

OPERANTS

Episode IV, 2015

Twenty-five years ago, on August 18, 1990: Skinner's science lost its founder. But, as physics after Galileo and biology after Darwin, Skinner's unique behavioral science continues to undergird thriving conceptual analyses, extensive laboratory work, and world wide practical applications. Skinner has pinned his only hope for mankind's ability to survive and prosper on the success of the science of behavior: the science based on the analysis of functional relations between behavior and other events and the impact of consequences on prior classes of behavioral events. In this edition of *Operants*, we are looking at the 25 years that passed since his death and searching for answers: Are we succeeding today as a science, and as a society in general?

from
the
president



B. F. Skinner loved to tell a story to illustrate the power of doubling. The story has many versions. As Skinner told it, a man did a huge favor for a Chinese emperor. When the emperor asked him how he would like to be paid, the man bowed and said, “Oh, just pay me in rice grains using this chess board: Count out one grain for the first square, two grains for the next, four for the next and so on, doubling each time.” That didn’t seem like much rice, so the Emperor agreed. Skinner would chuckle as he said that doubling 64 times ended up with more rice than existed in all of China.

Subscriptions to *Operants* nearly doubled from 2013 to 2014 and again in 2015. *Operants* subscribers can’t continue to double for 64 years: There are fewer than 9,223,372,036,854,775,808 people on earth. But we hope to continue the magazine’s impressive growth.

The growth in quality as well as subscriptions can be traced to the work of the editors and correspondents. *Operants* now links subscribers into a worldwide behavioral community. Whether a contributor or a reader, your participation furthers the Foundation’s goal of making the world a better place through behavioral science.

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

Chinese Simplified Translated by Libby Cheng

斯金納 (B.F. Skinner) 喜歡講故事來說明雙倍的力量。這個故事有很多版本。由Skinner講的版本是，有一個人幫了中國皇帝一個大忙。當皇帝問該男子想要什麼報酬，他鞠躬，然後說：“只要使用這個棋盤付我米粒就好了，計算方法如下：第一個棋盤方格付一粒米，第二個付兩粒米，第三個付四粒米，如此類推，每次雙倍。”這似乎並不多米，所以皇帝同意了。斯金納(Skinner)輕笑，他說，倍增64次後的米粒還要比存在於全中國的多。

Operants的認捐在2013至2014年差不多翻了一倍，在2015年又翻了一倍，Operants的用戶無法繼續雙增64年：因地球上的人口少於9,223,372,036,854,775,808。但是，我們希望本雜誌的認捐繼續有顯著增長。

在質量以及訂閱的增長可以追溯到編輯和通信者的工作。Operants現在用戶鏈接到一個世界性行為業界的社群。無論是貢獻者或讀者，您的參與進一步加強了行為學使世界變得更美好的基金會的目標。

Dutch Translated by Maximus Peperkamp & Bart Bruins

B.F. Skinner hield ervan om de kracht van machtsverheffen te illustreren met een verhaal. Het verhaal kent vele versies. Dit is die van Skinner. Er was ooit een man die een belangrijke dienst had verleend aan de Keizer van China. Toen de Keizer hem vroeg hoe hij hem daarvoor kon terugbetalen, maakte deze een diepe buiging en zei "Oh, wat rijst is voldoende. Dit schaakbord kan gebruikt worden om het aantal korrels uit te tellen: een korrel op het eerste veld, twee op het volgende veld, vier op weer het volgende veld, enzovoort, totdat het laatste veld is verdubbeld." Dit leek niet veel rijst, dus de Keizer ging akkoord. Vervolgens Skinner zegt lachend dat vierenzestig verdubbelingen meer rijst was dan dat er in heel China was te vinden.

Het aantal abonnementen op Operants is van 2013 op 2014 verdubbeld. Hetzelfde gebeurde in 2015. Een verdubbeling van abonnees kan natuurlijk niet 64 jaar doorgaan: er wonen minder dan 9,223,372,036,854,775,808 mensen op aarde. Wij hopen echter wel dat het tijdschrift op deze indrukwekkende wijze blijft groeien.

Zowel de toename van de kwaliteit van Operants als van het aantal abonnementen kunnen worden toegeschreven aan het werk van toegewijde auteurs en correspondenten. Operants verbindt abonnees met een wereldwijde gemeenschap van behavioristen. Of iemand nu zelf bijdraagt of een lezer is, ieders betrokkenheid draagt bij aan het doel van de Skinner Foundation om de wereld te verbeteren door de wetenschap van gedrag.

Filipino Translated by Michael Abarca

Si B.F. Skinner ay nahilig sa mga kuwentong naglalarawan ng kakayanan ng pagdodoble. Ang mga kuwentong ito ay may maraming bersyon. Kuwento ni Skinner, may isang lalaki ang gumawa ng malaking pabor para sa emperador. Nang tanungin siya ng emperador kung paano sya makababawi, yumuko na lamang ang lalaki at nagsabing, "Bayaran mo na lamang ako ng mga butil ng bigas gamit ang chess board: Isang butil para sa unang parisukat, dalawang butil para sa pangalawa, apat para sa susunod at iba pa, habang dinodoble ang bawat isa." Mukha namang hindi iyon karamihan kaya't sumang-ayon ang emperador. Natatawa na lamang ng marahang si Skinner habang sinasabing ang pagdoble ng animnapu't apat na beses ay mas marami pa sa kung ilang butil ng bigas mayroon ang Tsina.

Ang mga suskrisyon sa Operants ay halos dumoble simula taong 2013 hanggang 2014 at muli ngayong 2015. Ang mga suskritoryong Operants ay hindi maaaring dumoble sa loob ng animnapu't taon: Magkukulang ang 9,223,372,036,854,775,805 na bilang ng mga taong nabubuhay sa mundo. Ngunit kami ay umaasa na magpapatuloy ang ating paglago.

Ang paglago ng kalidad katulad ng paglago ng suskrisyon ay mababakas sa mga gawain ng mga editor at iba pang mga manunulat. Ngayon, inuugnay ng Operants ang mga suskritoryong nito sa pandaigdigang komunidad na nangangasiwa sa pang-asal. Maging kontribyutor man o mambabasa, ang iyong paglahok ay tumutulong sa pagkamit ng layunin ng Foundation na mapabuti ang ating mundo sa pamamagitan ng behavioral science.

French Translated by MarieCelina Clemenceau

BF Skinner aimait raconter une histoire pour illustrer la puissance de multiplier par deux. L'histoire a de nombreuses versions. Telle que Skinner la racontait, un homme avait fait une énorme faveur à un empereur chinois. Lorsque l'empereur lui demanda comment il aimerait être payé, l'homme salua et dit: «Oh payez moi juste en grains de riz en utilisant cet échiquier: Comptez un grain pour la première case, deux grains pour la seconde, quatre pour la troisième et ainsi de suite, en doublant à chaque fois.» Cela ne semblait pas être beaucoup de riz, alors l'empereur en convint. Skinner riait en disant que le double de 64 correspondait à plus de riz qu'il en existait dans toute la Chine.

Les abonnements à Opérants ont presque doublé de 2013 à 2014 et de nouveau en 2015. Les abonnés à Opérants ne peuvent pas continuer à doubler pendant 64 ans: Il y a moins de 9,223,372,036,854,775,808 personnes sur terre. Mais nous espérons poursuivre l'impressionnante croissance de la revue.

Le développement en termes de qualité et d'abonnements peut être attribué à l'œuvre des rédacteurs et des correspondants. Opérants réunit maintenant les abonnés à travers une communauté comportementale planétaire. Que vous soyez cotisant ou lecteur, votre participation favorise l'objectif de la Fondation qui est de rendre le monde un meilleur endroit grâce la science du comportement.

German Translated by Natalie Werner

B.F. Skinner liebte es eine Geschichte zu erzählen, die die Kraft der Verdopplung veranschaulicht. Es gibt viele Versionen dieser Geschichte. So wie Skinner sie erzählt hat, tat ein Mann einem chinesischen Kaiser einen großen Gefallen. Als der Kaiser ihn fragte, wie er bezahlt werden möchte, verbeugte der Mann sich und sagte: „Oh, bezahle mich einfach in Reiskörnern und benutze dieses Schachbrett: Zähle ein Korn für das erste ab, zwei für das nächste, vier für das nächste und so weiter, verdoppele jedes Mal“. Dies schien dem Kaiser nicht viel Reis zu sein und er stimmte zu. Skinner lachte als er sagte, dass 64 Verdopplungen mehr Reis ergeben als in gesamt China existiert.

Die Anzahl der Abonnenten von Operants hat sich von 2013 auf 2014 fast verdoppelt und noch einmal in 2015. Die Abonnementen von Operants können sich die nächsten 64 Jahre nicht weiter verdoppeln: Es gibt weniger als 9.223.372.036.854.775.808 Menschen auf der Erde. Wir hoffen aber mit dem beeindruckenden Wachstum des Magazins fortzufahren.

Der Zuwachs von Qualität und Abonnements kann auf die Arbeit von Herausgebern und Korrespondenten zurückgeführt werden. Operants verbindet seine Abonnenten in einer weltweiten behavioralen Gemeinschaft. Ob Mitwirkender oder Leser, Ihre Teilnahme unterstützt das Ziel der Stiftung, die Welt durch die Verhaltenswissenschaften zu einem besseren Ort zu machen.

