를 나누었습니다. 자연스레 저는 스키너를 언급했습니다. 그 연구가는 “물론 그는 실험실에서 작업을 했지만, 나는 진짜 세상에서 일을 해야하죠” 라고 말했습니다. ‘과학적인 원칙은 보편적이다’라는 지적을 했습니다. 중력은 실험실에서만 일어나는 것은 아닙니다. 조작적 조건화의 법칙도 물론 실험실에서만 일어나는 것이 아닙니다. 스키너가 밝힌 것들은 실험실에서 엮지만, 그것은 또한 모든 환경과 모든 유기체의 조작적 후속결과에 의한 것이기도 합니다. 조작(Operant)의 이슈는 행동학이 “실행”되는 지구상의 어떠한 곳에서도 설명되고 있습니다.

Polish Translated by Monika Suchowierska-Stephany

Ostatnio rozmawiałam z naukowcem zajmującym się rozwojem dziecka. Naturalnie, wspomniałam o Skinnerze. Mój rozmówca powiedział: „jego nauka oczywiście sprawdza się w laboratorium, ale ja muszę pracować w realnym świecie.” Zwróciłam uwagę na fakt, że pryncypia naukowe są uniwersalne. Przecież siła grawitacyjna nie działa tylko w miejscu, w którym przeprowadzane są eksperymenty. Podobnie uniwersalne są prawa rządzące zachowaniem. Skinner dokonał swoich odkryć w laboratorium, ale selekcja poprzez konsekwencje działa w przypadku wszystkich organizmów i we wszystkich środowiskach. Obecnie wydany zeszyt Operants przedstawia miejsca, z całego świata, w których podejście behawioralne „działa.”

Portuguese Translated by Bruna Colombo dos Santos

Eu estava falando recentemente com um pesquisador em desenvolvimento infantil. Naturalmente, eu mencionei Skinner. O pesquisador disse, “é claro que a ciência dele funciona no laboratório, mas eu tenho que trabalhar no mundo real”. Princípios científicos, eu pontuei, são universais. A gravidade não se aplica apenas em um laboratório. Nem as leis do condicionamento operante. Skinner fez sua descoberta em um laboratório, mas seleção por consequências opera com todos os organismos e em todos os contextos. Esta edição de Operants ilustra lugares ao redor do mundo onde o comportamentalismo está “funcionando”.

Russian Translated by Alexander Fedorov

Недавно я беседовала с одним исследователем в области детского развития. Разумеется, в разговоре я упомянула Скиннера. И исследователь сказал: «Конечно, его научный подход работает в лаборатории, но я-то вынужден работать в реальном мире». Научные принципы, которые я указала, универсальны. Гравитация не действует исключительно в пределах лаборатории. Как и законы оперантного обусловливания. Свои открытия Скиннер сделал в лаборатории, но отбор по последствиям действует для всех организмов и во всех условиях. Этот номер «Operants» дает примеры тех мест по всему миру, в которых «работает» бихевиорология.

Spanish Translated by Kenneth Madrigal and Gonzalo Fernández

Recientemente estuve platicando con un investigador del área de desarrollo infantil y, naturalmente, mencioné a Skinner. El investigador dijo: “claro, su ciencia funciona en el laboratorio pero yo tengo que trabajar en el mundo real.” Los principios científicos, señalé, son universales; la gravedad no funciona únicamente en el laboratorio, tampoco lo hacen así las leyes del condicionamiento operante. Aun cuando Skinner hizo su descubrimiento en el laboratorio, la selección por consecuencias opera en todos los organismos y en todos los escenarios. Ésta edición de Operants muestra algunos lugares alrededor del mundo en los que la conductología está “funcionando”.

Swedish Translated by Dag Strömberg

Nyligen talade jag med en forskare i barns utveckling. Naturligtvis nämnde jag Skinner. Forskaren sade: “hans vetenskap fungerar förstås i labbet, men jag måste arbeta i den verkliga världen”. Vetenskapliga principer, påpekade jag, är universella. Gravitationen fungerar inte bara i ett labb. Det gör inte heller lagarna om operant betingning. Skinner gjorde sin upptäckt i ett labb, men urval genom konsekvenser opererar med alla organismer och i alla miljöer. Detta nummer av Operants belyser platser runtom i världen där beteendeanalys “fungerar”.

Thai Translated by Sirima Na Nakorn

ดิฉันได้มีโอกาสนสนทนากับนักวิจัยด้านพัฒนาการเด็ก แนนอนที่ต้องเอ่ยถึงงานวิจัยของ ดร. สกินเนอร์ นักวิจัยท่านนั้นบอกดิฉันว่า งานของ ดร.สกินเนอร์นั้นได้ผลแต่ในห้องทดลอง ในขณะที่นักพัฒนาการเด็กนั้นต้องทำงานในสถานการณ์จริง ในชีวิตจริง อันที่จริงแล้ว หลักการ หรือ ทฤษฎีทางวิทยาศาสตร์นั้น เป็นสากล คือ ใช้ได้ผลทั้งในห้องทดลองและสถานการณ์จริง ตัวอย่างเช่น ทฤษฎีแรงดึงดูดของโลก เกิดขึ้นทั้งในห้องทดลองและในชีวิตจริง เช่นเดียวกับทฤษฎีการปรับพฤติกรรมโดยการให้รางวัลของ ดร.สกินเนอร์ ก็ใช้ได้ผลทั้งในห้องทดลองและในชีวิตจริง และใช้ได้กับสิ่งมีชีวิตทั้งหมด และในทุกสถานการณ์เช่นกัน “Operants” ฉบับนี้เสนอเรื่องราวและสถานที่ต่าง ๆ ในโลกที่ประสบความสำเร็จในการใช้หลักการนี้ของ ดร.สกินเนอร์

Turkish Translated by Yeşim Güleç-Aslan

Geçenlerde bir araştırmacı ile çocuk gelişimi alanında konuşuyordum. Doğal olarak Skinner’den bahsettim. Araştırmacı “Tabii ki O’nun bilimi laboratuvarda işe yarıyor ama benim gerçek dünyada çalışmam gerek” dedi. Bilimsel ilkeler, belirttiğim gibi, evrenselidir. Yerçekimi sadece laboratuvar ortamında gerçekleşmez. Edimsel koşullanma kuralları da... Skinner keşfini bir laboratuvarda yaptı. Ancak, davranışın sonuçlarına göre seleksiyon tüm organizmalarda ve tüm ortamlarda gerçekleşir. “Operants” dergisinin bu sayısı dünyanın dört bir yanında davranış biliminin “çalıştığı” yerleri göstermektedir.

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We would like to thank all contributors to this issue. One of the most difficult parts of writing for Operants is that it is supposed to be in the spirit of Skinner's writings: Of interest to the field, but also written without heavy citations and references. In most articles intellectual credit to others is given not by citing and referencing specific studies or articles/books, but rather through discussing the "big idea" or "concept", and naming the person/affiliation. In this way, then, the intellectual credit is provided while still writing for a wider audience. Especially today we would like to continue to advance the relationship between basic and applied science, and make that available to the public.

Operants is produced by the B. F. Skinner Foundation. The opinions reflected in this Operants do not necessarily represent the views of the Foundation.

We reserve the right to edit all submissions for factual and scientific accuracy, however, as a rule, we preserve the author's grammar and punctuation.

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The “Around the World Panel” at The National Autism Conference: an Introduction

Mike Miklos, MS, BCBA



Mike Miklos, MS, BCBA, is a behavior analyst and Pennsylvania-certified school psychologist employed as an educational consultant for the Pennsylvania Training and Technical Assistance Network (PATTAN). His responsibilities have included training staff, developing systems for data-driven decisions, completing functional behavior assessments, program review, and consultant training. He continues to provide site-based training and consultation related to autism support services and special education. His work has included an emphasis on the application of an analysis of verbal behavior to interventions for individuals with autism. In collaboration with a team of educational and behavioral specialists, he has developed and delivered competency-based trainings to thousands of participants from Pennsylvania, across the United States, and internationally. Currently, Mr. Miklos serves as statewide lead consultant for the PATTAN Autism Initiative and coordinates efforts for the PATTAN Autism Initiative ABA Supports and the National Autism Conference.

The principles of behavior are not restricted to national or ethnic boundaries. The value of behavior analysis as a conceptual and applied process for addressing the needs of individuals with autism is universal. The following series of summaries in this issue of *Operants* describe the development and spread of behavior analysis for addressing the educational needs of individuals with autism in The United Arab Emirates, Poland, the Czech Republic, the United Kingdom, and Italy. The writers provide an indication of the evolution and status of educational interventions for individuals with autism across a small sample of the world's countries.

The articles represent summaries of a panel presentation delivered at the National Autism Conference held at Penn State University in State College, Pennsylvania. Held annually around the first week of August, the National Autism Conference is one of the largest conferences in the United States devoted to educational interventions for students with autism. The National Autism Conference is sponsored by the Pennsylvania Training and Technical Assistance Network (PATTAN). PATTAN is the training arm of the Pennsylvania Department of Education, Bureau of Special Education. 2017 marked the conference's 21st annual occurrence. The conference includes a majority of sessions derived from the practice of Applied Behavior Analysis (ABA). Presenters focus on ABA due to its evidence-base in relation to educational interventions for students with autism. The conference has a rich history of including speakers who are leaders in the field of behavior analysis. Past speakers have included Dr. Jack Michael, Dr. Mark Sundberg, Dr. Jerry Shook, Dr. Jim Johnson, Dr. David Palmer, Dr. Kathleen Piazza, Dr. Janet Twyman, Dr. Charles Catania, Dr. Per Holth, and Dr. Judah Axe, to name a few. Sessions at the conference are generally three hours in duration, thus allowing a relatively in-depth coverage of content. Many of the sessions are archived. They can be accessed free online at <http://autism.outreach.psu.edu/webcasting>. The “Around the World” session that served as the basis for the following reports can be accessed at http://legacy.wpsu.org/live/2012_player/69435. The “Around the World Panel” continues the high quality of content available at the National Autism Conference and adds a global perspective on educational programs for students with autism.

The panel was organized to provide educators, parents, and behavior analysts attending the National Autism Conference information describing the commonalities and distinctions in educational programs for autism across the nations represented. The panel discussed educational services in developed nations in western Asia and in Europe.

The PATTAN Autism Initiative is probably unique among publicly-funded state level training and technical support organizations. PATTAN provides on-site training and technical support to educators across the Commonwealth of Pennsylvania. Many participants in that effort voice a great deal of interest in global programs for children with autism. PATTAN delivers its training and technical support through various training and consultative formats. One component is a competency-based large group training. Over five thousand people passed all competencies presented

in this training over the past five years. Additional large group trainings addressed the functional needs of students with limited verbal skills, as well as training developed that addressed principles and protocols to teach complex verbal behavior including verbal conditional discriminations, joint control procedures, and concept acquisition. The large group trainings establish a set of basic verbal competencies for participants. Recognizing that more is needed to promote actual practice, on-site consultation is provided at participating schools for teachers of students with autism across Pennsylvania. Over five hundred sixty teachers have been provided direct consultation during the 2016-2017 school year. Consultation is guided by a comprehensive 61-item site review, which iterates specific evidence-based educational practices. The site review is completed at the beginning of the school year and again at the end of the school year. Regularly scheduled consultation occurs throughout the school year and utilizes a guided practice model. A wide range of training manuals, protocols and data tracking systems are made available for teaching staff. Those materials can be accessed at <http://webapps.pattan.net/files/PaTTANAutismResources.zip>. Due in large part to PATTAN's efforts, there exists a wealth of behavioral resources related to effective educational interventions available in Pennsylvania. The continuing challenge remains to improve educational services in Pennsylvania. The presentations at the National Autism Conference allowed participants the opportunity to compare and contrast the status of services in Pennsylvania and the United States with services that exist in the nations described by the presenters.

The following summaries, while suggesting challenges and limitations of educational programs that exist, describe the trajectory of availability and quality of behavioral services in Dubai (United Arab Emirates), England, Italy, the Czech Republic, and Poland. The first article reviews the work of Dr. Vincent J. Carbone and his colleagues in developing a clinic for children with autism in

the United Arab Emirates (UAE). Dr. Carbone provided a significant amount of training for PATTAN staff over the last two decades. His work in the UAE derives from his efforts at the Carbone Clinic in Valley Cottage, NY. Marta Sierocka describes the state of educational services for children with autism in Poland. She is a parent of daughter with autism. Her daughter wrote and illustrated a dark but delightful book. An animated version of that book appears just prior to the panel discussion on the Penn State NAC webcast archive. Marta is involved in the development of behavior analytic services for children in Warsaw and across Poland. Dr. Francesca degli Espinosa provides a comparative description of educational services for children with autism in the United Kingdom and in Italy. Dr. Espinosa has worked in both nations to develop and extend the complex analysis of verbal behavior to educational applications for children with autism. Lastly, Dr. Amir DiPuglia, a lead consultant for the PATTAN Autism Initiative, and Ms. Dita Chapman, describe the development of an education program in Prague, Czech Republic.

Dr. DiPuglia is a parent of three children with autism and is a creative force and innovator in PATTAN's work. Ms. Dita Chapman is the first person to obtain the BCBA credential in the Czech Republic. She has been an active advocate for children. Dita has been involved in activities such as building a school in the mountains of Nepal and providing consultation and training in Thailand and Japan. The Prague educational

program, through the efforts of Dr. Jana Gandalovicova, Dita, and Amir, replicates the instructional model used in PATTAN's efforts across Pennsylvania public schools.