Greek Translated by Katerina Dounavi

O B. F. Skinner απολάμβανε να διηγείται μια ιστορία για να επεξηγήσει τη δύναμη του διπλασιασμού. Η ιστορία έχει πολλές εκδοχές. Όπως τη διηγείτο ο Skinner, ένας άντρας έκανε μια μεγάλη χάρη σε έναν Κινέζο αυτοκράτορα. Όταν ο αυτοκράτορας τον ρώτησε πώς θα ήθελε να πληρωθεί, ο άντρας υποκλίθηκε και είπε “Α, απλώς πλήρωσέ με σε κόκκους ρυζιού χρησιμοποιώντας αυτήν τη σκακιέρα: Μέτρα έναν κόκκο για το πρώτο τετράγωνο, δύο κόκκους για το επόμενο, τέσσερις για το επόμενο και πάλι λέγοντας, διπλασιάζοντας κάθε φορά.” Αυτό δε φάνηκε να είναι πολύ ρύζι, οπότε ο αυτοκράτορας συμφώνησε. Ο Skinner σιγογελοούσε όταν έλεγε ότι διπλασιάζοντας 64 φορές κατέληξε να χρειάζεται περισσότερο ρύζι από όσο υπήρχε σε όλη την Κίνα.

Οι εγγραφές στο Operants σχεδόν διπλασιάστηκαν από το 2013 έως το 2014 και ξανά το 2015. Ο αριθμός των εγγραφών στο Operants δεν μπορεί να συνεχίσει να διπλασιάζεται για 64 χρόνια καθώς υπάρχουν λιγότεροι από 9.223.372.036.854.775.808 άνθρωποι στη γη. Ελπίζουμε ωστόσο να συνεχιστεί η εντυπωσιακή ανάπτυξη του περιοδικού.

Η ανάπτυξη στην ποιότητα καθώς και τις εγγραφές μπορεί να αποδοθεί στο έργο των συντακτών και των ανταποκριτών. Το Operants συνδέει τώρα τους συνδρομητές με μια παγκόσμια συμπεριφοριστική κοινότητα. Είτε συνεργάτης ή αναγνώστης, η συμμετοχή σου προωθεί το στόχο του Ιδρύματος να κάνει τον κόσμο ένα καλύτερο μέρος μέσα από την επιστήμη της συμπεριφοράς.

Hebrew Translated by Shiri Ayzazo

ב.פ. סקינר אהב לספר סיפור כדי להמחיש את עוצמתה של הכפלה. לסיפור גרסאות רבות. כפי שסקינר סיפר אותן, אדם אחד עשה טובה גדולה לקיסר הסיני. כאשר הקיסר שאל אותו כיצד אפשר לשלם לו, האיש השתחוה ואמר: “פשוט שלם לי עם גרגרי אורז על לוח השחמט הזה: ספור גרגר אחד לריבוע הראשון, שני גרגרים לשני, ארבעה לריבוע הבא וכך הלאה והלאה, כאשר אתם מכפילים אותם בכל פעם.” זה לא היה נדמה כאורז רב, ולכן הקיסר הסכים. סקינר צחק כיוון שאמר שהכפלה של 64 פעמים הסתיימה עם הרבה יותר אורז ממה שהיה קיים בכל סין.

המינויים לאופרנטס כמעט הוכפלו מ-2013 ל-2014, ושוב ב-2015. מינויי אופרנטס לא יכולים להמשיך להיות מוכפלים במשך 64 שנים: ישנם פחות מ-9,223,372,036,854,775,808 בעולם. אולם אנו מקווים להמשיך את הצמיחה המרשימה של המגזין.

הגידול באיכות כמו גם במינויים הוא בעקבות עבודתם של העורכים והכתבים. אופרנטס כעת מקשר מינויים לתוך קהילה התנהגותית כלל-עולמית. בין אם תורם או קורא, השתתפותכם מקדמת את מטרת הקרן שהינה הפיכת העולם למקום טוב יותר באמצעות מדע ההתנהגות.

Hindi Translated by Smita Awasthi

बी.एफ.स्किनर को ऐसी कहानी सुनाने में बड़ा आनंद आता था जिसमें ‘दोगुने की ताकत’ की व्याख्या हो। इस कहानी के अनेक वृत्तान्त हो सकते हैं। जैसाकि स्किनर ने बताया; एक व्यक्ति ने चीनी सम्राट पर बहुत कृपादृष्टि की। उसके बदले में सम्राट ने उससे पूछा कि वह क्या पारिश्रमिक लेना चाहेगा। सम्राट के आगे सिर झुका कर उस व्यक्ति ने कहा, ओह, बस आप मुझे इस चैसबोर्ड को आधार बना के चावल के दाने दें। पहले चौकोर के लिये एक दाना, दूसरे खाने के लिये दो दाने, अगले खाने के लिये चार दाने और फिर इसके हर आगे के खाने में उसके दोगुने, करते जायें। सम्राट को उन चावलों की मात्रा का अहसास नहीं हुआ और वे तुरंत राजी हो गये। स्किनर दबी हँसी से कहते हैं, 64 बार दोगुना करने पर चावल की मात्रा पूरे चीन में प्राप्त चावल से भी अधिक हो जाती है।

आपरेंट्स के पाठक भी इसी प्रकार 2013 से 2014 में तथा 2015 में दोगुने हो गए। हमें विश्वास है कि आपरेंट्स के पाठक 64 वर्षों तक दोगुने नहीं हो पाएंगे क्योंकि पृथ्वी पर 9,223,372,036,854,775,808 से कम लोग रहते हैं। परन्तु हम आशा करते हैं कि पत्रिका की यह प्रभावशाली वृद्धि बनी रहेगी।

उत्कृष्ट विकास एवं पाठकों की बढ़ती संपादकों और संवाददाताओं के कार्य का परिणाम है। आपरेंट्स अपने पाठकों को विश्व के व्यूह विशेषज्ञों के सम्प्रदाय से जोड़ता है। आप पाठक हों या फिर योगदानकर्ता आपकी सहभागिता बिहेवियर साइंस द्वारा विश्व को एक बेहतर स्थान बनाने के प्रयास में फाउंडेशन को मदद करता है।

Italian Translated by Anna Luzi

BF Skinner amava raccontare una storia per illustrare il potere del raddoppio. La storia ha molte versioni. In quella scelta da Skinner un uomo fece un enorme favore ad un imperatore cinese. Quando l'imperatore gli chiese come avrebbe potuto ripagarlo, l'uomo si inchinò e disse: “Pagami pure in chicchi di riso conteggiandoli su questa scacchiera: conta un chicco per il primo quadrato, due chicchi per quello adiacente, quattro per quello successivo e così via, raddoppiando ogni volta”. Poiché non gli sembrò una gran quantità di riso, l'imperatore accettò. In realtà la cosa sorprendente, che Skinner amava sottolineare, fu come questo tipo di raddoppio, effettuato per 64 volte, finì per contare più riso di quanto ne esisteva in tutta la Cina.

Gli abbonamenti a Operants sono quasi raddoppiati nel 2013-2014 e di nuovo nel 2015. Non potranno continuare a raddoppiare per 64 anni: ci sono infatti meno di 9,223,372,036,854,775,808 persone sulla terra. Ma speriamo di continuare con questa eccezionale crescita della diffusione della rivista.

La crescita di qualità, così come del numero di abbonamenti può essere attribuita al lavoro di redattori e corrispondenti. Operants ora collega abbonati in tutto il mondo un'unica comunità di studi comportamentali. Sia che tu appartenga alla categoria dei collaboratori o dei lettori, la tua partecipazione è fondamentale nel promuovere l'obiettivo della Fondazione, che è quello di rendere il mondo un posto migliore attraverso la diffusione della scienza del comportamento.

Korean Translated by Yunhee Shin

B. F. Skinner는 ‘두 배의 힘(the power of doubling)’에 대해 이야기하는 것을 즐겨했습니다. 이 이야기는 많은 버전들이 있습니다. 스키너의 이야기에 따르면, 한 남자가 중국황제의 부탁을 들어주었습니다. 황제가 그에게 어떻게 그 대가를 지불할까라고 묻자, 남자는 절을 하며 말했습니다. “체스 보드를 사용해서 쌀을 제게 주십시오. 그리고 첫 칸에는 쌀 조금을, 두 번째 칸에는 그 양의 두 배를, 그 다음은 네 배를, 그리고 그렇게 계속 매번 두 배씩 주십시오.” 왕은 쌀의 양이 많지 않을 것 같아서 그렇게 하자고 승낙했다고 합니다. 스키너는 64배의 곱은 결국 중국 전역을 덮는 쌀보다 더 많은 쌀로 덮일 것이라고 말하면서 혼자 웃었습니다.

2013년부터 2014년까지 Operants를 구독하는 양은 거의 두 배로 늘었고, 2015년에는 다시 두 배로 늘었습니다. 그러나 Operants의 구독자들이 64년 뒤 두 배로 지속할 수는 없습니다. 지구상에는 9,223,372,036,854,775,808명 보다 더 적은 사람들이 있기 때문입니다. 하지만, 우리는 이 잡지의 놀라운 성장을 지속하기를 바랍니다.