It is hoped that these descriptions allow readers to discriminate program designs, political issues, and systemic organization that can effectively guide the development and extension of educational interventions for students with autism worldwide. 🌍



2017 National Autism Conference





Behavior Analysis in Dubai

Vincent J. Carbone, EdD, BACB-D



Dr. Vincent J. Carbone is a Board Certified Behavior Analyst-Doctorate and New York State Licensed Behavior Analyst. He received his graduate training in Applied Behavior Analysis (ABA) at Drake University, Des Moines, Iowa. He currently serves as an adjunct faculty member at Penn State University and is a professor in the academic training programs in Behavior Analysis offered by The European Institute for the Study of Human Behavior, Parma, Italy, and the medical school at the University of Salerno in Salerno, Italy. His research has been published in several peer-reviewed journals including the Journal of Applied Behavior Analysis, Behavior Modification, The Analysis of Verbal Behavior, and Behavior Analysis in Practice. He has served on the editorial board of several behavior analytic journals and regularly acts as an editorial reviewer of scientific research papers submitted for publication to major behavior analytic journals. He is frequently invited to speak at behavior analytic conferences on autism treatment throughout the US and abroad. He has provided the requisite university training and supervision to hundreds of board certified behavior analysts in the US and overseas. He is the director of autism treatment clinics in New York, London, UK, Boston, and Dubai, United Arab Emirates.

The alarming global increase in the number of children diagnosed with Autism Spectrum Disorders has led to an increased interest in applied behavior analysis (ABA) in Dubai, a small country within the larger United Arab Emirates (UAE). It borders on Saudi Arabia and Oman and the surrounding area includes Iran and Iraq (see map on p. 9). The UAE has a total population of 8.5 million people and only 1 million are nationals. It belongs to the larger Gulf Cooperation Council (GCC) since its founding in 1981.

The methods for tracking the number of children with autism in the region have not yet been refined. Notwithstanding the lack of precise data it is clear there has been a steady increase in the number of centers that advertise the provision of ABA to children with autism. Currently, in Dubai there are twenty four centers that report they provide ABA services. In Abu Dhabi, the second largest emirate, there are eight centers and 17 other treatment programs are scattered throughout the remainder of the UAE. Along with treatment centers there is a growing number of Board Certified Behavior Analysts (BCBAs) in Dubai. There are currently fifty BCBAs across the three levels of certification and 127 Registered Behavior Technicians (RBTs).

CLINIC START-UP & OBJECTIVES

The Carbone Clinic-Dubai, a behavior analytic treatment center for children with autism, was established in 2013 in Dubai Healthcare City. Dubai Healthcare City was created to encourage international health care providers to locate in Dubai and bring world-class treatment methods to the region. The clinic in Dubai is a replication of the Carbone Clinic in New York. The opportunity to establish a clinic in Dubai was the idea of Sukhdev Hansra of Isthmus Partners in Dubai. He and Javier Cervino lead a group of financial consultants with an additional interest in entrepreneurship and new business start-up. Many of their ventures are designed to have a social impact, which is the objective of the Carbone Clinic-Dubai. We are guided by Skinner's notion that the world is a better place when more cultures, governments, and businesses make use of behavior analytic principles. Consequently, our social impact venture in Dubai includes the following objectives:

1. Provide quality services to children in the Middle East;
2. Disseminate the application of ABA as a treatment for children with autism and establish ABA as the method of choice in the region;
3. Train local behavior analysts and support their work towards board certification to insure a group of well-trained individuals to sustain local efforts;
4. Establish a charity within the Carbone Clinic structure to support services to children whose families require financial support;
5. Establish ABA as a recognized discipline within the government regulatory system.

SERVICES

Currently, twenty five full- and part-time children, of nine different nationalities, are served in the Dubai clinic. Children range in age from three to fifteen. All of them receive one-on-one services. The funding sources mainly include private pay, support from the Kingdom of Saudi Arabia and private bene-

factors. The services are provided by 17 full-time instructors of 13 different nationalities. The lead BCBA, Cherine Basfer, a Saudi national, was trained in behavior analysis in the US at Simmons College in Boston, MA. She supervises a BCaBA and six supervisors and staff who hold the BCBA. More than half the clinical staff have master's degrees and several more are working towards board certification. The clinic financially supports high performing staff in their pursuit of master's degrees in behavior analysis.

All children within the clinic receive a comprehensive assessment for instructional purposes. A treatment plan is developed for each child with the input and approval of parents through treatment planning meetings. Instruction focuses

on important skill domains specific to each child including language, academic skills, independence skills, problem behavior reduction, play, and leisure. Parents and caregivers receive training on identified needs in the home and community. Consultants also provide services to children in their community skills when they are not attending the clinic program.

Consistent with Skinner's notion of radical behaviorism, the treatment staff are provided training and performance management using the same principles that guide the treatment of the children. Each staff member participates in 25 hours pre-service training that includes lectures covering ABA principles and effective autism treatment methods, quizzes and competency measures of performance with children. Staff members who require additional training to meet competency are afforded the additional time and training before they are assigned to a child's program. On-going supervision of treatment staff is provided at a ratio of 5 (FTE) to 1 supervisor. Treatment fidelity and competency assessment occurs frequently with frequent verbal and written feedback to the instructor. Monetary awards are provided for exemplary performance as measured by frequent assessments conducted by supervisors.

An outreach department provides consultation to children whose families travel to Dubai for assessment and treatment plan development. Follow up is provided through remote access. We have conducted consults for families from Iraq, Kuwait, Egypt, Jordan, Malaysia, Pakistan, Lebanon, and Uzbekistan. In addition, we have established a replication site in Saudi Arabia at The Jeddah Institute for Speech and Hearing (JISH) in Jeddah, Saudi Arabia. The treatment center makes use of our treatment model and materials and

we provide frequent on-site consultation.

CHALLENGES AND PROMISING ACTIVITIES

There are many challenges to providing ABA services in Dubai and the region. University support in the region is limited if not non-existent. There is only one Behavior

Analysis Certification Board approved course sequence in the UAE and it will be discontinued as of 2019. Consequently, only on-line training programs are available to those who remain in the region and there are very few continuing education opportunities. These problems are exacerbated by the fact that the demand for services outweighs the number of qualified providers of services.

This situation tends

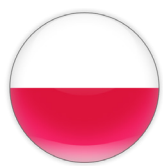
to attract persons of varying qualifications to establish ABA treatment programs. Funding sources are limited to almost exclusively private pay with little or no third-party reimbursement or government support at this time. Moreover, there is a lack of fluent Arabic speaking BCBAs and therefore many children go unserved.

Despite the challenges there are a number of promising activities that will strengthen behavior analysis in the region. Dr. Michelle Kelly of Emirates College of Advanced Education in a recent publication reports several promising developments. The Middle East Association for Behavior Analysis, established in 2002, and the United Arab Emirates ABA are active organizations disseminating useful information. The BACB fourth edition task list has been translated into Arabic and is available on the BACB website. Seminal papers and literature are also being translated. Diagnostic materials and treatment related manuals are now appearing in Arabic. Further, the BACB announced that the credentialing exam would be available in Arabic in 2019. And of great significance, the Ministry of Education has initiated a policy of "school for all" in the UAE that requires educational services to meet international standards for all children with disabilities as reported by Dr. Michelle Kelly.

Despite all the difficulties and challenges of providing ABA services in Dubai, the field moves ahead. The dedication of the families to a science-based approach to the treatment of their children is growing. The stories of successful outcomes from behavior analytic treatments are being spread and interest in what behavior analysts have to offer is increasing in the region. There is a brighter future for children with autism and their families in the UAE. 🌈



OAE on the map (www.bleedle.net)



Poland

SCOLAR Foundation: Making Difference in Poland

Marta Sierocka-Rogala, BCBA



Marta Sierocka-Rogala, BCBA, is a speech pathologist and special educator. She is a co-founder of SCOLAR Foundation and helped to build the foundation for the last 13 years. She has provided many workshops on children with autism, VBMAPP, and verbal behavior. She teaches the post graduation courses for speech and language pathologists at Warsaw University and University of Cardinal Stefan Wyszyński.

When my daughter was diagnosed with autism, we struggled to find the right therapy for her. Access to information was not as easy as it is now. Behavioral therapy was available only in few places in Poland and none of them were located in Warsaw, where we lived. It took me four years to learn about Applied Behavior Analysis (ABA), another two to study Skinner's behavioral analysis of language. Looking back, I know that we lost important years in my daughter's education.

I realized the importance of making ABA therapy available for children with autism and their parents from the moment of the diagnosis. That is the main goal of the SCOLAR Foundation, ever since we established it in 2004. The SCOLAR Foundation is one of the largest non-profit organizations helping children with autism in Warsaw. Many initiatives were developed by the foundation to respond to the needs of the population we serve. The SCOLAR Foundation provides three high-quality ABA early intervention preschool programs that serve over fifty children from the ages of two-and-a-half to eight. Over thirty behavioral therapists, psychologists, and speech and language pathologists provide the daily therapy and instruction. Since many parents had complained that after leaving preschool, ABA therapy would no longer be available to their children and many skills would be lost as a result, in September 2017, the SCOLAR Foundation opened the program in which ABA therapy will be continued beyond the preschool age.

Currently in Poland, Applied Behavior Analysis is not considered a standard therapy for children with autism in the public educational system. While behavioral therapies are made available by non-profit organizations in large cities, in small towns only public schools and clinics are available. The SCOLAR Foundation recognizes this problem and has begun many projects to make ABA widely recognized. The right to free education is written in the Polish constitution, but it should also include the right to an education based on evidence-based practice and databased decision-making. One of the foundation's goals for this year is to provide data to the superintendents of educational institutions demonstrating that therapy and education based on behavior analytic principles is not only beneficial for the children, but also for the state — the more independent children become at school, the less assistance is needed from the state in the future.

The SCOLAR Foundation has assisted in translating into Polish Dr. Mark Sundberg's *Verbal Behavior Milestones Assessment and Placement Program* (VB-MAPP). We provide workshops all over Poland to make this assessment the first choice for therapists and parents since it is the only assessment tool in Polish that is based on Skinner's science. The foundation also provides workshops to educate teachers on Skinner's analysis of verbal behavior. During the last two years over a thousand teachers attended these workshops. They implemented instruction based on Skinner's analysis within their classrooms, by incorporating the use of errorless teaching, mand training, teaching response forms across all of the verbal operants, and monitoring student progress with cumulative graphs.

In addition to making ABA therapy available for families and children affected by autism, the SCOLAR Foundation intends to continue making a difference by building a strong behavioral community to help change the

educational system for children with autism in Poland. The foundation advocates for the Behavior Analytic Certification Board (BACB) standards, encouraging our employees to take necessary courses and pass the Board Certified Behavior Analysis (BCBA) exam.

Every two years the SCOLAR Foundation orga-

nizes a conference and invites some of the most influential behavioral speakers from the field to help demonstrate how Applied Behavioral Analysis can help the education for not only children with autism but for every child that struggles with education on a daily basis. 🇧🇷

ABA and Autism Intervention: A Brief Comparison Between Two European Countries



UK



Italy

Francesca Degli Espinosa, PhD

In the past fifteen years, several countries in Europe have witnessed an increase in the application of behavioral analytic approaches to education. Although united in a common market (not for every long), great differences exist among the two countries in which I have had the privilege to work, with regards to education and specialist education.

In Italy, the approval of a national law in 1971 resulted in the closing of psychiatric institutions, with subsequent amendments in 1977 and 1992 further refining educational practices for children with disabilities. Except for very rare exceptions, mainstream education in Italy is compulsory, regardless of disability and level of functioning.

In the UK, mainstream or specialized school attendance is largely based on parental preference. There are currently 10 specialized schools for children with autism that use Applied Behavior Analysis (ABA) as a teaching approach. Although ABA schools tend to be independent, recent developments in the educational system have facilitated the opening of at least two ABA “free” schools: independent, but state-funded schools, not directly controlled by local education authorities. ABA schools do not represent the only specialist option, with other provisions ranging from schools based on a TEACCH (Treatment and Education of Autistic and related Communication Handicapped Children) approach for students with autism, to schools for students with a range of learning disabilities, from mild to severe.

In Italy, depending on the severity of their disability, students are allocated varying levels of one-on-one teaching support. Since employment in education is centrally governed, teachers are assigned to students based on a national point system rather than on the basis of their individual experience matching student needs. This can result in a student receiving support from a different support teacher every year, who may or may not have experience in that student’s specific disability. In the UK, allocation of specialist support to a student can still vary in terms of hours, but recruitment is locally controlled by the Head Teacher who ultimately decides which candidate may be most suitable to support a particular student.

With regards to ABA-based comprehensive intervention, children with autism and their families face similar challenges in accessing state-funded evidence-based practice, in both countries.