구독량의 성장뿐 아니라, 질적인 성장은 에디터들과 교신자들의 노력에서 기인됩니다. Operants는 현재 전 세계의 행동적 공동체 안에서 구독자들과 연결되어 있습니다. 기여자거나 혹은 독자거나 간에, 당신의 참여는 행동 과학을 통한 더 나은 세상을 만들려는 재단의 목표를 발전시킵니다.

Malayalam translation submitted by Smita Awasthi

ബി.എഫ്.സ്കിനറുടെ ഇരട്ടിപ്പിക്കലിന്റെ ശക്തിയെ പറ്റിയുള്ള കഥകൾ പറയാൻ വളരെ ഇഷ്ടപ്പെട്ടിരുന്നു. ഈ കഥകൾക്ക് പല വ്യാഖ്യാനങ്ങൾ ഉണ്ട്. സ്കിനർ പറയുന്നത് ഇങ്ങനെയാണ്, ഒരാൾ ഒരു ചൈനീസ് ചക്രവർത്തിക്ക് ഒരു വലിയ ഉപകാരം ചെയ്തുകൊടുത്തു. ചക്രവർത്തി അയാളോട് അതിനുള്ള പ്രതിഫലമായി എന്താണ് തരേണ്ടത് എന്ന് ചോദിച്ചപ്പോൾ ആ മനുഷ്യൻ വളരെ വിനയത്തോടുകൂടി തല കുനിച്ചു പറഞ്ഞു. ഈ ചതുരംഗം ഉപയോഗിച്ച് അരി ധാന്യങ്ങൾ കൂലിയായി തന്നാൽ മതി. ആദ്യത്തെ ഒരു ചതുരത്തിന് ഒരു ധാന്യവും, രണ്ടാമത്തെ ചതുരത്തിന് രണ്ട് ധാന്യവും, നാലാമത്തെ ചതുരത്തിന് നാല് ധാന്യവും അങ്ങനെ ഒരോ തവണയും ഇരട്ടിയായി വർദ്ധിക്കും. അത് അധികമായി തോന്നാത്തതിനാൽ ചക്രവർത്തി സമ്മതിച്ചു. ഒടുക്കിപ്പിടിച്ച ചിരിയോട് കൂടി അദ്ദേഹം പറഞ്ഞു, 64 തവണ ഇരട്ടിക്കുന്ന അരി ധാന്യങ്ങൾ ചെന്നു നിൽകുന്നത് ചൈനയിലെ മൃഗവൻ അരി ധാന്യങ്ങളേക്കാളും കൂടുതൽ ആകും.

സഹപ്രവർത്തകർക്ക് ഉള്ള വരി സംഖ്യ 2013 മുതൽ 2014 വരെയും പിന്നീട് 2015 ലും ഏകദേശം ഇരട്ടിക്കുകയാണ്. യോജിച്ച് പ്രവർത്തിച്ച് പണം കൊടുക്കുന്നവർക്ക് 64 വർഷത്തിലേക്കും തുടർന്ന് ഇരട്ടിപ്പിക്കുവാൻ സാധിക്കുന്നില്ല. ഭൂമിയിൽ ചുരുങ്ങിയത് 9,223,372,036,854,775,808 ജനങ്ങൾ ഉണ്ട്. പക്ഷെ ഞങ്ങൾ ആഗ്രഹിക്കുന്നത് മാസികയുടെ ഹൃദയാഹാരിയായ വളർച്ച തുടരണം എന്നാണ്.

നിലവാരത്തിലും വരിസംഖ്യയിലുമുള്ള വളർച്ച ആനുകാലിക പ്രസിദ്ധീകരണത്തിന് മേൽനോട്ടം വഹിക്കുന്ന ആളുടെയും സഹപ്രവർത്തകരുടെയും പ്രവൃത്തിയിലൂടെ കൊണ്ടുവരാൻ സാധിക്കുന്നുണ്ട്. വരിസംഖ്യ നൽകുന്നവരും സഹപ്രവർത്തകരും ഒത്തുചേർന്ന് ലോകമെമ്പാടും സ്വഭാവ സമൂഹം രൂപാന്തരപ്പെടുത്തുന്നുണ്ട്. നിങ്ങൾ ഒരു അധ്യേതാവോ സംഭാവകനോ അകട്ടെ, സ്വഭാവശാസ്ത്രത്തിലൂടെ അടിസ്ഥാന ഉദ്ദേശമായ ലോകത്തിന്റെ മെച്ചപ്പെട്ട പദവിക്ക് നിങ്ങളുടെ സഹകരണം വളരെയധികം ആവശ്യകരമാണ്.

Marathi translation submitted by Smita Awasthi

बीएफ स्किनर दुपटीमधील उर्जा स्पष्ट करण्यासाठी एक गोष्ट प्रेमाने सांगत असे. ह्या गोष्टीच्या अनेक आवृत्या आहेत. स्किनरच्या सांगण्याप्रमाणे, एका माणसाने एकदा चीनी राजावर प्रचंड उपकार केला. जेव्हा सम्राटाने त्याला विचारले (तुझी) कशी परतफेड हवी, मनुष्याने त्याला वाकून नमस्कार केला आणि म्हणाला “ कृपा करून मला फक्त या बुद्धिबळाच्या पटाप्रमाणे तांदूळाचे दाणे द्या. पहिल्या चौकटीसाठी एक दाणा मोजा, पुढील चौकटीसाठी दोन दाणे, त्या नंतरच्या चौकटीसाठी चार मोजा. अशा पद्धतिने दुप्पट करत जा.” राजाला वाटले की हे काही जास्त तांदूळ नाहीत म्हणून त्याने होकार दिला.

हे सांगताना स्किनर गालातल्या गालात हसत म्हणाले, अशा पद्धतिने दुप्पट करत पटाच्या शेवटच्या ६४व्या चौकटीसाठी लागणारे दाणे अख्ख्या चीनमधील तांदळापेक्षा जास्त निघणार.

“” ऑपरेंट्स् ची सदस्यता २०१३ च्या तुलनेत २०१४ मध्ये आणि त्याच्या तुलनेत पुन्हा २०१५मध्ये दुप्पट झाली. (म्हणून) “ऑपरेंट्स्” मध्ये सदस्य असे सलग ६४वर्षे दुप्पट होऊ शकत नाही. कारण पृथ्वीवर ९.२२३.३७२.०३६.८५४.७७५.८०८ पेक्षा कमी लोक आहेत. पण आम्ही मासिकाच्या प्रभावी वाढीसाठी आशावादी आहोत.

गुणवत्ता आणि सदस्यां मधील वाढ संपादक आणि बातमीदार यांच्या कामामध्ये दिसून येते. “ऑपरेंट्स्” आता सदस्यांना जगभरातील वर्तणुक समुदायाशी जोडत आहे. एक योगदानकर्ता किंवा वाचक म्हणून तुमचा सहभाग वर्तणुक विज्ञानाच्या माध्यमातून जगाला चांगली जागा बनवण्याच्या फाउंडेशन च्या ध्येयाला वृद्धिंगत करतो.

Norwegian Translated by Karoline Giæver Helgesenr

B.F. Skinner elsket å fortelle en historie om kraften i fordobling. Historien har mange versjoner. Skinners versjon fortalte om en mann som hadde gjort en kinesisk keiser en stor tjeneste. Når keiseren spurte hvordan han ønsket å få betalt, bukket mannen og svarte “Å, betal meg bare i ris ved å bruke dette sjakkbrettet: Gi meg ett ris-korn i den første ruten, to i den neste, fire i ruten etter det, og videre med en fordobling for hver rute”. Dette fremsto ikke som mye ris, så keiseren sa seg enig. Skinner pleide å humre når han fortsatte med å fortelle at 64 fordoblinger resulterte i mer ris enn det fantes i hele Kina.

Antallet abonnenter på Operants doblet seg nesten fra 2013 til 2014 og igjen i 2015. Antall abonnenter på Operants kan ikke fortsette å fordobles i 64 år: Det finnes ikke 9,223,372,036,854,775,808 mennesker på jorda. Men vi håper magasinet imponerende vekst fortsetter.

Forbedringen i kvalitet så vel som i antall abonnenter kan spores til arbeidet lagt ned av redaktører og korrespondenter. Operants lenker nå abonnenter sammen i et verdensomspennende atferdssamfunn. Uavhengig av om du er leser eller bidragsyter, så fremmer din deltakelse stiftelsens mål om å gjøre verden til et bedre sted ved hjelp av atferdsvitenskap.

Polish Translated by Monika Suchowierska

B.F. Skinner bardzo lubił pewną anegdotę przedstawiającą dobrze moc podwajania. Historyjka ta ma kilka wersji. Skinner opowiadał ją w następujący sposób: pewien człowiek zrobił przysługę cesarzowi chińskiemu. Kiedy władca zapytał się go jak chciałby zostać wynagrodzony, mężczyzna powiedział: „Zapłać mi proszę ziarenkami ryżu wykorzystując planszę do gry w szachy. Policz jedno ziarenko za pierwsze pole na planszy, dwa ziarenka za drugie pole, cztery za następne i tak dalej, podwajając liczbę ziaren za każdym razem.” To nie brzmiało jak dużo ryżu, więc cesarz się zgodził. Skinner uśmiechnąłby się ponieważ wiedział, że podwajanie 64 razy oznaczało więcej ryżu niż wtedy było dostępne w Chinach.

Prenumerata Operants praktycznie podwoiła się pomiędzy rokiem 2013 a 2014 i znowu w 2015 roku. Trend ten nie może się powtarzać przez kolejne 64 lata: na świecie jest mniej niż 9,223,372,036,854,775,808 osób! Niemniej jednak, mamy nadzieję, że nasze czasopismo będzie się dalej wspaniale rozwijało.

Hossa w jakości artykułów i liczbie prenumerat jest odzwierciedleniem pracy redaktorów i korespondentów. Operants łączy teraz osoby subskrybujące nasz magazyn w międzynarodową społeczność behawioralną. Niezależnie czy jesteś autorem artykułu czy jego „odbiorcą”, Twój udział jest ważny w realizacji celu Fundacji Skinnera, czyli tworzeniu lepszego świata z wykorzystaniem nauki behawioralnej.

Portuguese Translated by Monalisa Leão

B. F. Skinner adorava contar uma história para ilustrar o poder da duplicação. Uma história tem muitas versões. Como Skinner dizia, um homem fez um enorme favor para um imperador Chinês. Quando o imperador perguntou-lhe como ele gostaria de ser pago, o homem curvou-se e disse: “Oh, apenas me pague em grãos de arroz usando esse tabuleiro de xadrez: Conte um grão para o primeiro quadrado, dois grãos para o próximo, quatro para o próximo e assim por diante, dobrando a cada vez”. Então o Imperador concordou, pois isso não parecia ser muito arroz. Skinner iria rir quando disse que duplicando 64 vezes acabava com mais arroz do que se existia em toda China.

Assinaturas do Operants quase duplicaram de 2013 a 2014 e novamente em 2015. Assinantes do Operants não podem continuar a duplicarem por 64 anos: Há menos do que 9,223,372,036,854,775,808 de pessoas na terra. Mas esperamos que o crescimento impressionante do Boletim continue.

O crescimento em qualidade, bem como das assinaturas, pode ser atribuído ao trabalho dos editores e correspondentes. Operants agora une os assinantes em uma comunidade comportamental no mundo todo. Seja como um contribuinte ou um leitor, sua participação promove a meta da Fundação de tornar o mundo um lugar melhor por meio de uma ciência comportamental.

Russian Translated by Alexander Fedorov

Б.Ф. Скиннер любил рассказывать историю, иллюстрирующую силу удвоения. Эту историю рассказывают по-разному. Согласно Скиннеру, однажды некий человек оказал китайскому императору громадную услугу. Когда император спросил, как он может ему отплатить, человек склонился перед ним и сказал: «Просто заплатите мне рисовыми зернами, сколько их поместиться на этой шахматной доске. На первую клетку положите одно зерно, два – на следующую, четыре – на следующую и так далее, каждый раз удваивая количество зерен». Похоже, что риса требовалось не так уж много, и император согласился. Скиннер тихо посмеивался, когда говорил, что после 64 удвоений требовалось больше риса, чем было во всем Китае.

Подписка на «Операнты» почти удвоилась с 2013 по 2014, и снова – в 2015. Но число подписчиков на «Операнты» не может удваиваться 64 года подряд: людей на Земле меньше, чем 9 223 372 036 854 775 808. Но мы надеемся, что впечатляющее развитие журнала продолжится.

Развитие качества, как и увеличение подписки, можно связать с работой редакторов и корреспондентов. В наше время «Операнты» связывают подписчиков в единое всемирное поведенческое сообщество. Ваше участие, – и сотрудников, и читателей, – помогает Фонду двигаться к своей цели: сделать мир лучше с помощью поведенческой науки.

Spanish Translated by Emmanuel Alcalá, Gonzalo Fernández, Kenneth Madrigal, Nikkolai Rairan Gamaliel Saldivar, and Elberto Antonio Plazas

B.F. Skinner le gustaba contar una historia para ilustrar el poder de la duplicación. A pesar de que la historia tiene muchas versiones, Skinner la contaba de la siguiente manera: un hombre le hizo un gran favor a un emperador Chino. Cuando el emperador le preguntó cómo podría pagarle por este favor, el hombre hizo una reverencia y dijo: “Oh, solo págüeme con granos de arroz utilizando este tablero de ajedrez. Cuente un grano para el primer cuadrado, dos granos para el siguiente, cuatro para el que le sigue y así sucesivamente, duplicando la cantidad cada vez.” No parecía ser una gran cantidad de arroz, así que el emperador accedió. Skinner solía reírse mientras explicaba que el duplicar así 64 veces representaría una cantidad de arroz superior a la que existía en toda China.

Las suscripciones a Operants casi se han duplicado de 2013 a 2014 y, de nuevo, en 2015. Los suscriptores de Operants no podrían seguir duplicándose por 64 años: Hay menos de 9,223,372,036,854,775,808 de personas en todo el mundo. Sin embargo, esperamos continuar con el impresionante crecimiento de la revista.

El crecimiento en calidad, así como en suscripciones, ha sido posible gracias al trabajo de editores y corresponsales. Operants ahora conecta a sus suscriptores a una comunidad conductual en todo el mundo. Ya sea como contribuyente o como lector, su participación promueve el objetivo de la Fundación, el hacer del mundo un lugar mejor a través de la ciencia del conducta.

Swedish Translated by Dag Strömberg

B. F. Skinner älskade att berätta en historia för att illustrera fördubblingens kraft. Historien har många versioner. Såsom Skinner berättade den var det en man som gjorde den kinesiske kejsaren en stor tjänst. När kejsaren frågade hur han ville bli betald bugade mannen och sade “Åh, betala mig bara med riskorn och använd det här schackbrädet: räkna ett riskorn för den första rutan, två för nästa, fyra för nästa och så vidare, fördubbla varje gång.” Det verkade inte som så mycket ris, så kejsaren accepterade budet. Skinner brukade skrocka när han sade att fördubbling 64 gånger slutade med mer ris än det fanns i hela Kina.

Antalet prenumerationer på Operants fördubblades nästan från år 2013 till 2014 och återigen 2015. Operants prenumeranter kan inte fortsätta att fördubblas i 64 år: det finns färre än 9.223.372.036.854.775.808 människor på jorden. Men vi hoppas att fortsätta magasinets imponerande tillväxt.

Tillväxten av både kvalitet och antalet prenumerationer kan hänföras till redaktörernas och korrespondenternas arbete. Operants sammanlänkar nu prenumeranterna till ett världsomspännande beteendeanalytiskt samfund. Oavsett om du är en medarbetare eller en läsare, så främjar din medverkan Skinner Foundations målsättning att göra världen till en bättre plats genom beteendevetenskap.

Tamil translation submitted by Smita Awasthi

“ரடிப்பி மகிமை” எபதை B.F.யூகினர் அவர்கள் ஒரு அழகான கதை மூலம் எடுத்துக்காட்டியுள்ளார். ந்த கதைக்கு பல விதமான வடிவங்கள் உண்டு. ஒரு முறை, ஒரு சீன மகாரானாக்கு ஒரு மனித மிகப்பெரிய உதவி ஒரு செய்தா. அதனால் பெருமகிழ்ச்சி அடைந்த ரானா, அந்த மனிதனுக்கு பரிசு கொடுக்க விரும்பினார். ரானா மனிதனைப் பார்த்து, “நீ விரும்பும் வெகுமதி என?” என்று வினவினார் அதற்கு மிக பல்யமாக அந்த மனித, “மகாரானா, நீங்கள் சதுரங்கம் மூலமாக எனக்கு அரிசி வெகுமதியாக கொடுங்கள்.” சதுரங்கத்தி முதல் சதுரத்திற்கு 1 அரிசி, அடுத்த சதுரத்திற்கு 2, அடுத்த சதுரத்திற்கு 4, என்று ஒவ்வொரு சதுரத்திற்கு, ரடிப்பாக கொடுங்கள் என்று கூறினா. மகாரானாக்கு து ஒரு பெரிய அபூர்வாகவே தோவில்லை அதனால் அவரும் சம்மதித்தார். யூகினர், அவர்கள் சிரித்துக் கொண்டே, “64 முறை ரடித்ததனால், ரானாக்கு சீன நாடில் விபூநீந்த மொத்த அரிசியை விட அதிகமாக கொடுக்கும்படி ஆனது” என்று சொனார். “ஆபரண்யூ” பத்திரிக்கையி சந்தா 2013 ம் ஆண்டிலிருந்து 2014 ம் வருடத்தில் கிடத்தட ரடிப்பானது. மறுபடியும் 2015 ல் ரடிப்பானது. “ஆபரண்யூ” சந்தாதாரர்கள் 64 வருடத்திற்கு ரடிப்பாக முடியவில்லை. ந்த பூமியில் 9,223,372,036,854,775,808 குறைவாக மக்கள் உள்ளீனர். ருந்தாலும், ந்த பத்திரிகை அதிக அபூர்வில் வபூநீர்ச்சி ருக்கும் னற நம்பிக்கை உள்ளீந்து. தரம் மற்றும் சந்தாவி வபூநீர்ச்சியை ஆசிரியர்கள் மற்றும் நிருபர்களுி உழைப்பி மூலம் அறிந்து கொள்பூர்லாம். “ஆபரண்யூ” பத்திரிக்கை, தங்கள் சந்தாதாரர்களைப் உலகபூர்விய நடத்தை சமூகத்திற்கு தைத்துள்ளீனார்கள். நீங்கள் ஒரு வாசகரோ, அல்லது உதவியாபூர்ரோ, உங்களுடைய பங்கேற்பு, ந்த யக்கத்தி லசியமான, நடத்தை அறிவியல் மூலம் உலகை ஒரு டமாக மாற்ற உதம்.