In 2011, the Italian National Ministry of Health published a review of what constituted effective treatment for children and adolescents with autism. In comparing interventions, the document strongly supported Early Intensive Behavioral Intervention as best and evidence-based practice for the treatment of autism. This strong recommendation, however, and sadly, has not yet resulted in practice guidelines and mandates to local health and educational establishments to offer state-funded ABA-based interventions to all



Francesca degli Espinosa, PhD, BCBA-D, has worked with children with autism for 21 years. Her clinical and research interests focus on advanced applications of contemporary analyses of verbal behavior. Dr. Espinosa developed the Early Behavioral Intervention Curriculum (EBIC) as a framework for intervention derived from functional analyses of language — work that subsequently formed a principal focus for her doctoral thesis. She currently teaches verbal behavior across a range of BACB-approved European postgraduate courses and remains committed to broadening international knowledge and understanding of just how meaningfully ABA can improve people’s lives. She provides applied behavioral interventions for families and educational institutions both in the United Kingdom and Italy, where she has mentored many of her home country’s currently certified BCBAs and continues to supervise Italian behavior analysts for the future.


children with autism. Families continue to have to fund their children's interventions largely out of pocket, with only very small support from the government.

In contrast, in the UK, despite the NICE guidelines not explicitly supporting EIBI or ABA-based intervention, the juridical system has resulted in many UK families being able to access funding for EIBI, following, in many cases, a successful tribunal.

Despite educational and funding differences, a constant similarity for the two countries seems to be the commitment of the health and educational establishments to employ an eclectic approach comprising of a range of methods to address the needs of individuals with autism. Thus, evidence and ABA based education seems to face similar challenges in both the UK and Italy.

As a group of Italian behavior analysts, we have attempted to meet some of these challenges at a local level, initially by tiptoe walking into schools, attempting to build reinforcing environments for adults to enable them to experience first-hand the power of a behavioral science to instruction. For the past eight years, when schools close for the summer, we have organized our own special "ABA

School", a learning environment that aims to provide (and disseminate) evidence based education of children with autism in Italy. The summer school, organized by the association Pane e Cioccolata (Bologna) runs for 2 weeks of the year and aims to meet the needs of all those who attend it, children and adults alike: the 11 BCBA's who coordinate its activities have the chance to sharpen their skills in an environment that takes reinforcement very seriously; the volunteers, trainees and technicians access ongoing supervision; and most importantly, the students, aged from two to nineteen, access an educational environment committed to meeting their every need through a scientific approach to learning. The summer school offers, in this sense, a small beacon of hope, a message of positive change: even in the country of compulsory mainstreaming, specialist education is possible and can be effective.

I would like to thank colleagues and friends of the Summer School project, without whom these kinds of positive changes would be simply impossible. To paraphrase Nelson Mandela, it is only through education that we can change the world. Elena, Valentina, Paola, Erika, Monica, Silvia, Federica, Luca, Beatrice, Alessandra — thank you! 



**Czech
Republic**

ABA in the Czech Republic: From Pennsylvania to Prague

Amiris Dipuglia, MD, BCBA

Jana Gandalovičová, MD

Dita Chapman, MSc., BCBA

Until recently, any behavior change with respect to the education of individuals with autism in the Czech Republic relied on contingencies lacking evidence-based support. Implementation programs utilizing interventions derived from behavior analytic principals were non-existent. At the start of 2017, there were still no board certified behavior analysts in the country. Interventions based on the science of applied behavior analysis (ABA) to guide programming for skill acquisition and to address ameliorating problem behavior were at the mercy of special education programs with staff who lacked the necessary training.

When Jana Gandalovičová, a cardiologist in Prague, Czech Republic, received her son's diagnosis of severe autism, her scientific background led her to look into what the literature offered. When she questioned about treatment options, she was unwilling to settle for the psychiatrist's shoulder shrug and explanation that nature could somehow help itself. Dr. Gandalovičová quickly came across the Amer-

ican Academy of Pediatrics (AAP) recommendation of using ABA to manage children with ASD. The joy and relief that came with this information was short lived when she saw her son's skills deteriorate in the hands of so-called "ABA therapists" who had no formal training. She realized then she needed to find credentialed professionals; however, her search on the Behavior Analyst Certification Board website (www.bacb.com) yielded no results for BCBA's in the Czech Republic. Furthermore, there were no approved courses of study available in the entire country to train such professionals. This resulted in a unwavering mission to bring ABA to the Czech Republic.

In April of 2015, Jana contacted Prof. Karola Dillenburger, BCBA-D, and director of the Center for Behavior Analysis at Queens University, Belfast who she located on the European Association for Behavior Analysis (EABA) website. To her surprise, Prof. Dillenburger replied immediately and, along with her husband, Prof. Mickey Keenan, BCBA-D from Ulster University, they began providing in-

valuable advice and support. Things began to move quickly when Dr. Gandalovičová introduced the idea of intensive behavioral intervention during a parliamentary seminar and partnered with another parent, Milena Nemcova. In addition to Prof. Dillenburger and Prof. Keenan, they connected with A. Prof. Karel Pancocha, the Vice-Dean of the Faculty of Education of Masaryk University in Brno.

Progress continued with the first ABA Conference held in October of 2015. Speakers included Prof. Dillenburger, Prof. Keenan, and Zuzana Mastenova, BCBA from Slovakia. The conference took place in Brno at a full-scale cinema, with over 400 parents and professionals participating.

David Kasal, MD, a pediatrician and member of the parliament, as Chair for CSABA, established the Czech Society for Applied Behavior Analysis (CSABA) November of 2015. The primary goals of CSABA were to:

- Guarantee high quality ABA-Based interventions supervised by board certified behavior analysts
- Establish certified education and training in ABA
- Create a new non-medical allied health profession, Certified Behavior Analyst, which would allow ABA-based treatment to be reimbursed by the public health system

The first major event run by CSABA was a seminar at the Czech Parliament in Prague called “Out of the trap of autism with ABA” in February 2016. In addition to the contributions of Profs. Dillenburger, Keenan, and Zuzana Mastenova, BCBA, Dr Neil Martin, Director of International Development of the BACB, explained the importance of professionally approved training. Additional participation included Prof. Lorri Unumb, Director of State Government Affairs for Autism Speaks, who was the architect of Ryan’s Law that spearheaded changes in American legislation to enable insurance coverage of ABA in 44 US States. Over 120 politicians, professionals, and parents attended the seminar, which spearheaded much support for bringing ABA to the Czech Republic.

In collaboration with Assoc. Prof. Pancocha, the Ministry of Education approved funding for up to 15 Czech students to study at Queen’s University Belfast or other international BACB approved course sequences, including Florida Institute of Technology (FIT), and for establishing a BACB approved course sequence at Masaryk University in Brno. The BACB course sequence at Masaryk University received official approval in May of 2016 and will begin its first cohort of students in the fall of 2017 under the leadership of Prof. Michael Keenan, BCBA-D, visiting Professor at Masaryk University. Additionally, Masaryk University is offering registered behavior technician (RBT) courses coordinated by Lenka Žáková, Project Coordinator for the Institute of Research on Inclusive Education and taught by Zuzana Mastenova, BCBA. The first RBT cohort began in the fall of 2016 with 36 students. A second cohort began spring of 2017 with 37 students participating and the fall cohort of 2017 will have 55 students.

Recent accomplishments of high relevance in the Czech Republic include the following:

- In June of 2017, the Czech Republic became the first European country to pass a law establishing the behavior analyst as a new non-medical health profession
- There are two Board Certified Behavior Analysts (Dita Chapman and, most recently, Katerina Chrapkova)
- About 10 individuals hold a registered behavior technician certification
- A contract has been secured to translate the text book *Applied Behavior Analysis* by Cooper, Heron, & Heward into Czech
- The first classroom for children with ASD utilizing systematic implementation of interventions derived from an analysis of behavior, including verbal behavior, opened its doors to a cohort of four students on September 4, 2017 at the Lyckovo School in Prague.

Planning for the first ABA-based classroom for students with ASD in the public education system began with the decision of Dita Chapman, BCBA to leave Bangkok, where she had been residing for the past several years, and to accept a sponsored trip to Pennsylvania to receive training for three weeks with PaTTAN Autism Initiative leads, Amiris Dipuglia and Mike Miklos. Dita participated in an initial two-day competency based training, which included analogue guided practice in teaching skills for applied behavior analytic interventions incorporating an analysis of verbal behavior. Training components included demonstration of skills related to identifying the verbal operants and other ABA concepts, developing classroom organization systems, demonstrating procedures for intensive teaching (discrete trial instruction) and basic mand training skills. The training also provided a brief overview of the VB-MAPP assessment tool and programing based on assessment outcomes. Participants are required to demonstrate acquisition of conceptual skills through brief oral and written assessments as well as implementation of various teaching protocols. In addition, visits to classroom settings were arranged, which allowed in-vivo observation of implementation of components trained. The components highlighted were primarily from the PATTAN Autism Initiative Site Review used as both a fidelity measure of implementation as well as a general consultation guide. Following the training, Dita planned to return to her home, Prague, after a 17-year absence, and enter in an agreement with the Ministry of Education to support the classroom as the lead BCBA.

Planning was also underway for the PATTAN Autism Initiative leaders to visit Prague in October of 2017 to deliver a talk titled “*Using the Potential of Applied Behavior Analysis in Education of Students with Autism Spectrum Disorders*” co-organized by the Czech Ministry of Education, Czech Society for Applied Behavior Analysis, and Faculty of Education of the Charles University of Prague. However, the eagerness of those involved in the project, resulted in two initial visits by Amiris Dipuglia to begin preparations for the classroom.

In June of 2017, Amiris traveled to Prague where she

was able to provide a two-day training for 10 participants, which primarily included the future classroom staff. Dita Chapman, Prof. Karel Pancocha, and Prof. Helena Vaďurová translated the training for the non-English speakers. The training was similar to that attended by Dita Chapman in the spring. Competencies demonstrated by participants included tacting discrete-trial type for the verbal operants, each meeting the pass criteria of 20 or more per minute. In addition, all participants demonstrated errorless and error-correction teaching sequences as well as the use of a card sort system to deliver discrete trials in a mix and varied format. All participants achieved the passing criteria for all competencies. Pre-test to post-test scores on a 20-item assessment of conceptual content changed from a mean of 59% correct to a mean of 95% correct. During this visit, the

participants were assisted in providing initial assessment and setting up data systems for each of the students participating in the classroom.

In August 2017, Amiris returned to Prague to assist in the set-up and organization of the classroom that would open its doors in a week following her departure. After four days of hard work, the classroom was complete. It benefited from the help of a group of individuals who all have as their common motivation ensuring high quality services for children with ASD based on the science of behavior analysis and to continue being ambassadors of the science. One can only imagine how pleased Skinner would be to see his approach to education come to fruition, not only within classrooms in his own nation, but across the Atlantic Ocean. 🌊



Amiris Dipuglia obtained her degree as a medical doctor in 1991 from the Pontificate Catholic University Mother and Master in the Dominican Republic. When her eldest son Alexander was diagnosed with autism, she left her medical career and pursued her certification as a behavior analyst.

Amiris has dedicated the past fifteen years to serving children with autism and other developmental delays by providing training and consultation to staff members in educational programs as well as homebound service providers on the implementation of evidence-based interventions derived from the field of applied behavior analysis. She also provides training to family members in order to promote and facilitate collaboration as well as optimize outcomes.

She is currently one of the lead consultants for the Pennsylvania Training and Technical Assistant Network (PATTAN) Autism Initiative and serves as a parent consultant.



Jana Gandalovičová, MD, graduated in 1989 from the Medical School of Charles University, Prague, the Czech Republic, with Dean's award. She obtained specialization in internal medicine in 1992. In 1996-2002 Jana had an internship at The Zena and Michael A. Wiener Cardiovascular Institute, Mount Sinai Hospital New York. She obtained a Medical License in internal medicine in 2004, and passed Board examination in cardiology in 2005. Currently, Dr. Gandalovičová teaches at Charles University Medical School and works at the 2nd Department of Internal Medicine – department of cardiology and angiology, and General Faculty Hospital and 1st School of Medicine, Prague. She specializes in arrhythmology, cardiac pacing, and heart failure.

Affiliations: Czech Medical Society, Czech Society of Cardiology, European Society of Cardiology, European Heart and Rhythm Association.

Dr. Gandalovičová is a co-founder of the Czech Society for Applied Behavior Analysis in 2016
<http://csaba.cz/>

Mother of 4 (3 adult daughters, 8-year old son Ravi)



Dita Chapman, MSc., BCBA, is originally from the Czech Republic. She earned her degree in Psychology in London, followed by her postgraduate in Positive Approaches to Challenging Behavior at Cardiff University, UK. Dita is now is a PhD candidate at Queens University, Belfast and her research interest is the efficiency of using Internet technologies on ABA programs in difficult-to-reach areas in South-East Asia.

Dita took on the initiative to bring PATTAN technologies to her home country, the Czech Republic, after a 17 year long absence.

William Parker, PhD: How I Challenged Criticism of B. F. Skinner



history
of
behavior
analysis

Interview by David Roth, MA



As a former student of Skinner, you had a unique perspective at MIT in the late 1960's, through all of what was going on there. It led you to some very interesting exchanges with Noam Chomsky. Could you share some of those details with us?