Telugu translation submitted by Smita Awasthi

బి.ఎఫ్.స్కెనెనర్ 'పవన అఫ్ డబ్బెలింగ్' కథను పివరించేందుకు చాలా ఇష్టపడడే వాడు. ఆ కథ చాలా పిథులుగా చలమణిలో మండేది. స్కెనెనర్ పరకారం 'ఒక మనషి, చైనా చకరపరకాతీకి ఎనలేని సహాయం చేశాడు. చకరపరకాతీ ఆ వ్యయకాతీని ఏమీకావాలోకోరుకోమనాడు. ఆ వ్యయకాతీ వినెరమతతో, చదరంగము బలలనుపయోగించి, దాని పరకారం బియ్యమును గింజలు ఇవ్వమననాడు. అదేలాగంటే మొదటి చదరంగము గడిలో ఒక బియ్యమును గింజ, దాని పరకరక గడిలో రెండుబింజు బియ్యమును గింజలుంచాలి. పరకాతీ సారీ ధనయము గింజలు పరకరక గడిలో కంటే రెండింతలు అమతుండాలి. మానకూంటే అదేమంత వకకనువ ధనయము కౌడే అంటూ చకరపరకాతీ అంగీకరించాడు. బియ్యము అరవై నాలుగు నెలలు రెండింతలు అయ్యేవరకు పట్టికి, చైనా దేశంలోని ధనయముంతా ఇవ్వమనె లకకక సరివోదని కథ పివరిలో స్కెనెనర్ పరకారం కేవలమే వాడు. ఒవెరంబు పతరకకకు, చందోదారులు 2013 నుండి 2014 వరకు రెండింతలు అయ్యారు. మళ్ళీ 2015లో కూడా అంతకు మునుము కంటే రెండుబింజుపయ్యారు. ఒవెరంబు పతరకక చందోదారులు ఇలాగే రోజు అరవై నాలుగు సంవత్సరాలలో రెండుబింజుకారు. ఎందుకంటే, ఈ పరకపంపలో 9,223,372,036,854,775,808 కంటే తక్కువ మనుషులు ఉననారు. అయినా ఈ పతరకక పరకాతీని, గణనీయంగా వెంచుతుమనీ మన నమకం. ఈ పతరకక నణయతకు, చందోదారుల వృద్ధాధికి, ముఖయకారణం పతరకక సంపాదకులు, పిలేఖరలు. పరకపతం ఒవెరంబు పతరకక, చందోదారులను పరకపంప వయపతంక ఉనన బిహివీరియలక కమయూనీటీతో అనుసంధానం చేసకంటే. సమాచారకరకతల, వారకులతో డబ్బుతో బిహివీరియలక సనతకరం దకారో పరకపంపననీ సముపిత నకధంపలో నిలపడం అనీ సంకథయకకక ముఖయ లకకడయం.

Thai Translated by Sirima Nan

บี เอฟ สกินเนอร์ชอบเล่าเรื่องเกี่ยวกับอาณาจักรของนกเงือก เรื่องที่เล่ามีหลายภาค เรื่องหนึ่งเป็นเรื่องในสมัยจักรพรรดิฉิน มีชายผู้หนึ่ง ได้ทำควมดีความชอบใหญ่หลวง จักรพรรดิจึงมีดำริว่า จำต้องการอะไร ชายผู้นั้นตอบว่า ข้าพเจ้าขอเมล็ดข้าว ใส่ลงในกระต๋านหมากทุก ถาดแรก ๑ เมล็ด ถาดที่ ๒ ใส่ ๒ เมล็ด ถาดที่ ๓ ใส่ ๔ เมล็ด คือ ใช้จำนวนของถาดก่อนหน้า ยกกำลัง สอง และทำเช่นนี้กับถาดถัดไปเรื่อย ๆ จนครบ ๖๔ ถาด เมื่อฟังดูแล้วอาจเห็นว่าเป็นจำนวนที่ไม่มากนัก แต่ถ้าคำนวณกันจริง ๆ แล้ว เป็นจำนวนมากมาย อาจจะมีมากกว่าข้าวทั้งหมดที่มีในประเทศเสียด้วยซ้ำ จำนวนสมาชิกของนิตยสาร ออบเพอร์เนตส์ เพิ่มขึ้นเกือบ เท่าตัวจากปี ค.ศ. ๒๐๑๓ ถึง ๒๐๑๔ และจากปี ค.ศ. ๒๐๑๔ ถึง ๒๐๑๕ แต่แน่นอนจำนวนสมาชิกของเราอาจเพิ่มแบบ ยกกำลังสองต่อเนื่อง ๖๔ ปี เพราะประชากรในโลกมีไม่ถึง ๗,๒๒๓,๓๗๒,๐๓๖,๘๕๔,๗๗๕,๘๐๘ คน การเพิ่มของสมาชิกรนี้ เป็นเพราะคุณภาพของนิตยสาร ซึ่งเป็นผลงานของบรรณาธิการและคณะผู้เขียนคอลัมน์ ออบเพอร์เนตส์ เป็นศูนย์รวมตัวของผู้ที่สนใจด้านพฤติกรรมศาสตร์ทั่วโลก ไม่ว่าท่านจะเป็นนักเขียนของเรา หรือ เป็นสมาชิกของนิตยสาร การมีส่วนร่วมของท่านมีความหมายกับเรามาก ในอันที่จะบรรลุเป้าหมายของ มูลนิธิสกินเนอร์ คือ มุ่งหวังที่จะทำให้โลกน่าอยู่ขึ้น โดยใช้หลักการทางพฤติกรรมศาสตร์

Turkish Translated by Hande Cihan

B. F. Skinner bir şeyin iki katına çıkmasının gücünü ortaya koymak için olan bir hikayeyi anlatmayı çok sevdi. Pek çok çeşidi olan bu hikayeyi Skinner şu şekilde anlatırdı: Adamın biri Çin imparatoruna çok büyük bir iyilik yapmış, İmparator bu iyiliğin karşılığını ödemek istemiş adama, adam ise eğilmiş ve “ Bana borcunu bu satranç tahtasını kullanarak pirinç olarak, satranç tahtasının ilk karesine bir, sonraki karesine iki, bir sonrakine dört bu şekilde her kareye bir önceki karedekinin iki kati fazla pirinç koyarak öde” demiş. Bu kadar pirinç imparatora çok gelmemiş ve kabul etmiş. Skinner bu hikayeyi anlatınca gülümserdi ve 64 kez ikiye katlanan pirinç sayısının Cin’de yasayan insanların sayısından fazla olduğunu söylerdi. Operants abonelerinin sayısı 2013’ten 2014’e iki katına çıktı ve 2015’te yine ikiye katlanarak arttı. Operant aboneleri 64 yıl daha ikiye katlanarak artamaz çünkü dünyada 9,223,372,036,854,775,808 insandan daha azı yaşıyor. Ama bizler derginin hızlı büyümesinin devam etmesini umuyoruz. Abonelerin sayısındaki artış kadar kalitedeki artışı editörlerin ve muhabirlerin çalışmalarına borçluyuz. Operants abonelerinin dünyadaki davranışçı topluma ulaşmasını sağlıyor. Yazar ya da okuyucu olarak katılımınız Derneğin davranıcılık bilimini kullanarak dünyayı daha iyi bir yer haline getirme amacının gerçekleşmesine yardımcı oluyor.

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As we prepared this edition of *Operants*, a light shined upon a critical but often overlooked piece mentioned in this publication—the role that mentors play in shaping a repertoire. I hold all of my mentors in high esteem, not because of credentials, rather because each and every one of them continues to provide guidance, encouragement, and support as I persist forward on my path. I hope that my colleagues and fellow classmates experience similar relationships with their advisors. All of my mentors' behavior, of always being available, has in turn shaped my behavior to those I mentor. This is a crucial component of supervision that a behaviorist must be willing to carry.

The study of behaviorism and the application of behavior analysis continue to grow around the world. As the number of behaviorists accelerates we need to ensure the quality of the science. The integrity of the science rests upon the shoulders of those who are mentors in the field around the world. The people advising, supervising, and teaching today's students and practitioners must be accessible, not just for a semester, preferably anytime the student or practitioner seeks assistance. The mentorship provided and maintained over the next twenty-five years will facilitate growth of the science while remaining true to it.

Sheila Habarad
Editor-in-Chief



Sheila Habarad behind the microphone, anchoring the first Operants podcast. To learn more, go to p. 22

Behaviorism in North America Since Skinner: A Personal Perspective¹

Joseph J. Pear, Ph.D.
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Canada



Joseph J. Pear is a professor of psychology at the University of Manitoba. His best-known research deals with behavioral contrast, shaping, and the spatio-temporal analysis of behavior. In addition, he has done work in the mathematical analysis of behavior. His early applied work focused on children with developmental disabilities at the St. Amant Centre, where he founded the Behaviour Modification Unit, now the Psychology Department. Pear also developed an instructional and research program called Computer-Aided Personal System of Instruction (CAPSI). CAPSI is used to teach courses at the University of Manitoba and at other universities in Canada, the United States, and Australia. In addition to co-authoring *Behavior Modification: What It Is and How to Do It* with Garry Martin, Pear has written two other books: *The Science of Learning* and *A Historical and Contemporary Look at Psychological Systems*. He also has written numerous basic and applied research articles, book chapters, and encyclopedia articles.

Due to the extensive breadth of the topic and space restrictions, this essay is necessarily limited to brief personal impressions. To discuss behaviorism since Skinner, it is necessary to first look at behaviorism during the time of Skinner. Skinner adopted the goal of J. B. Watson in the early decades of the 20th century – i.e., to convert psychology from the science of mind to the science of behavior comparable to the other natural sciences. Watson argued that mental constructs were fictitious entities that should be excised from psychology. A primary focus of North American psychology at this time was on habits, which were viewed as mental types of things. Watson argued that habits are behaviors and viewed Pavlovian conditioned reflexes as the basis of habits. B. F. Skinner picked up where Watson left off. Skinner acknowledged the importance of Pavlovian conditioned responses but put greater emphasis on the concept of the operant – actions influenced by their past consequences rather than associations. Through his research with animals and humans, Skinner built an elaborate system of behavior that did not make reference to non-behavioral constructs.

Skinner's behaviorism was one of several types of behaviorism existing after Watson left academia. At that time, most of academic psychology in North America acknowledged that behavior is all that can be observed. Competing schools of behaviorism hammered out different theories of learning, which included the basic conditioning processes, i.e., Pavlovian and operant conditioning. Drawing on questionable analogies from more established sciences (especially physics) psychologists, whom Skinner called *methodological behaviorists*, maintained that if postulated inner processes were operationally defined in terms of observable behavior the criteria of behaviorism were met. Skinner disagreed and advocated speaking of behavior only in behavioral terms. However, the view that learning is basic to psychology became widespread throughout the academic discipline. In fact, at that time, a course in learning was a requirement of most psychology undergraduate programs.

Basic behavioral research by both methodological and Skinnerian or radical behaviorists gave rise to an approach to psychotherapy called behavior therapy (BT). Until the advent of BT, psychotherapy had been carried out as talk therapy regardless of the particular school of psychotherapy being practiced. Now, some psychotherapists were applying principles of learning that had been established through both operant and Pavlovian conditioning studies. The term behavior modification was coined to cover both Pavlovian and operant conditioning treatments. Operant conditioning – the centerpiece of Skinner's behaviorism – was found to be viable for managing undesirable behavior and developing desirable behavior in individuals with psychoses, intellectual disabilities, and autism – conditions that are extremely resistant to any other form of treatment.

Although mainly originating and centered in the United States,

¹ I thank the following for the information and insights they provided: Carlos Bruner, Maurice Feldman, Steven C. Hayes, Garry L. Martin, Toby L. Martin, Jay Moore, Stanley Weiss, and C. T. Yu. The views expressed in this paper are those of the author and not necessarily those of the individuals acknowledged in this footnote.

behavioral approaches spread to the other two North American countries – Canada and Mexico. Some of the earliest behavior modification studies in fact were done in Canada although academic institutions in both countries generally preferred to hire methodological behaviorists rather than radical behaviorists. However, Skinner’s radical behaviorism flourished in Mexican universities where it received much intellectual and moral support from Skinner and other leading radical behaviorists.

Mind had essentially been ruled out in North American psychology, but this began to change in mid-20th century in what has been called the cognitive revolution. An important factor bringing about this change was the computer revolution. It was analogized that the brain could be likened to a computer, with the mind being the program for that computer. The task of psychology, according to cognitive psychologists, was to discover that program or at least the algorithm on which it was based. Because methodological behaviorists accepted constructs referring to inner causes, they were quickly absorbed by the cognitive revolution, giving rise to the saying that “behaviorism is dead.” Radical behavior, however, was by no means dead. Skinner continued to rail at cognitive psychology just as he did at methodological behaviorism. He consistently maintained that psychology should be the science of behavior in its own right and not the study of a hypothetical mental realm. The reasons that Skinner’s behaviorism persisted while others did not are complex and probably not fully known. Clearly, one reason is the power of the operant-conditioning methodology Skinner developed for studying behavior. Added to that is the elegant simplicity and consistency of the system of behavior he developed and his persuasiveness regarding the correctness of the approach in terms of the goals of science. Another reason is the breadth of Skinner’s reach in terms of showing how behaviorism is applicable to all areas of human endeavor, including education, government, verbal behavior, and psychotherapy. Finally, Skinner clearly differentiated his approach from the stimulus-response reflex account characteristic of other schools of behaviorism.

The book that launched Skinner’s form of behaviorism was called the *Behavior of Organisms: An Experimental Analysis*. The terms behavior and analysis were to continue to be applied to the approach Skinner developed. Thus, the first journal dedicated to Skinner’s approach to basic research was the *Journal of the Experimental Analysis of Behavior*, which began printing issues in 1958. This was followed by the *Journal of Applied Behavior Analysis*, which began printing issues in 1968. An association was formed in the Midwestern U.S., which expanded to become the Association for Behavior Analysis (ABA) in 1978. This association regularly honored Skinner and his colleague Fred Keller with a dinner and talks at its annual meetings. Skinner clearly appreciated the activities of this organization. Nevertheless, he left no doubt that for psychology to become a natural science of behavior comparable to the other natural sciences was his overriding objective, as it had been for Watson.

Canadian behaviorists oriented toward the U.S.-centered ABA and associated publications. Mexican behaviorists founded the Mexican Society of Behavior Analysis (SMAC) and the *Mexican Journal of Behavior Analysis* (RMAC) in 1975.

Le béhaviorisme en Amérique du Nord depuis l’époque de B. F. Skinner: une perspective personnelle

par Joseph J. Pear, Ph.D.

Résumé de l’article original et traduction par Geneviève Roy-Wsiaki
Université de Saint-Boniface

Pour mieux comprendre où en est rendu le béhaviorisme depuis l’époque de B. F. Skinner, il faut d’abord se familiariser avec le béhaviorisme pendant le temps de B. F. Skinner. B. F. Skinner avait adopté l’objectif de J. B. Watson au début du 20^e siècle — c’est-à-dire celui de convertir la psychologie de la science de l’esprit à la science du comportement, ce qui s’était produit également au niveau des autres sciences naturelles.

J. B. Watson croyait que les constructions mentales étaient des entités fictives qui devaient être enrayées de la psychologie. Un des objectifs principaux de la psychologie en Amérique du Nord à cette époque concernait les habitudes qui étaient considérées comme des phénomènes d’ordre mental. J. B. Watson soutenait que les habitudes étaient des comportements et il considérait que les réflexes conditionnés de Pavlov étaient le fondement des habitudes. B. F. Skinner a repris la science là où J. B. Watson l’a laissée. Il reconnaissait l’importance des réponses conditionnées de Pavlov, mais il a mis l’accent sur le concept de l’opérant — soit la notion que les réponses sont influencées par leurs conséquences antécédentes plutôt que par les associations. Grâce à ses recherches avec les animaux et les humains, B. F. Skinner a élaboré un système de comportement complexe qui ne faisait pas référence à des constructions non comportementales.

Lorsque J. B. Watson quitta le milieu universitaire, plusieurs types de béhaviorisme existaient dont celui de B. F. Skinner. À cette époque, la plupart des programmes universitaires en psychologie en Amérique du Nord reconnaissaient que le comportement était tout ce qui pouvait être observé. L’idée selon laquelle l’apprentissage était un des fondements de la psychologie s’est répandue au niveau du milieu universitaire. En fait, la plupart des programmes de premier cycle en psychologie exigeaient que les étudiants aient complété un cours sur l’apprentissage.

La recherche fondamentale du comportement par les béhavioristes méthodologiques et par les béhavioristes radicaux a entraîné le développement d’une approche psychothérapeutique appelée la thérapie comportementale. Le terme modification du comportement a été inventé pour décrire les traitements de conditionnement pavlovien et opérant. Le conditionnement opérant – l’élément central du béhaviorisme de B. F. Skinner — s’est avéré utile pour gérer les comportements indésirables et pour encourager le développement des comportements désirables chez les individus atteints de psychoses, de déficiences intellectuelles et du

Following Skinner's death in 1990, certain trends can be noted; some of which may have simply been trends that were continuing. There has been a notable decrease in the understanding by new behaviorists of the basic principles and research methodology that formed the basis of Skinner's behavioral approach. In particular, it appears that students are not being trained to focus on behavior enough. Appreciating the difference between radical behaviorism and the other forms of behaviorism and cognitive psychology seems to be particularly weak in individuals just entering the field. One gets the impression that Skinner's works may not be read as much or as deeply as they were during Skinner's lifetime. Thus, many contemporary behaviorists may not be as aware or as appreciative as behaviorists once were of Skinner's highly systematic thinking in placing behaviorism among the other natural sciences and relating it to the entire breadth of human concerns. It may be that the exposure to Skinner's many talks and continuing stream of publications were an important factor in keeping behaviorists in contact with the basic principles and underlying philosophy of their science.