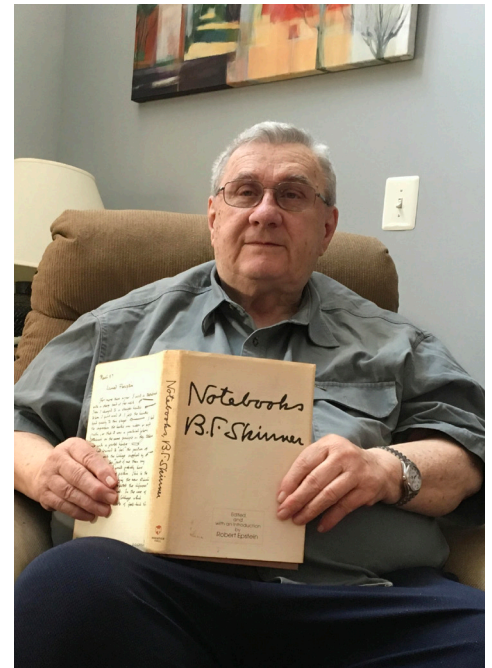
It seems to me that it would be useful to set the stage for young people first. Late sixties were a time of considerable political turmoil and upheaval, particularly in the US, but also elsewhere in the world. The Vietnam War was going on and many people objected to that. In the January, February, and March of 1968, there was a Tet Offensive, which shocked a lot of Americans, although something of the kind had actually been predicted by our military leadership. It had said that a surge of military activity like that was possible, but many people were very surprised. That was upsetting and made a lot of people question the war even more than they had done earlier.

That year, Martin Luther King was assassinated, which shocked nearly everybody and led to riots in over a hundred cities. Robert Kennedy challenged Lyndon Johnson for the democratic presidential nomination, and then Robert Kennedy was assassinated. The whole time was a time of upheaval. There were other cultural changes going on that sometimes were called the youth revolution, the sexual revolution, and the big change in militant civil rights activities, which was important, and there were changes in race relations. So, a lot of things were happening that were new and different for people. The draft, which affected only young men was still in force up until, I think, January of 1972. Students in the universities were concerned about being drafted into the military if they did not maintain their academic status. Young women would not have been drafted, but we can safely say that the young women in the universities were concerned about the boys who were there who were worried about being drafted. So, all these things contributed to a climate of political upheaval and anxiety.

In 1959, Chomsky had published his misleading review of Skinner's *Verbal Behavior*. The review was supposed to be concerned with linguistics and whether you can apply operant behavior principles to the acquisition of language and culture. Chomsky had become known as a political activist. It appeared to me, in retrospect, that at the time he was using his initial fame as a psycholinguist, also a mathematical linguist and a critic of behaviorism as a bridge to intellectual credibility and prominence in the political field.

How did this eventually lead to some of the correspondence that you had with Chomsky?

I went off of active duty with the Navy in 1966 and entered graduate school in the MIT Political Science department. Then from 1966 to 1968, my main effort was taking political science courses, and then preparing a dissertation project. But I was observing all the political and cultural tension, and all the debate over the Vietnam War. I was also hearing and reading quite a bit of Chomsky's commentary about all of this, but I didn't really do anything about it during '66, '67, or '68. I felt that a number of Chomsky's comments — he had come out with these things again and again through various channels — were inaccurate and unfair. In particular, I found that he was attacking two professors whom I knew personally. As far as I knew they didn't know each other, but they were Professor Skinner at Harvard and Professor Ithiel



This is the second half of a two-part interview with Dr. William Parker, a former student and long-time correspondent of B. F. Skinner.

In Part I, published in the Quarter II, 2017 issue of Operants, we learned about Skinner as a teacher at Harvard and about Dr. Parker's later role in introducing him to Karen Pryor.

In this issue, we pick up the story of Dr. Parker's experiences in the PhD program in political science at MIT in the late 1960s, and his subsequent relationship with Skinner.

de Sola Pool at MIT. Ithiel Pool was a pioneering political scientist, very much involved in opinion studies, political communication studies, studies of the mass media politics, and also in political psychology. But he was best known as the person who led the Simulmatics Project in 1960, which brought about the first successful computer prediction of a US presidential election. During that time, Ithiel Pool, who was my professor and gradually became my friend, and whom I had met when I was still in the Navy, was very well known in that field.

Chomsky was criticizing Ithiel Pool as a “defense intellectual”, maintaining that the entire climate of scholarship was being undermined by “defense intellectuals”, by people in universities being funded by the defense department. And beyond that, Chomsky was arguing that behaviorism was largely responsible for the mentality that he considered to be propelling American interventionism, American imperialism, and what he considered to be not a mistake, but a crime of the military intervention in Vietnam. Chomsky never mentioned Skinner in that particular connection, but Chomsky did, over and over again, mention behaviorism as being behind the mindset of American policy and American military actions.

There's an interesting story that you tell that happened after the two years of your working on your dissertation. Something about being in the coffee room...

Well, yes. I had been following these events, and seeing statements by Chomsky related both to behaviorism and to the Vietnam War. These statements related on the one hand particularly to Skinner and his work, and on the other hand to Ithiel de Sola Pool and his work, and his circle of contacts in both the government and in academia. I went into a little room in the Political Science building one day to get some coffee. There was a group of students there talking among themselves, “We’ve got to do something about Pool.” One student had said, “Well, I’m embarrassed to tell anybody that I’m from MIT because of Pool’s advocacy of the Vietnam War.” Other students in this group were asking what they could do to support Chomsky, and I was appalled at how uninformed these students appeared to be. I didn’t argue with them. I considered what I knew Pool was talking about, went over some notes on Chomsky and Skinner, and Chomsky’s critiques of both Skinner and Pool, and thought, “Well, I need to challenge that.” I didn’t consult with anybody else before issuing my

challenge.

Can you share some of the details of that challenge?

There was a group called PLUREL, and I don’t know where they got that title, but it was the Political Science Graduate Students Association. The students I heard in the coffee room were all political science students that I would have hoped were better informed about these things. I wouldn’t have expected the majority of MIT students who were in things like Physics, Electrical Engineering, or Chemistry to be so informed, but I would have thought the political science students would know better. I thought, “Well, we all ought to have more discussion of this.” So I went home and went through what notes I had and I wrote a memorandum. I kept it to one page, you might say partly

because of my Navy experience. I felt that no matter what the policy interests, no matter what the level of moral outrage and general importance attached to the issue, it was almost impossible to get people to read more than one page of a subject new to them. So I confined my initial blast at Chomsky to one page.

I pointed out some of the general issues, with some public media references to the issues. I said that Chomsky was inaccurate in his portrayal both of Skinner and behaviorism, and of Ithiel Pool’s position on the Vietnam War and military issues in general. It appeared that Chomsky also was not just opposing the Vietnam War, but as far as I could see, he was opposing all US policy. Some people saw Vietnam as a mistake and other people saw it as a deep-rooted symptom of American imperialism and racism. I offered to debate this with the graduate students and with Chomsky himself, if he was

willing to participate, using any format they wanted. My only proviso on the format was that there was enough time allowed to follow up all the many complicated points that would come up in such a debate.

I sent this as an open letter, not only to the political science graduate students, but throughout MIT. Apparently, it got distributed to other groups of other institutions as well, because there were people in activist groups who were concerned with the Vietnam issue. My letter got distributed to other colleges, of which you know there are a number of in the Boston area, and it got some media coverage. I was pleased at the initial response. Also, I would say that at that time Chomsky was regarded as being someone you couldn’t challenge. He had previously made McGeorge Bundy look



Protesters in 1969. Photo by libcom.org

bad at a debate at MIT. McGeorge Bundy was a former college dean from Harvard and also had been National Security Advisor in the Johnson Administration. Chomsky made Bundy, who was a very sharp guy, look awkward and clumsy in that debate. I felt that Chomsky was able to do that only because it was done in a two-hour debate format, and that enabled Chomsky to use unsubstantiated hit-and-run arguments. That was why I wanted to say that any format is okay as long as we have enough time, and multiple meetings if need be, to cover all of the points.

And he directly replied to your open letter...

Yes, I have to give him credit for that. He replied to me directly because I had sent that as an open letter. He did agree in principle to participate in such debates, but he also claimed that I was misrepresenting part of what he said. He referenced, for instance, his very influential, but inaccurate review of Skinner's important book *Verbal Behavior*.

The book came out in 1957 and Chomsky published his review in 1959. It was a very long review—fifty-eight pages long—the longest book review I have ever seen anywhere. I pointed out that Chomsky had identified (that was the word I used: *identified*) Skinner's treatment of verbal behavior and language with an older form of psychological theory called Drive Reduction Theory. Skinner had rejected that and Skinner had never implied that in his own work, but that's a complex story by itself for various reasons. No full-scale reply had come out on Chomsky's criticism of *Verbal Behavior* until the following year, 1970. I was issuing a challenge to Chomsky in January of 1969, so I hadn't seen what other people who were professional psychologists would say about that. But, in effect, in the review Chomsky said Skinner rejects Drive Reduction Theory as an explanation for reinforcement, but then Chomsky proceeded to argue as if Skinner's theory did depend on Drive Reduction Theory, which would be nonsense from the standpoint of psychological theory.

Chomsky criticized me sharply in a reply, which I also publicized, saying, "Oh well, you don't seem to recognize when there's a statement of difference..." or something like that, "...you're in denial if that's the case." But in effect, Chomsky had said only in passing that Skinner rejects Drive Reduction Theory, and then he spent five printed pages arguing as if Skinner's theory, and reinforcement theories in general, depended on drive reduction. I replied to Chomsky again in an open letter, "If you're not talking about Skinner's reinforcement theory who are you talking about?" I cited passages and footnotes in the review in which he did that.

I consider that a convoluted style of argument: You are criticizing a man in terms of his general research formulation, then you say he rejects a certain position and always has in his career, but then you proceed to argue as if he ought to be incorporating the position that he rejects.

In the Vietnam War arguments Chomsky was also using a convoluted and potentially misleading style of argument in a book called *American Power and the New Mandarins*. By "new mandarins" he meant, very largely, academic specialists who also had influence in the defense establishment and in the foreign policy establishment. He was arguing that behaviorism, as Chomsky defined it, was

behind all that. He didn't mention Skinner, but Skinner had always been at the center of Chomsky's criticisms of behaviorism. B. F. Skinner, himself, was a critic of the war. But Chomsky was arguing as if behaviorism was a major culprit in the mentality, the mindset, and the strategic theory behind the Vietnam War. I think this is bound to be confusing to everybody.

Eventually, you had the opportunity to see Chomsky face-to-face after this open letter was publicized. Would you mind sharing how you interacted with each other?

I had exchanged several notes with Chomsky, and at the time I made all that public, because there was allegedly a tremendous intellectual and moral interest in those issues. But I had never met him face-to-face. Then, I went overseas in Malaysia for about 15 months doing some dissertation research. Malaysia, of course, is in South-East Asia and it was a turbulent period there. They also had an extremely serious domestic crisis when I was in Malaysia. I got back from Malaysia in May of 1970 and was catching up on things at MIT. I showed some of my papers about the debate proposal to Skinner and to other people who were in Cambridge at that time.

It was announced that there would be a program one evening discussing the US military incursion in Cambodia at a church building right near the Harvard Square. It was going to be a big discussion as there was a lot of public concern and excitement about that subject. At this discussion Noam Chomsky was supposed to be one of the main participants. I don't remember all of the other people that were in the discussion, but the one I do remember was professor Edward Reischauer, who was an historian of Japan and Asia in general, and he later became an ambassador to Japan. He was also known as a friend of the Kennedy family and the Rockefeller family.

The church building was full and I was in the audience. There was a little panel in the front with Chomsky, Reischauer, and other people, and one of the church leaders was acting as a moderator. I heard Chomsky at one point give a statement quoting the current issue of the *Far Eastern Economic Review*, a weekly journal based in Hong Kong, on the subject of Cambodia. By chance, or else by predestination if you want to believe in that, I had been looking at that same issue that day and I saw that Chomsky was not quoting it accurately. The discussion went on and at one point Reischauer said that Chomsky's assertions as to the reasons for US policy could not be true. So Reischauer, a very distinguished historian of Asia and student of the policy and politics of that region, was rejecting what Chomsky's overall view was, that it was all based on imperialism and so on.

When they got to the end of the general discussion, I stood up. I was not introduced at that point, and I said to Chomsky, "I was reading the *Far Eastern Economic Review* this afternoon, and that article *does not* say what you said it says about Cambodia." The audience, on the whole, was sympathetic to Chomsky. But, I had made the point in front of that audience that with a current reference—not some obscure thing in the back corner of a university library, but a significant publication that had come out that very week—

Chomsky was not quoting it accurately. Chomsky didn't appear to be too happy that I said that. He didn't know who I was either. He tried to brush that aside by saying that *Far Eastern Economic Review* didn't mean anything. But he was quoting them and so I said to him, "Do you or do you not consider that to be a good reference on things happening in Asia?" The moderator, then, moved the discussion onto other things.

After the discussion ended, a few people were standing around in front. Chomsky was there and I walked up. I just listened for a couple of minutes, and then Chomsky looked at me and I said to him, "By the way, I'm the person who issued the challenge to you in '69 to have a debate over Pool and Skinner." Chomsky scowled and he said to me, "Oh, so you're *that* guy?" I said, "Yes, I'm that guy." Then, the church moderator frowned at me and, as I recall, got between us. He didn't want Chomsky and me to go at it. Chomsky didn't know me personally. As I said, we had exchanged several notes. I guess other people were involved in those

discussions too, as to whether they would go through with the debates—which I wanted them to do, and they easily could have done. Anyway, we didn't meet face-to-face until that time at the church at Harvard Square.