In the North American countries there has been a decrease in hiring behaviorists into academic positions

There has been a clear rise in behavior analysis as a profession, characterized by a growth in professional organizations.

though this trend began later in Mexico than in the other two countries. Currently in academic hiring, cognitive psychologists are preferred over behavioral psychologists. Concomitant with this trend has been a decrease in basic behavioral research – especially animal research. Two areas of basic behavioral research have shown considerable progress: the quantitative analysis of behavior, especially with regard to the matching law and delay discounting, and verbal behavior, especially as related to equivalence sets and other forms of transitivity that do not involve symmetry, as in relational frame theory (RFT). Some of this research also has applied value. Three prominent areas of applied research are: functional analysis for identifying the causes of problem behavior, contingency management for treating addictions, and sports psychology for improving athletic performance.

One of the greatest impacts on behaviorism has been the rise of autism in the U.S. and Canada. It has turned out

trouble du spectre de l'autisme — des conditions qui sont extrêmement résistantes à toute autre forme de traitement.

L'esprit avait essentiellement été supprimé de la psychologie nord-américaine, mais la situation a commencé à changer vers le milieu du 20^e siècle, au cours de la révolution cognitive. La révolution informatique était un des facteurs importants qui a contribué à ce changement. Étant donné que les behavioristes méthodologiques acceptaient les constructions qui se rapportaient aux causes internes, ils ont été rapidement absorbés par la révolution cognitive, provoquant ainsi la création du dicton « Le behaviorisme est mort. » Le behaviorisme radical était cependant loin d'être mort. B. F. Skinner a soutenu de façon constante que la psychologie devait être la science du comportement en soi et non l'étude d'un domaine mental hypothétique.

Les raisons pour lesquelles le behaviorisme de B. F. Skinner a persisté, alors que d'autres ne l'ont pas, sont complexes et ne sont probablement pas entièrement connues. Mais l'une des raisons est clairement le pouvoir de la méthodologie du conditionnement opérant que B. F. Skinner a développée pour étudier le comportement. Il y a également la simplicité élégante et la cohérence de son système de comportement ainsi que la force de persuasion de B. F. Skinner quant à l'exactitude de l'approche par rapport aux objectifs de la science. Une autre raison est l'ampleur de la portée de la recherche de B. F. Skinner qui a démontré que le behaviorisme peut être appliqué à tous les domaines de l'activité humaine, y compris l'éducation, l'administration publique, le comportement verbal et la psychothérapie. Enfin, B.F. Skinner différencie clairement son approche du réflexe stimulus-réponse qui est un des fondements des autres approches du behaviorisme.

Après la mort de B. F. Skinner en 1990, on peut noter certaines tendances, dont celles qui pourraient tout simplement être des tendances continues. Le niveau de compréhension des nouveaux behavioristes des principes de base et de la méthodologie de recherche qui étaient les fondements de l'approche de B. F. Skinner a diminué sensiblement. Il semble notamment que les étudiants ne sont pas suffisamment formés pour se concentrer sur le comportement. On a l'impression que les œuvres de B. F. Skinner ne sont pas lues autant ou aussi profondément qu'elles ne l'étaient de son vivant. Il se peut que la participation aux conférences de B.F. Skinner et l'accès à son flux continu de publications aient été un facteur important pour s'assurer que les behavioristes demeurent en contact avec les principes de base et la philosophie sous-jacente de leur science.

Depuis le décès de B. F. Skinner, les progrès du behaviorisme réalisés en Amérique du Nord sont mixtes. Certains domaines du behaviorisme ont connu un progrès accéléré alors que d'autres domaines ont connu un recul. En commençant avec ce dernier phénomène, l'embauche de professeurs spécialisés au niveau du comportement a diminué dans le milieu universitaire. Cela correspond à un déclin de la recherche fondamentale dans le domaine du comportement et de la formation des étudiants relativement à la philosophie et les concepts de base de leur champ d'études.

Les domaines qui ont connu des progrès accélérés

that early intensive behavioral intervention (EIBI) using behavior procedures is the most effective treatment of autism. Children, especially those who are younger than three years old, who receive this treatment show development that approaches that of normally developing children; and in many cases, the development of these children is indistinguishable from that of typically developing children. EIBI and its offshoots that are not used as early or as intensively are collectively called Applied Behavior Analysis (ABA). Individuals who receive ABA treatment generally show marked improvements. Numerous research studies have proven that ABA is superior to other approaches; hence, some governmental and insurance agencies in the U.S. and Canada specify ABA as the treatment of choice for autism.

Because of the increasingly high rate of autism (now estimated at one in 68 children) in the U.S. and Canada and the corresponding demand for effective treatments, two behavior analyst certifying bodies have arisen: ABA, which began accrediting behavioral graduate programs in 1991, and the Behavior Analyst Certification Board (BACB), which began certifying behavior analysts in 1998. These certifications have been extremely important for behaviorists in the U.S. and Canada. Mexico, however, follows the Spanish tradition in which individuals are automatically certified in whatever field they received their degree and so do not require certification from an external agency. Moreover, autism seems to be much less prevalent in Mexico than in the other two North American countries. There are some private centers in Mexico that treat autism; some of which may use behavioral methods to a greater or lesser extent, but no governmental agencies are involved in its treatment. Although a few American states and Canadian provinces attempt to provide autism treatment services, the waiting lists are very long, which, for many, effectively prohibits the most effective autism treatment, i.e., EIBI.

Nevertheless, there has been a clear rise in behavior analysis as a profession, characterized by a growth in professional organizations. ABA became the Association for Behavior Analysis International (ABAI) in 2007. The organization now publishes four major journals and holds several conferences a year both nationally and internationally. In addition to the organizations mentioned above, other professional and lay organizations have formed. For example, the Association for Professional Behavior Analysts (founded in 2010) promotes the interests of behavior analysts, such as advocating for insurance coverage of individuals needing behavior-analytic services, and Families for Effective Autism Treatment promotes behavioral treatments and enlists government support.

The membership of ABAI has steadily increased, perhaps partly because attending certain of its sessions is important for continuing to be accredited as a behavior analyst. The membership in its Mexican counterpart, SMAC, also steadily increased until 2008. Then, concomitant with the decrease in behavioral courses in Mexican universities, mentioned above, this trend reversed. Worse yet, because they did not have their own organization, many Mexican cognitive psychologists joined SMAC, resulting in an adul-

sonnt notamment les sciences appliquées, y compris la recherche appliquée, à la fois en analyse appliquée du comportement et en thérapie comportementale. L'autisme est l'un des grands facteurs qui ont contribué à cet essor et le béhaviorisme a aussi connu de grandes percées au niveau du traitement d'autres conditions. De plus, de solides organisations professionnelles et bénévoles (par exemple, Association for Behavior Analysis International (ABAI), Association for Professional Behavior Analysts (APBA)), qui sont vouées à la promotion des traitements comportementaux et qui revendiquent plus de soutien auprès des compagnies d'assurance et des gouvernements, sont apparues.

Au fur et à mesure que les membres des professions d'aide à autrui, le grand public et les gouvernements deviennent de plus en plus conscients de l'efficacité des traitements comportementaux, et que les professionnels dans le domaine deviennent de plus en plus conscients de l'importance du fondement conceptuel de l'approche behavioriste et de la recherche fondamentale du comportement, je m'attends à ce qu'il y ait une attention renouvelée pour ces notions de base. Je m'attends également à ce que les technologies de l'information soient de plus en plus utilisées dans l'exécution des procédures comportementales. De façon générale, il y a des signes évidents que, à bien des égards, le domaine progresse en Amérique du Nord.

¹ Je remercie les individus suivants pour l'information et les idées qu'ils ont fournies : Carlos A. Bruner, Maurice A. Feldman, Steven C. Hayes, Garry L. Martin, Toby L. Martin, Jay Moore, Stanley J. Weiss, et C. T. Yu. ●

Les opinions exprimées dans cet article sont celles de l'auteur et ne sont pas nécessairement celles des individus reconnus dans cette note.



Geneviève Roy-Wsiaki, Ph.D.

Dr. Geneviève Roy-Wsiaki recently joined Operants as the Canadian Translator and Correspondent. She is an Assistant Professor of Psychology at the Université de Saint-Boniface in Winnipeg, Manitoba. Prior to joining the university, she worked for the St. Amant Autism Programs, providing services to children with ASD as well as their families and school staff across Manitoba. Geneviève has also been an active member of the Manitoba ABA chapter of ABAI, serving various positions over the years, including Student Representative, President Elect, and President. She currently sits as Past President, Co-Chair of Public Relations, and Chair of the Advisory Committee.

teration in the radical behaviorist content. Something similar seems to have occurred to some extent in ABAI.

Although application of Skinner's behaviorism is most directly realized in ABA, his impact on BT is also considerable. There are a number of different schools or approaches to BT, which is designed to treat conditions such as severe depression, anxiety including phobias, and obsessive-compulsive disorders. Some approaches treat a variety of conditions, while others focus on one specific condition. In keeping with the trend toward cognitive psychology, BT is often referred to as cognitive behavior therapy (CBT). This therapy generally consists of homework assignments in which the client practices engaging in desirable behavior that competes with the undesirable behavior that the treatment is designed to reduce or eliminate. The so-called "cognitive" component of CBT is usually some sort of talk therapy that follows behavioral principles of verbal behavior. In addition, research typically shows that the effectiveness of the therapy lies mainly in the homework assignments – the so-called "behavioral" component. Thus, for several reasons, referring to BT as CBT is a misnomer.