I was wondering if you had any closing thoughts that you'd like to share with the behaviorists of the world that are reading this interview?

I would like to encourage the behaviorists of the world because I think scientific perspectives and the scientific method have helped and will help further in promoting the general welfare and peace and prosperity. Behaviorism is based on actually observing behavior, trying to find out regularities in behavior, and influences on behavior, and it dispenses with a lot of traditional explanations, which psychologists sometimes call "hypothetical constructs" or intervening variables or homunculi, little men built into the system or something like that. In the lay audience, and even among other kinds of scholars and other psychologists, behaviorism created anxiety and doubt: How can you do away with traditional kinds of explanations of behavior and character, and natural identity? But if you say that behaviorism won't work, and you don't support anything that remotely resembles behaviorism, what are you going to do, throw away the

whole principle of observation? If we're going to talk about behavior and the human condition by making inferences about hypothetical constructs, are we going to say, "Oh no, we can't rely on observation to say anything about that?" So, being anti-behaviorist, if you want to be truly scientific, appears to have the old logical aspect of *reductio ad absurdum*. Nevertheless, there are people, including psychologists and other social scientists, who try to make a bogey out of behaviorism, and I think that they are very much on the wrong track in doing that.

Chomsky's review of the book *Verbal Behavior* in 1959 apparently played into this anxiety, which I would consider to be a kind of cultural conservatism, not political conservatism, but cultural conservatism. Chomsky in his long review of Skinner's book took the view that he had shown that the whole method has no validity, and that was widely accepted. I can show you a number of printed references, scholarly references, and even a current reference on the Internet on Wikipedia where there appears to be

uncritical acceptance of Chomsky's arguments from 1959. But Chomsky's criticisms of Skinner's formulations in that book—where Skinner talks about how you would apply, in principle, operant behavior theory and operant conditioning theory to language, and then by extension to things like scientific behavior and the acquisition of cultures, in general—Chomsky's so-called criticisms are either irrelevant, inaccurate, or just plain wrong.



Bill Parker in 1970. Photo from the personal archive.

I was trying to address those issues very early in 1969 in my memoranda and my exchanges with Chomsky, but later on, a very distinguished psychologist that knew Skinner, named Kenneth MacCorquodale from the University of Minnesota published the first full-length refutation of Chomsky's review. But, he came out with that in 1970. So, the result was that Chomsky's review had been out since 1959 and that left over ten years where most people, including many reputable scholars, had no access to a detailed criticism of Chomsky's review. For instance, take the *International Encyclopedia of the Social Sciences*, which was published in 1968. In the main general article on culture, the writer, Milton Singer, says that the behavioral approach had simply failed to account for the development of culture and language, and he cites Chomsky's review as the

main reference. There are a number of other references that are about that recent or more recent. Chomsky's review was wrong on the most elementary points, one of which was the challenge, "How can a young child or person early in learning a language generate thousands of unique sentences?" The answer to that from a Skinnerian formulation is that once a basic repertoire has been learned, a few basic words and the ability to pronounce them and so on, then the learner is confronted with a stream of stimuli, and often multiple stimuli at the same time. Usually, he will have siblings, playmates, parents, other adults, and even if he is in an economically poor background, there will be people who do speak the fully evolved language of that group, and the child will pick that up. Also, the immediate social and physical environments, or the media environments if they have that, will present thousands of stimuli, each one of which, if passed upon the child will be the basis for a new sentence—unlimited numbers of sentences. So, for Chomsky and his followers to argue that the reinforcement paradigm is too slow and you couldn't have this generation—or sometimes Chomsky used the term "enumeration"—of large numbers of sentences without having some kind of built-in sentence generator—which he referred to as "transformational grammar," or sometimes a "universal grammar," or some similar terms—is simply off the point and non-responsive. Once you've learned the basic repertoire, which usually does take some time, then you can respond to millions of new situations, and as Chomsky did say correctly, any child can. But, MacCorquodale, who wrote the first full-length psychological rebuttal, which came out in 1970, said that in Chomsky's system there is no way that grammar can even respond to anything. If that grammar system is supposed to be built-in, there is no way it can either communicate with anybody or can learn anything.


There was a section in MacCorquodale's review that you felt was quite pertinent to what we're discussing right here. In MacCorquodale's conclusion he says:

But the review, however approximate, has had an enormous influence in psychology. Nearly every aspect of currently popular psycholinguistic dogma was adumbrated in it, including its warlike tone; the new look is a frown. It speaks of itself as a "revolution", not as a research area; it produces "confrontations", not inquiries. So far there have been no telling engagements in the revolution. The declaration of war has been unilateral, probably because the behaviorist cannot clearly recognize why he should defend himself. He has not hurt anyone; he has not preempted the verbal territory by applying his methods to verbal behavior; he has not used up all of the verbal behavior nor has he precluded other scientists from investigating it to their heart's content, with any methods and theories which please them; he need not be routed before they do so.

Do you want to comment on that?

There are a lot of things there that you could comment on. I said earlier in this interview that I think Chomsky had set out to make a bogie of behaviorism, and that was a conservative cultural view trying to find resonance in traditional elements in Western culture. It largely had to do with the belief in various built-in qualities of human nature affecting external behavior and current events. What MacCorquodale had commented on in 1970 was that Chomsky realized that philosophical issues, if you will, and cultural interpretations that were raised by behaviorism could be used to springboard, to be used as a platform, for prominence in a wider political context. And so we see, from Chomsky's own writings, that he in fact did use that to broaden and to provide some credibility, some intellectual prestige, for his political arguments in the late 60's and centered on, but not exclusively confined to, the Vietnam War issue. It appeared to me on close examination that Chomsky was erroneous in nearly all of his criticisms of Skinner, and many of his criticisms about the reasons for the Vietnam War, but nevertheless he was able to get a segment of public opinion and a segment of intellectual opinion to rally to his support that goes on today, despite having been criticized and refuted on many occasions. But, Chomsky had a period of nearly ten years, from 1959 to 1969, when there was very little coherent rebuttal of his argument, and he was able to use that to springboard from a narrow intellectual field into the very broad political arena, and he became literally world-famous in doing that, so in that sense he was successful in what he set out to do. Nevertheless there were people who did and still do fundamentally disagree with him. I think, myself, it was unfortunate for the field of behaviorism, because Skinner and others working in his tradition were trying to bring about more efficient means of education, more effective means of therapy, more humane law enforcement, better management policies in the business industry, and my personal opinion is that Chomsky's review and his attack on the operant conditioning paradigm in the book *Verbal Behavior*, the review that went almost unanswered for ten years, probably has had the cumulative effect of setting back the behavioral sciences and the social sciences by 30 years or maybe more. So, that's a curious footnote to history and how acute the intellectual community really is.

You mentioned the article on culture—that you had read about in the International Encyclopedia of Social Sciences that cited Chomsky—as having done away with behaviorism for the study of cultures, and you showed this to Skinner. Could you share with the readers what Skinner's response was to this?

Well, that's a memorable moment. I showed Skinner a copy of that in his office in, I think, 1970. He looked at it and appeared slightly taken aback. He turned to me and he said, "Well, that shows you how the weak get weaker." 



history
of
behavior
analysis

B. F. Skinner's Analysis of Verbal Behavior: A Chronicle (Part I)

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Skinner's writing of *Verbal Behavior* took place over many years, in many settings, and with continuous revisions. More importantly, it took place within the implicit framework of his theory of behavior, primarily based on the process of behavioral selection. Equally significant, its development derived from an intertwining of experimental and naturalistic observations. From the beginning, the interlacing of unnoticed theory and observed fact show themselves consistently.

Skinner insinuates their dual presence when he states at the very start of *Verbal Behavior* "The present extension to verbal behavior is thus an exercise in interpretation rather than a quantitative extrapolation of rigorous experimental results." He announces more clearly the type of analysis by further stating, "The emphasis is upon an orderly arrangement of well-known facts, in accordance with a formulation of behavior derived from an experimental analysis of a more rigorous sort." From the beginning, it was an effort about which he was quite explicit as he stated in a letter to Fred Keller in 1934, "What I am doing is applying the concepts I've worked out experimentally to this non-experimental (but Empirical) field." But the guiding assumptions of his theory of behavior were already present. With his doctoral thesis of 1930, the theoretical effort started early. It continued to the very end. But we take the story only to 1957 and only with respect to his effort on the analysis of verbal behavior.

Figure 1 (p. 21) provides a brief overview of the intertwining of experimental and naturalistic work within his theory. Throughout his career, Skinner addressed issues within the lingual area and within the straightforward operant work of the laboratory. The reader can note that 1957, the year his theoretical work on contingencies over lingual actions, *Verbal Behavior*, was published, was also the same year he, along with Charles Ferster, published the magnum opus on laboratory controlled contingencies, *Schedules of Reinforcement*. The reader should also note that from the beginning Skinner actively pursued his analysis of language and of nonlanguage behavior concurrently.

Though not stated in an orderly fashion nor necessarily in explicit manner, Skinner's earliest work, including his thesis, lays out the assumptions by which he later interprets his experimental and naturalistic observations. Several premises or themas guide him. Skinner echos them later in his interpretations of experimental observations of behavior and of naturalistic observations of verbal behavior. These premises formed the underlying framework of his incompletely articulated theory of behavior. All of his work on verbal behavior fell within the framework of his theory.

Thematic beginnings of the theory

Skinner submitted his thesis on December 19, 1930. The first half was theoretical; the second was experimental. A similar balance of intellectual labor continued throughout his scientific career. For Skinner, theory was as

*Contributions of the authors were in the order given.

important as laboratory work. He even wrote an article, *Are Theories of Learning Necessary*, to which he gives a firm “yes” if of the right sort. He emphasized that theories must be couched in the dimensional framework of the science’s subject matter so that, for example, behavioral phenomena should not be interpreted using physicalistic explanations. Any range of behavioral phenomena may be accommodated within a contingency selection framework, from neurophysiological events to the lingual activity of a culture. Though the thematic and empirical content of his theory is implicit in his many writings, Skinner makes explicit features of his theory in articles and books such as *Selection by Consequences* and *Contingencies of Reinforcement, A Theoretical Analysis*.

The theoretical half of his thesis was in the form of a review of the history of the reflex. He sounded the keynote for the review at its start: All the early work on the reflex, from Descartes through Marshall Hall and others, was an attempt “to resolve, by compromise, the conflict between observed necessity and preconception of freedom in the behavior of organisms” (underlined emphasis Skinner’s). He noted that the compromise was due to

a crisis in the history of the metaphysical concepts that dealt with the same phenomenon [animal movement]. [T]he movement of an organism had generally been taken as coexistent with its life and as necessarily correlated with the action of some such entity as soul. The necessary relationship between the action of soul and the contraction of a muscle, for example, was explicit. As a consequence it was disturbing to find, experimentally, that a muscle could be made to contract after it had been severed from a living organism or even after death.

Skinner rejected such a compromise. From the beginning, he dismissed any notion of an *agency* as a guiding force in the behavior of any organism. Early workers (e.g., Descartes, and afterward even evolutionists such as Wallace) drew a demarcation line between humans and other animals. But like Darwin, Skinner maintained the continuity of shared properties between the human species and other species. He was already setting the stage for the speaker as a *locus* not an *initiator*. As he subsequently put it at the end of his book *Verbal Behavior*, “I have found it necessary from time to time to attack traditional concepts which assign spontaneous control to the special inner self called the speaker.” All his work dealt with contingency relations. As an explanatory force, contingency replaced agency.

The term *contingency* only shows up later, past his thesis work. Initially in his thesis, Skinner emphasized *correlation*. But it was not correlation in a statistical sense that he emphasized. It was the *correlative relation* between two (or more) events. As he ex-

plicitly stated “... a scientific discipline ... must describe the event not only for itself but in its *relation* [italics added] to other events.” This relation assigned the meaning of an event through how it connected to another event. He provided a clear example.

When we say ... that Robert Whytt discovered the pupillary reflex, we do not mean that he discovered either the contraction of the iris or the impingement of light upon the retina, but rather that he first noted the necessary *relationship* (italics ours) between these two events.

No event is a *stimulus* independent of its relation to another event called a *response*, and no event is a *response* independent of its relation to another event called a *stimulus*. Each of these events could be described physically, and as such within the dimensional framework of the observational system of physics, but the *paired* events derive meaning from their relationship to each other. A light is not a stimulus unless and until an action occurs with respect to it and only then can the action be termed a response. All the verbal relations he later described require a similar analysis, for example, “A mand is characterized by the unique *relationship* [italics added].” The connection between two events designates their relationship, a relationship which can be named for its properties. The operant, upon which he built all later analysis, is such a correlative relationship based on the control between a

postcedent set of events and a prior action class. Correlative relationships supply the frame of reference by which events are interpreted.

The *frame of reference* in which events occur provides their meaning. Skinner approaches the problem of frame of reference elliptically, but with respect to his philosophy of science, sidles up to it in a sophisticated way. “The definition of the subject matter of any science ... is determined largely by the interest of the scientist ... We are interested primarily in the movement of an

organism in some frame of reference.” As part of that frame of reference, Skinner includes internal events. “We are interested in any internal change which has an observable and significant effect upon this movement. In special cases we are directly interested in glandular activity.” He continues this emphasis upon frame of reference in *The Behavior of Organisms*, describing and amplifying its significance for the subject matter of a science of behavior, “By behavior, then, I mean simply the movement of an organism or of its parts in a *frame of reference provided by the organism itself or by various external objects or fields of force*” [italics added].” The stage is set to consider any size, level, and type of contingency relation both within and surrounding the organism, and interactive between those two settings. As E. Vargas puts it,

The extraordinary range and flexibility of verbal behavior occurs through induction of the overlapping properties of the behavioral, biological, and physical

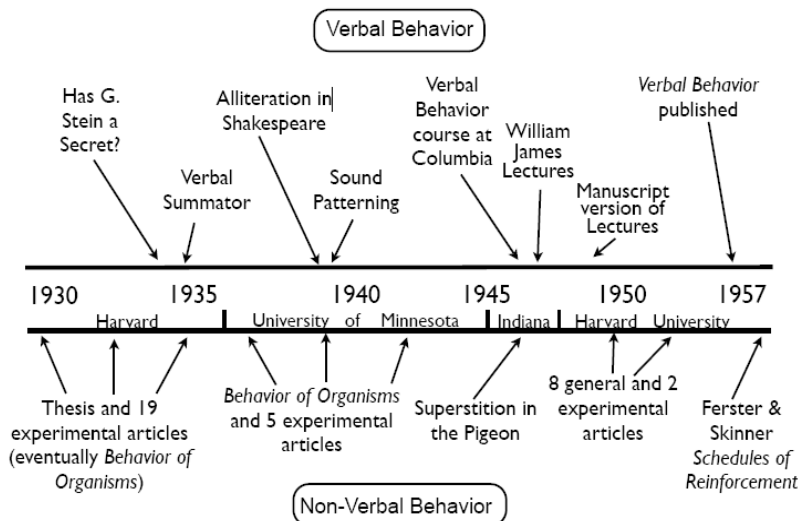


Figure I. Overview 1930 - 1957

events involved both inside and outside the body. The shifting variability of these properties, and thus of their relations, guarantees that the relationship between terms is not linear and not mechanistic; and other characteristics of Skinner's system of verbal relations also make verbal occurrences probabilistic. Terms may be paired with each other (as with an operant) and nest within other relationships (the same operant within a number of three and four and N term relationships). Whether a speech episode occurs depends upon the probability of any of the nested relationships occurring.

As reflection reveals, verbal behavior is a four-term contingency relation that builds upon the prior two- and three-term ones. These contingency relations are the pairs of correlative variables that frame the meaning of lingual interaction.

A frame of reference indicates that it is categories of variables that are at issue in analyzing behavior, not a causal agency. In the analysis of verbal behavior, frame of reference gets its operational workout through Skinner's definition of meaning. "But meaning is not a property of behavior as such but of the conditions under which behavior occurs. Technically, meanings are to be found among the independent variables in a functional account, rather than as properties of the dependent variable." Examples of this sort of framing proliferate throughout *Verbal Behavior*. For example, the word *fire* changes its meaning depending on the circumstances of its utterance, a firing squad or burning wood. Puns and other playful attributes of language depend on the tension between the topography of the dependent variable and its implied meaning, with the actual meaning given by the circumstances of its saying. Speakers and listeners constantly attend to those circumstances. As Skinner puts it, "When someone says that he can see the meaning of a response, he means that he can infer some of the variables of which the response is usually a function."

Function occupies a special place in Skinner's analysis of verbal behavior. He does not intend purpose or usage or any other kind of teleological overtone. As he later stated, "The strength of behavior was determined by what had already happened rather than what was going to happen in the future." Of course, that is a presumably "going to happen" for though we can predict the future we cannot know it. (Unfortunately, the drift to teleological meaning is beginning to occur in the behavior analytic literature, especially that literature concerned with practices with clients. Behavior analysts should object to an interpretation based on the "function of a behavior".) Skinner uses the term *function* in the sense that it is used in mathematics, as simply the expression of a set of paired values between independent and dependent variables. This definition led him to, or stemmed from, the philosophical position of Ernst Mach, which he adopted early. "[W]e may now take that ... view of explanation and causation which seems to have been first suggested by Mach ... wherein ... explanation is reduced to description ..." Certainly that kind of explanation occurs if all observed values of independent and dependent variables are provided and their paired relationships are specified. As Skinner points out, the concept of function gets substituted for the notion of causation. He carries Mach's position further though. Simple description reports the topography of behavior. Explanation, however, is a more complex endeavor. It asks "what conditions are relevant to the occurrence of the behavior—what are the variables of which it is a function?" It is no accident that Chapter 1, in "Part I: A Program", is titled: "A Functional Analysis of Verbal Behavior."

Within these thematic borders, all later observations, both

naturalistic and experimental, were at minimum implicitly explained.

Experimental beginnings of the theory

Skinner's thesis started with an examination of the reflex correlation, but soon moved from there. The reflex correlation consisted of antecedent stimulus and subsequent response, and emphasized antecedent control. He designed a series of experiments that began by looking at the response to a carefully calibrated click. When nothing interesting appeared, he scrapped the equipment and built another apparatus for a different procedure. A big step occurred when he automated the recording in a rectangular runway so that the organism, not the experimenter, initiated each run. It permitted a measurement of rate of response, impossible in a "trials" procedure. By Skinner's second year of graduate school, the arranged "antecedents" had moved from the momentary stimulus of a click to hours of food deprivation. His dependent variable became rate of eating. Each push on the food door of the apparatus produced an upwards movement of a stylus on a steadily moving piece of smoked paper. The resulting "cumulative record" showed rate in the angle of the line. It also recorded behavior in real time. The results from this apparatus gave Skinner enough data for his thesis.

Continuing to do research, Skinner replaced the door with a lever; shifting from looking at "ingestion" to lever pressing. With the lever, no longer did each action automatically produce one bit of food. Now more than one response could occur before food became available. The significance of this procedure began to be apparent when the feeder jammed and the animal continued to press the bar, producing a beautiful extinction curve. It did not take long before Skinner realized that, while the "third variable" of deprivation was important, the real power over rate of responding lay in its relation to how immediate postcedents were programmed. Skinner was excited about his discovery and how sharply it differed from traditional psychology. He evidently wrote his best friend, Fred Keller, about its conceptual implications. Skinner's letter no longer exists. But on October 2, 1931 Keller replied, "The only thing that bothered me about your very welcome and newsy letter was that talk about a brand new theory of learning." With the discovery of postcedent control (the "operant", as Skinner later named it), the first glimmer of a new theory had been sighted.

The first mention of the operant type of relation appears to be in Skinner's 1935 article, "Two types of conditioned reflex and a pseudo type." He made a rough-hewn set of distinctions between different types of conditioning procedures, whose details need not concern us here. A challenge by Konorski and Miller in 1937 to his initial distinctions prompted Skinner to reply, "The differences between the types given in my paper ... which need not be repeated here, are no longer useful in *defining* the types [italics ours], but they serve as convenient hallmarks." In this reply, he sharpened the distinction between respondent and operant conditioning, and first named the latter the "operant". "I shall call such a unit an *operant* and the behavior in general, operant behavior." It was to be the linchpin of his theory of behavior, within which he would interpret all behavioral phenomena including verbal behavior. It elucidated an endeavor in which he had already embarked.

Beginnings of "Language" Analysis

Skinner's specific start on language happened accidentally. He began a serious and systematic effort on the problem of

language following a friendly and spirited discussion on the relative merits of behaviorism with Alfred North Whitehead, a noted mathematician and philosopher. Whitehead finally conceded during their discussion that behaviorism might deal effectively with all aspects of behavior with the exception of one, language. Following a dinner, they lingered at the table. Whitehead challenged Skinner to account for Whitehead's saying, "No black scorpion is falling upon this table." The very next morning Skinner started the first outlines of his analysis of language. It was 1934.

We catch glimpses of his efforts, and of his intertwining of experimental and lingual work. On July 2, 1934, in the middle of a letter to Fred Keller, Skinner mentions "... running off a single experiment, but above all writing a book on language from a behavioristic standpoint ... and now have about ten chapters outlined." His procedure was Baconian. "In my room in Winthrop House I fastened some large sheets of cardboard together with key rings and begin to formulate what I was calling verbal behavior. ... I took instances of behavior from my reading or from overheard speech ... and entered them into an awkward and constantly changing classificatory scheme." About a half year later, in another letter dated January 18, 1935, he writes, "I'm going into aphasia, now, on the pathological side of language." A couple of months later, in a letter dated March 15, 1935—evidently in answer to an invitation by Keller to present a paper—Skinner provides a peep into the complexity of his linguistic labor by writing, "I think the subject had better be experimental. I couldn't say enough on language in an hour to get the point of view across." He was quite cognizant already of the radical position he was taking. As he stated in another letter to Fred Keller on June 21, 1935,

The book is going to be good. The linguists will laugh at it -- most of 'em -- and the psychologists won't get through it. But it's good. Underneath what seems like a lot of complexity (which is really only novelty) there lies an immense simplification.

He also mentioned that at that time he was working six hours a day on the book. He felt that he was making good progress, sufficiently so to start talking about his analysis: "By November I was far enough along to offer a colloquium at Clark University on 'Language as Behavior'." He engaged not only in theoretical work on language, but also attempted to experiment with lingual behavior. He apprised Keller by letter, "I'm also building a rather elaborate apparatus for experiments on humans. I call it a Verbal Summator." He later published an article based on this laboratory work.

Along with his linguistic work, Skinner concurrently pursued his basic operant research. A number of articles based on experimental work on contingency relations were published by him along with those on language. He now took an action he called,

"strategic." "I've had a long run and tiring run of experiments . . . lot of new dope. During January I'm going to whip it into shape along with the general outline of the experimental book. I'm going to publish that before the language book for various strategic reasons." We can only speculate as to why. A plausible notion is that he wanted to establish his credentials as a hard-headed scientist before advancing a highly theoretical and sure-to-be controversial analysis. This sort of caution is not unusual. A century earlier, Darwin faced the same problem of acceptance of his theory of natural selection. His friend, Joseph D. Hooker, recommended that he not publish until he establish his bona fide credentials as a knowledgeable and hard-headed biologist by producing a work of taxonomic classification. Hooker wrote to Darwin, "no one has the right to examine the question of species who has not minutely examined many." Darwin did, and composed his multi-volume work, still canonical, on the cirripedia. Much the same advice was given to the young Skinner by William John Crozier, his mentor. "The theoretical treatment of these questions will be very much stronger and much more effective when backed up by hard analysis of new experimental results", and a day later wrote, "... people are very likely to take the attitude that such a treatment as you have given represents merely the activity of 'another theorist'." Skinner obviously went along with Crozier's advice.

The analysis of verbal behavior rests on the foundations of the analysis of operant behavior. To understand the former, the latter must be known. Though the processes are the same, the critical distinction between the two is that non-mediated operant behavior directly contacts its surrounding milieu (whether inner or outer) whereas in verbal behavior the contact of that milieu is mediated. As Skinner forcefully put it in the beginning of *Verbal Behavior*, "Men act upon the world, and change it, and are changed in turn by the consequences of their action." He

contrasts this description of operant behavior that directly contacts its immediate milieu with that of the interpolated contact of verbal behavior on the very next page. "Behavior which is effective only through the mediation of other persons has so many distinguishing dynamic and topographical properties that a special treatment is justified and, indeed, demanded."

Figure 2 summarizes the intertwining of his language and nonlanguage work.

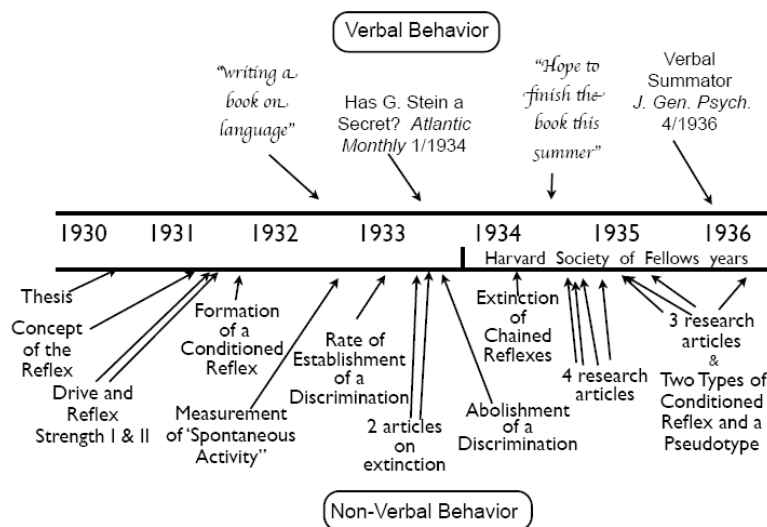


Figure 2. Early Work: 1930-1936

Second half of this article will appear in the Quarter IV, 2017 issue of Operants magazine.



reflection

A Rose By Another Name: Behavioral Materialism

Joseph E. Morrow, PhD, BCBA



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As a pioneer in the academic development of Behavior Analysis in California since 1966, Dr. Morrow has published papers on behavioral psychology, behavioral treatment of autism, and has been an active member of the behavioral community for over 50 years.

Dr. Morrow has been involved with legislative issues in California relevant to the practice of ABA and has testified on this behalf to legislative committees.

Radical Behaviorism is the name Skinner has given the philosophy he had developed. The purpose of the present note is to suggest that *Behavioral Materialism* be considered as a possible alternative.

It is clear that any name should have a reference to behavior since this is the subject matter about which we philosophize. However, there are some important distinctions the word *behaviorism* alone does not clarify. There are the behaviorisms of Watson, Hull, and others that are different in important philosophical ways from that of Skinner.

Adding the word radical to behaviorism may not adequately denote the factors that distinguish Skinner's philosophy. Skinner uses the term *radical* in its primary lexical sense of root or origin. But, a more likely effect of the word on its audience is to suggest the secondary lexical meaning of *extremism*. If one starts with the usual common misunderstandings of the word "behaviorism" and adds "extremism" to that, we may have the basis of a complete misunderstanding.

Adding the word *materialism* to behavior would have advantages. For one thing, it may be the most accurate depiction of Skinner's philosophy. According to Random House Dictionary, materialism holds that "matter and its motions [constitute] the Universe, and all phenomena, including those of mind [are] due to material agencies." As to mind, as early as 1945, Skinner viewed such questions to be issues involving private, real events taking place inside the skin of the individual. He later argued that "a private event may be distinguished by its limited accessibility but not, so far as we know, by any special structure or nature," and, "Private and public events have the same kinds of physical dimension."

This position distanced Skinner from the most prevalent philosophy in psychology at the time, the non-materialist logical positivism. Taking note of his position, Creel, a philosopher writing in the journal *Behaviorism* in 1980s concluded, "... I see no reason to doubt that Skinner affirms philosophical materialism."

Another philosopher, Flanagan, in the same journal wrote: "Skinner is a metaphysical materialist." Metaphysical in this philosophical sense means only a position that, from a logical standpoint, can never be totally proven. Dr. John C. (Jay) Moore, a scholar in the philosophy of radical behaviorism and conceptual issues in behavior analysis, called Skinner's position "physicalism" or "something akin to metaphysical materialism if it should be called a metaphysical position at all."

Skinner remains clear on the issue. In *Notebooks*, he states, "A basic principle of behaviorism which has guided me throughout my professional life...is the importance of converting mentalistic terms into alternatives which refer to things having physical dimensions."

The history of materialism is a long one going back at least to the fifth century B. C. to Leucippus and Democritus. Materialists have consistently argued against the notion that something other than matter exists. Today, materialist views have generally eliminated supernatural views in chemistry, physics, and biology. It is in the mind that non-materialists have dug in to insist that something other than matter exists. The radical behaviorist critique of mind clearly places it within the materialist tradition and offers the hope of finally

sealing the non-materialist coffin by leaving it no place else to go.

Another advantage to the term Behavioral Materialism is that it could allow the intellectual community to more accurately place radical behaviorism on the spectrum of thought.

The similarity between the term *behavioral materialism* and Marvin Harris' *cultural materialism* is intentional. The breadth of similarities have been adequately delineated previously and need not be repeated here. Suffice it to say that cultural materialism, like radical behaviorism represents an attempt to explain all human conduct based on real events in a material world.

Generally speaking, the most well-known proponents of materialism today are Marxists. Radical behaviorism and Marxism have similarities and differences. Marx was a consistent determinist and his writings anticipated a part of Skinner's critique of mentalism. Marx wrote:

The phantoms formed in the human brain are also necessarily sublimates of their material life process which is empirically verifiable and bound to material premises...Life is not determined by consciousness but consciousness by life.

Marx, like many after him, did not complete this critique of what he called idealism and radical behaviorists call mentalism. Such was left to Skinner.

However, the philosophical debt owed Marx for his insistence that consciousness and all human behavior is due to events in the real world led Harris to suggest that Marx "had come the closest in the nineteenth century to being the Darwin of the social sciences."

Indeed Harris in choosing the name *materialism* did so "as an acknowledgment of the debt owed to Marx." Marx's brand of materialism is called *dialectical materialism* and herein lies an important distinction from Radical Behaviorism. Vasily Krapivin writing for the authoritative *Progress Publishers* in Moscow on "What is Dialectical Materialism" lists the main components as:

1. An objective approach to social processes
2. A comprehensive analysis
3. A historical approach
4. A study of practical demands
5. Pinpointing the crucial link for change
6. Determining the inner sources of development by exposing the contradictions which caused it.

Radical behaviorists would recognize their own practices in elaborations of the first five points. However, it is the sixth point that led Harris to reject the term *dialec-*

tical and I would urge its rejection for our field on similar grounds.


In elaborating on point six, Krapivin says, All phenomena and processes of reality have opposite aspects. Everything is shot through with contradiction... The existence and development of living organisms are also marked by opposites ... [The] interaction [of opposites] includes both their unity and their struggle. The unity of opposites means they cannot exist without each other and are mutually dependent... While being in unity the opposites are at the same time in 'struggle' with each other, that is, they mutually negate and rule each other out... [Thus] contradictions are the source of the motion and development of objects and phenomena... The struggle of opposites constitutes the inner content, the source of the development of reality.

Because of its dependence on the logical methods of analysis adopted from the philosopher Hegel, Harris calls this approach the Hegelian monkey on Marx's back. He argued that while certain natural phenomena may well fit the notion of unity and struggle of opposites, a great many do not.

Such verbal behavior seems totally superfluous in describing the functional relationships radical behaviorists observe in operant chambers. For example, in switching from a crf to a VR schedule, a particular change in performance is noted. In switching from a crf to a VI, a different kind of performance ensues, and so on throughout the many schedules. The behavior change is accounted for by the reinforcement requirements of the extant schedule (and past history). To then suggest that this process be fitted into a verbal scheme requiring identifying opposites and contradictions borders on the absurd. Additionally, of what value would such a task be? Behaviorists are well aware that behavior changes as a function of changing conditions. Radical behaviorists

call these changing conditions contingencies of reinforcement and their basic controlling aspects have been identified relatively free of excess verbal baggage.

Again, it is quite possible the variables Marx studied were appropriately described by dialectics. But, behaviorists out of an appreciation for Marxist materialism need not cram our observations into inappropriate verbal descriptions of those observations.

In concluding, I would suggest that the name *behavioral materialism* would clearly state the similarity with Cultural Materialism well noted previously. Rejecting *dialectical* and using *materialism* would show the differences from, and similarities with Marxist philosophy. Such a name, I suggest, would more accurately identify Radical Behaviorism on the spectrum of current philosophical systems. 



Marvin Harris (1927 – 2001), an
American anthropologist.
Photo: Wikipedia



reflection

Behaviorology and Dialectical Materialism: On the Way to Dialogue

Alexander A. Fedorov, PhD



Alexandr Fedorov is the associate professor and chair of Clinical Psychology at the Institute of Medicine and Psychology of Novosibirsk State University in Novosibirsk, Russia. He received his doctorate from Tomsk State University in 2013. His PhD research was focused on the status and position of psychology within the major classifications of the sciences of the XIX century.

Since 2002, he has lived and worked in Novosibirsk, Russia. He translated into Russian two significant works of B. F. Skinner ("Beyond Freedom and Dignity" and "Science and Human Behavior") and several canonical articles, including "Behaviorism at Fifty". He is also an author of numerous articles in the Russian language focused on theoretical problems of behaviorology and psychology.

Every science needs philosophy. Perhaps, it is true that in the laboratory we are neither idealists nor empiricists nor dialectical materialists, but experimentalists, but as Skinner wrote, "a theory is never overthrown by facts, but only by another theory." A theory underlies facts, and philosophy underlies a theory. Therefore, philosophy is inescapable, and behaviorology is forced to seek after its philosophy as any other science. Following Ernest A. Vargas, we define behaviorology as science that addresses the contingent relations between actions and other events. He also makes a very significant remark that "Its Skinnerian contingency-based framework of interpretation, with its firm exclusion of agency, distinguishes behaviorology from other sciences of behavior"

There are many interpretations of Skinner's works, and behavioral materialism is the most authentic one. My main thesis is that dialectical materialism is compatible with behaviorology, but there are some problems here.

a) Firstly, dialectical materialists are often inclined to interpret Skinner's theory as mechanistic materialism. They are obviously wrong in this case.

b) Secondly, there are a lot of forms of dialectical materialism, and some of them are even incompatible with materialism itself. Many dialectic materialists in-cautiously use traditional psychological terms (mind, consciousness, motive and so on), and this leads to a mess. Some consider dialectical materialism as a form of contextualism. We also know that contextualistic interpretations of radical behaviorism exist too. Nevertheless, it was Watson who fairly stated, "behaviorism is new wine that cannot be poured into old bottles." This is also true in respect to dialectical materialism (in behavioral sciences especially). It needs a new vocabulary, and Skinner's theory can provide it.

So, what is dialectical materialism? "Dialectical" means (1) that the universe as an integral whole in which things are interdependent rather than a mixture of things isolated from each other, and (2) that the material world is in a state of constant motion. "Materialism" holds that the only thing that exists is matter. Dialectical materialism combines the elements of naturalism of Marx, Hegelian philosophy and French positivism.

What does dialectical materialism mean in the behavioral sciences? It is fallacious to believe that it is the direct application of the theory of dialectical materialism to the problems of behavior. As Lev Vygotsky wrote, "we are in need of an as yet undeveloped but inevitable theory of biological materialism and psychological materialism as an intermediate science which explains the concrete application of the abstract theses of dialectical materialism to the given field of phenomena." Vygotsky fell into a net of traditional terms, but his main idea is clear. Dialectical materialism in behavioral sciences is behavioral materialism. By some amazing fluke, behaviorologists gave the same name to the scientific philosophy underlying behaviorology. In his writings Jerome Ulman suggests the following terms: scientific materialism (the materialist

orientation among natural scientists), selectionistic materialism (the materialist orientation among researchers in the life sciences); and behavioral materialism (the materialist orientation in behaviorology).

For true dialectical materialists, attributes “dialectical-materialist” or “Marxist” in fact means “scientific”. For example, Vygotsky wrote, “everything that was and is genuinely scientific belongs to Marxist psychology. This concept is broader than the concept of school or even current. It coincides with the concept scientific per se, no matter where and by whom it may have been developed.”

Behaviorology is the scientific study of behavior (within Skinnerian contingency-based framework), so we can carefully examine if behaviorology contains dialectical elements. If Vygotsky is right, we will find them.

However, let us take a step back. I have already written that dialectical-materialist psychologists are inclined to interpret Skinner’s theory as mechanistic materialism, but this is not the only accusation of behaviorism.

Boris Teplov, a well-known figure in the Soviet psychology, wrote, “Dialectical-materialist psychology is directly opposed to behaviorism. The basic task of Soviet psychology is to discover the materialist explanation of man’s psyche and consciousness.” He also contended that behaviorism springs from idealism because it asserts that “the psyche and consciousness are only accessible to introspective knowledge and so cannot be studied by objective method.” If there is any truth in these statements, it concerns methodological behaviorism. Skinner stated, “thought is not a mystical cause or precursor of action, or an inaccessible ritual, but action itself, subject to analysis with the concepts and techniques of the natural sciences and ultimately to be accounted for in terms of controlling variables.” Moreover, “no major behaviorist has ever argued that science must limit itself to public events.” Therefore, behaviorology takes the view that private events including thinking are accessible to the methods on natural sciences.

Another prominent dialectic-materialist psychologist, Rubinstein, pointed out that “behaviorism follows the mechanist schema: stimulus – response. Its description of external connections between stimulus and reaction is in keeping with the pragmatic, generally positivistic methodology.” So dialectical materialists assert that

behaviorism is not only mechanistic, but also positivistic. But radical behaviorism is aligned with materialism, not with pragmatism or positivism. Skinner wrote himself, “the physicalism of the logical positivist has never been good behaviorism.”

There is a reason why Soviet psychologists deprecated behaviorism so much. And the reason is that psychology and behaviorology are incommensurable. This incommensurability springs mainly from dualism that predominates in psychology, though often latently. Despite the fact that Soviet psychologists formally dissociated

themselves from dualism and interpreted psychic processes materialistically as the product of highly organized matter, they were still dualists who used mentalist terminology. We should understand that dialectical-materialist psychology is not a natural science. Let’s look at the theory of Bonifaty Kedrov, a notable Soviet researcher, philosopher, logician, chemist, and psychologist who specialized in philosophical

questions of the natural sciences. Kedrov’s views on

the position of psychology among sciences were generally accepted. He followed Engels’ division of the world into three domains (nature, society, and thought) and suggested the triangular classification of the sciences.

A circle unifies sciences in the order of emergence of forms of matter (nature → society → thought | natural sciences → social sciences → philosophy). We see that psychology falls out from this circle of sciences. It is neither a natural science nor a social science nor a philosophical science, though it has its closest ties with philosophy. At the same time, behaviorology is no doubt a natural science so it is incompatible with psychology even from the dialectical-materialist point of view.

But when we compare behaviorology and dialectical-materialistic psychology, the key figure is already mentioned — Lev Vygotsky. I would like to provide a rather long quote from Spanish psychologist Ángel Riviére where the positions of Skinner and Vygotsky are juxtaposed:

Vygotsky’s solution had something in common with that of Skinner’s: In order to explain the origin of the higher mental functions, he considered it necessary to go outside the subject. These functions are considered to be the products which originated in the culture and were made subjective through processes

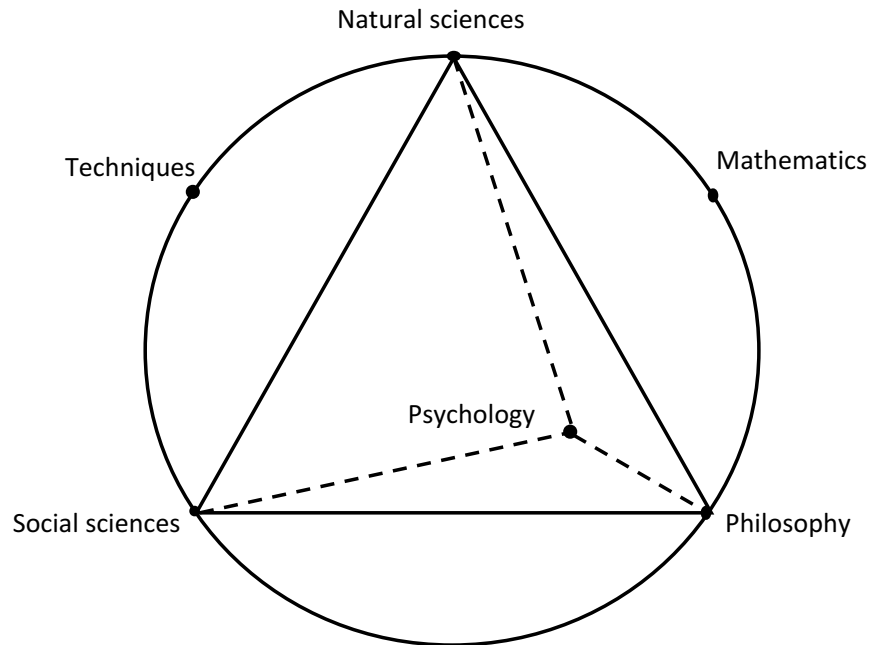


Fig. 1. Kedrov's classification of the sciences

of social interaction. Higher mental functions — language and signs, even consciousness itself, with its semiotic structure — are nothing but refined forms of interaction. A second characteristic which draws Vygotsky somewhat close to the position of Skinner is what we might call “instrumentalism”. His [Vygotsky’s] unit of analysis was instrumental behaviour. He thought that the possibility of transforming the material world by means of tools established the conditions for the modification of reflexive behaviour and its qualitative transformation in consciousness. This process is further mediated by a special class of tools: those which permit the realization of transformation of others. We call these tools “signs” and they are essentially provided by culture....[Thus,] the fundamental path of development is that which is defined by the internalization of those instruments and signs, by the conversion of the external system of regulation into means of self-regulation. It is this notion which creates a decisive separation between the instrumentalism of Vygotsky and that of Skinner, because Vygotsky thought the systems of self-regulation, when internalized, dialectically modify the structure of external behavior, which can no longer be understood as an expression of reflexes. In other words, consciousness, which was for him [Vygotsky] “social contact with oneself”, exerts a causal influence over behaviour.

We can see here that Rivière considers that Vygotsky’s and Skinner’s positions are rather close. And we can conclude that cultural-historical theory of Vygotsky may have a lot to offer behaviorology in achieving a better understanding of the nature of behavior. Concerning the agencyism of Vygotsky, however, we should say that there is no generally accepted solution in that case. Rivière writes that in Vygotsky’s words consciousness exerts a causal influence over behavior. But can consciousness be an agency if “consciousness does not occur as a specific category, as a specific mode of being” as Vygotsky wrote in “*Consciousness as a problem of the psychology of behavior*”? Vygotsky stated that consciousness is “a very complex structure of behavior,” and Skinner pointed out that self is “a device for representing a functionally unified system of responses.” To my mind, they agree in views at this point, and I dare say that for Vygotsky consciousness is not an agency, though his contradictory works allow coming to the absolutely different conclusion. In this respect, Skinner has one indubitable and inestimable advantage over Vygotsky: he created a consistent scientific language while Vygotsky used traditional terms and thereby his works may be read this way and that. However, Vygotsky’s works can be regarded as a manual to apply the dialectic method to psychology, and behaviorologists can take advantage of it.



Lev Vygotsky (1896–1934).
Photo: Wikipedia

Summing up this point, we can compare Skinner’s and Vygotsky’s positions using dialectical laws. First of all, Rivière correctly points out that both of them “go outside the subject” in order to explain human behavior. In fact, it is the application of the law of negation that is the first law of dialectics. On the one hand, Skinner and Vygotsky negate the inner entity, which is the cause of itself. On the other hand, both of them negate the former psychology.

Then, Vygotsky tries to use the law of the negation of the negation. Strictly speaking he goes inside the subject turning back to inner causes. As Rivière notes, “the systems of self-regulation, when internalized, dialectically modify the structure of external behavior.” And exactly at this point Vygotsky commits a blunder. He did not take into account that the return to the former language is impossible. He follows a right direction but by a wrong bus. It can sound strange enough but a behaviorist has also to go inside the subject if he tries to follow dialectics. And it is the problem of privacy that concerns the problem of “going inside”. We can construct a logical argument.

1. Skinner considers the “being” of private events. In fact, they are bodily conditions and covert behavior.
2. Nothing can be in existence out of interaction. Mutual connection and mutual conditionality of the phenomena of a material world is one of the axioms of materialism.
3. Private events exist, consequently they are causes of something and effects of something.

Covert behavior does have an influence upon overt one. But we should understand that private events do not cause behavior in the sense that cause is used in traditional psychology. First of all, causation is not necessarily direct. Skinner wrote that “the private event is at best no more than a link in a causal chain, and it is usually not

even that. We may think before we act in the sense that we may behave covertly before we behave overtly, but our action is not an “expression” of the covert response or the consequence of it.” So Skinner considers that private events may be at least “a link in a causal chain”. And secondly, causation is not a universal necessity. It has a probable status.

Skinner pointed out that “we cannot account for the behavior of any system while staying wholly inside it.” But can we study the behavior staying wholly outside? We have to apply the law of negation of the negation and to go inside the subject for more complete description of behavior. But going inside we have to remember that, according to Skinner, “A purely private event would have no place in a study of behavior, or perhaps in any science; but events

which are, for the moment at least, accessible only to the individual himself often occur as links in chains of otherwise public events and they must then be considered. In self-control and creative thinking, where the individual is largely engaged in manipulating his own behavior, this is likely to be the case." We have to save no space for dualism. Private and public events are not physical and mental ones. And if a private event may not be distinguished by any special structure or nature, we can't say that it does not have a causal effect on behavior.

We can conclude that:

- a) The distorted image of Skinner's radical behaviorism predominates in dialectical-materialist psychology.
- b) Dialectical-materialist psychology got stuck in mentalist terminology. It may be related to the paradoxical fact that Marx was not a consistent materialist, and psychology was an easy target for this inconsistency as compared with natural sciences. In fact, Marx's naturalism is distinct from both idealism and materialism, and unifies both of them.
- c) However, dialectical materialism is scientific materialism, first and last. The dialectical method demonstrates the power and efficiency in natural sciences (e.g., biology and physics), and behaviorology, as natural science, can rely on this method too.

So should behaviorology dialogue with dialectical materialism? I take the view that it should. And the most essential thing that behaviorology should learn from this dialog is why dialectical materialism miscarried as materialism. Dialectical-materialist doctrine tried to stick to the same ideas as behavioral materialism:

- a) materialistic monism;
- b) determinism;
- c) selectionism;
- d) study of human behavior within the environment;
- e) emphasis on change (control) rather than description.


So why did dialectical materialism fail as materialism in the field of behavioral sciences? The answer on this question is something for the future, but we need

this answer. The historical records suggest that different behaviorisms led to cognitivism, idealism, contextualism, and so on. Idealistic interpretations of radical behaviorism exist, and behaviorology should be aware of dead-end roads.

The listed similarities are rather general, so in conclusion I would like to give two more concrete dialectical elements of behaviorology.

Firstly, selection by consequences is in essence model of interaction. Interaction is dialectical category that rejects stereotyped notion that cause and consequence are two invariably adversarial poles. Either of interacting sides is cause of another one and consequence of simultaneous influence of opposite side. Therefore, we can suppose that selection by consequences is a dialectical model of behavior determination. A consequence of a certain behavior (change in the environment) is simultaneously a cause of that this behavior will happen more often or rarely. Nevertheless, we have to remember that causality and interaction are not interchangeable.

Secondly, laws of dialectic are applicable to behaviorology. Take, for example, private and public events. Skinner wrote, "Covert behavior often seems to be like overt except that it occurs on a smaller scale." Can we say that quantitative change of behavior leads to qualitative change: public event becomes private one (dialectical law of the transformation of quantity into quality)?

There are three generally accepted domains of science: physical, biological, and behavioral. In fact, this division is a ladder of complexity of matter. Development of physical events leads to the emergence of biological events, and development of biological events leads to the emergence of behavioral events. However, any biological event is at the same time physical one, and any behavioral event is biological and physical. Covert behavior emerges from overt behavior, and can we say that it is the transition of the same order as the transition from, for example, physical level to biological. If it is so, then we can fairly assert that private events are behavioral events, but at the same time they possess some characteristics that are absent on overt behavior level. For example, Vygotsky stated that inner speech emerges from outer speech, but it has additional properties, for example, it is abbreviated. Moreover, if it is so, then private events open up possibilities to collaboration of behaviorology and dialectic-materialist psychology. On this way, both of them should change. Behaviorology should pay more attention for private events, and dialectic-materialist psychology should be less mentalist. 



A SIDE NOTE:

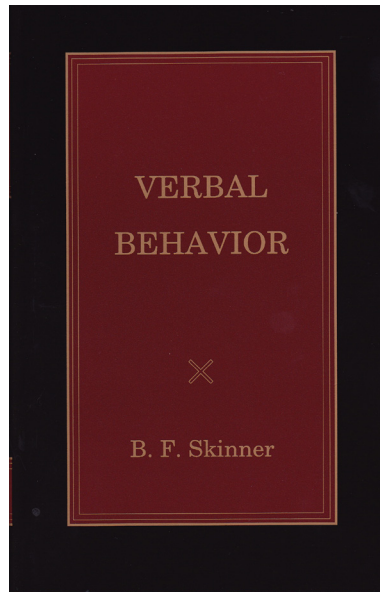
Interestingly, B. F. Skinner had a firsthand opportunity to get a better understanding of Vygotsky's philosophy. In May, 1961, B. F. Skinner visited Russia, then Soviet Union, as a member of an American scientists delegation. He was hosted by Alexander Luria and Alexei Leontiev, disciples and younger colleagues of Vygotsky. Upon return to the US, Skinner wrote down his recollections of the trip. You can read and download this article from the B. F. Skinner Foundation's website: <http://www.bfskinner.org/publications/pdf-articles/>.





a look
ahead

Next Issue of *Operants* is celebrating 60 years of *Verbal Behavior*!



A cover of *Verbal Behavior* published by the B. F. Skinner Foundation. The book is available through the Foundation's [online bookstore](#) in hard cover, paperback, PDF and e-book formats. The B. F. Skinner Foundation's edition includes exclusive features, such as prefaces by Jack Michael and Ernest A. Vargas, and corrections made by B. F. Skinner to his personal copies of *Verbal Behavior*.

On the occasion of the 60th anniversary of the publication of *Verbal Behavior*, *Operants* is devoting most of the fourth quarter issue to retrospective articles on the book and its subject matter written by a selection of current leaders in the field. Four are primarily historical: Ernie Vargas, Julie Vargas, and Terry Knapp discuss the historical background to the writing of the book. *Verbal Behavior* owes much of its substantial influence today to the long-standing study of the book at Western Michigan University, primarily under the direction of Jack Michael. Barb and John Esch recount the history of this enterprise through interviews with Jack and many of his former students. Mark Sundberg discusses the evolution of *The Analysis of Verbal Behavior*, a journal he founded, with support from Jack. Jim Carr offers a graphical display that summarizes the historical and growing influence of the book.

David Roth has mined Skinner's *Notebooks* for episodic entries on verbal behavior, notes that often extend or deepen our understanding of topics in the book, and Bill Potter authored a piece on the potential role of mod-

ern technology on the empirical investigation of verbal behavior. Anna Petursdottir offers an overview of current research trends in the increasing number of empirical articles that are now appearing in the literature.

Several of the articles are conceptual in nature. Ted Schoneberger prepared a response to criticisms of *Verbal Behavior* that have arisen within the field of behavior analysis itself, and Sam Leigland has a paper describing the cumulative nature and expanding scope of empirical work on the subject. Hank Schlinger is weighing in on listener behavior and its role in the interpretation of much contemporary research on relational behavior and other complex topics. Caio Miguel wrote on bi-directional naming, a topic which he has extensively investigated.

Taken together, the articles remind us why Skinner predicted that *Verbal Behavior* would prove to be his most important book. I believe he would have been delighted if he could have foreseen how widely his book is read today and how influential it has been in guiding our interpretations of complex behavior.

David Palmer, PhD
Guest Editor, Special Edition



B.F. Skinner

B. F. SKINNER FOUNDATION