One form of BT that is particularly relevant to this paper is acceptance and commitment therapy (ACT) because it originated in ABA and is derived from research on verbal behavior, specifically RFT. With ACT, clients are taught to verbally accept the problem they are being treated for and to commit to engaging in behavior that will reduce or eliminate the problem. The Society for Clinical Psychology of the American Psychological Association on their website (<http://www.div12.org/psychological-treatments/>) lists research-supported psychological treatments. The inroads that behavior therapies such as ACT have made in becoming accepted by clinical psychologists are highlighted by the fact that virtually all the treatments listed are behavioral treatments.

Advances in computer technology have had an impact on behavioral applications. As in many other areas, Skinner was far ahead of his time with regard to how computer technology can be used effectively. Decades before many knew what a computer was, Skinner envisioned a

machine – a teaching machine – that could be programmed to use behavioral principles to teach. Today, computers are being used in teaching courses, in staff training, and in conducting BT. Any procedure that can be specified, which is true of all behavioral procedures, can be programmed. Unfortunately, individuals using computers for this purpose do not always ensure that the program operates according to behavioral principles. However, that may change through a shaping process in which program designers responsible for programs carrying out behavioral tasks gradually learn what works and does not work in modifying behavior. Research in this area will also help to discover the most effective ways of using computers to carry out behavioral tasks.

In conclusion, since Skinner's death progress in behaviorism in North America has been mixed. There are areas in behaviorism in which accelerated progress has occurred and areas where there has been regression. To begin with the latter, hiring of behavioral faculty has declined in academia. At the same time, there has been a decline in basic behavioral research and the training of behavioral students in the

philosophy and basic concepts of their field. The areas in which progress has accelerated have been in application including applied research both in ABA and BT. Autism has been a big factor in this, but behaviorism has made strong inroads into the treatment of other conditions. In addition, strong professional and lay orga-

Since Skinner's death, progress in behaviorism in North America has been mixed. There are areas in behaviorism in which accelerated progress has occurred and areas where there has been regression. To begin with the latter, hiring of behavioral faculty has declined in academia.

nizations promoting behavioral treatments and advocating for support of behavior treatments by insurance companies and governments have emerged. As members of the helping professions, the general public, and governments become increasingly aware of the effectiveness of behavioral treatments and as professionals in the field become increasingly cognizant of the importance of both the conceptual basis of the approach and basic behavioral research, I expect renewed focus on these fundamentals. I also expect computer technology to be increasingly involved in carrying out behavioral procedures. Overall, there are clear signs that the field in many ways is advancing in North America. ●

Radical Behaviorism as a Philosophy of Post-Modern Science

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science
corner

Interview and English Translation by Monalisa Leão

Carolina Laurenti has received a Doctor of Philosophy from the Federal University of São Carlos, Brazil. She is currently Professor of Psychology at the State University of Maringa in the area of Foundations of Psychology. She has experience with conceptual research in radical behaviorism with emphasis on the following subjects: epistemology of psychology, scientific explanation, causality, determinism, indeterminism, freedom, radical behaviorism, pragmatism and philosophy of science. Professor Laurenti has fostered great debates through participation in national and regional meetings of psychology and behavior analysis groups in Brazil and has contributed greatly to the growth and development of conceptual research on behavior analysis in the country.



Carolina Laurenti, Ph.D.

Carolina Laurenti é Doutora em Filosofia pela Universidade Federal de São Carlos, Brasil. Atualmente, é Professora Adjunto do Departamento de Psicologia na Universidade Estadual de Maringá na área de Fundamentos da Psicologia. Tem experiência com pesquisa conceitual em Comportamentalismo Radical, com ênfase nos seguintes temas: epistemologia da Psicologia; explicação científica; causalidade; determinismo; indeterminismo; liberdade; Behaviorismo Radical; pragmatismo e Filosofia das Ciências. A Dra. Laurenti tem fomentado grandes debates por meio de participações nos encontros nacionais e regionais de Psicologia e Análise do Comportamento no Brasil e tem contribuído fortemente para o crescimento e desenvolvimento da pesquisa conceitual em Análise do Comportamento no país.

I would like to start by asking you to tell us a little bit about your history. When did you become interested in behavior analysis and what events helped you achieve your Doctor of Philosophy?

I did my undergraduate studies in psychology at the State University of Londrina, Brazil. Since the beginning, the courses had a very special relationship with behavior analysis. The first generation of professors who devised the curriculum had a solid background in behavior analysis. However, during the military dictatorship in Brazil, especially in the 1970s, some of these professors were dismissed for ideological reasons, and others in solidarity with the wronged fellows resigned. Many of them were seeking employment in

Gostaria de começar pedindo que nos contasse um pouco de sua história. Quando começou o seu interesse por Análise do Comportamento e quais foram os eventos que contribuíram para você se tornar uma doutora em Filosofia?

Fiz graduação em Psicologia na Universidade Estadual de Londrina, um curso que, desde o seu alvorecer, tinha uma relação muito especial com a Análise do Comportamento. A primeira geração de professores que idealizou o curso tinha uma sólida formação em Análise do Comportamento. No entanto, no período da ditadura militar no Brasil, em especial, na década de 1970, alguns desses professores foram demitidos por questões ideológicas e outros, em solidariedade aos colegas injustiçados, pediram demissão. Muitos desses professores foram procurar emprego

other institutions. Parallel to this, there was a consolidation of other theoretical approaches in the curriculum. When I started graduate studies in Psychology in 1997, the coursework was very different from the original proposal, marked by the scientific rigor of behavior analysis. The psychology courses were divided into three departments. One devoted to the analysis of behavior, another to psychoanalysis, and the third to institutional and social psychology. To me, this setting was a big surprise — until then, I was unaware of the plural character of the psychological field. Like most beginners, I believed that psychology was synonymous with psychoanalysis, and the only possible operation area for the psychologist would be clinical. My goal was to become a psychoanalyst. My first contact with behavior analysis was with the experimental analysis of behavior in which I fulfilled all the protocol: the operant level, shaping, schedules of reinforcement, discrimination, and punishment. At first glance, it looked like a “cold” theory incapable of understanding the human through analogies with non-human behaviors. Nevertheless, the possibility of behavior modification caught my attention: If we change the setting and/or the consequences, the actions could actually change. I saw in behavior analysis the possibility of social change; nothing more inspiring for a naive 17-year-old student, who dreamed of building a better world. I started attending conferences on behavior analysis. In the lectures of Professors Maria Amália Pie Abib Andery and Maria Tereza Pires de Azevedo Sérió, and especially those of Professor José Antonio Damasio Abib, I realized that behavior analysis was more than a science. Skinner’s philosophy, radical behaviorism, was a completely different way for me to understand the human and its relations with the world. Radical behaviorism was a philosophy of action, withdrawing the mind from the starring role of psychological explanations. From there, my interests in behavior analysis turned to its philosophy. I approached Professor Abib and asked him to be my advisor. He was one of the first researchers to produce conceptual studies on behavior analysis in Brazil. Today, this area of study is considered research because only empirical investigations received such qualification. Professor Abib welcomed me graciously at the Federal University of São Carlos. While there, I completed my Ph.D. on conceptual issues in radical behaviorism. The idea of becoming a psychoanalyst was left by the wayside and now I teach psychology at the State University of Maringá, an institution in which I have developed studies on the philosophical commitments of radical behaviorism,

em outras instituições e, paralelamente a isso, houve a consolidação de outras abordagens teóricas no curso. Quando iniciei a graduação em Psicologia, em 1997, a realidade do curso já era bem diferente de sua proposta original, marcada pelo rigor científico da Análise do Comportamento. O curso de Psicologia foi dividido em três departamentos. Um deles dedicado à Análise do Comportamento; outro à Psicanálise; o terceiro à Psicologia Social e Institucional. Para mim, essa configuração foi uma grande surpresa, pois, até então, desconhecia o caráter plural do campo psicológico. Como boa parte dos neófitos, acreditava que a Psicologia era sinônimo de Psicanálise e que a única área de atuação possível para o psicólogo seria a clínica. Meu objetivo era ser uma psicanalista. O primeiro contato com a Análise do Comportamento foi com a disciplina de análise experimental do comportamento, na qual cumpri todo o protocolo: do nível operante, passando pela modelagem, esquemas de reforçamento, discriminação, chegando até à punição. À primeira vista, me parecia uma teoria “fria”, incapaz de entender o humano por meio de analogias com comportamentos de não humanos. Não obstante, algo chamou minha atenção: a possibilidade de modificação do comportamento; se alterássemos a situação antecedente e/ou a consequência, as ações podiam, de fato, mudar. Vi na Análise do Comportamento a possibilidade de mudança social. Nada mais inspirador para uma pessoa de 17 anos que nutria o sonho de construir um mundo melhor. Comecei a frequentar congressos sobre Análise do Comportamento. Nas palestras das professoras Maria Amália Pie Abib Andery e Tereza Maria de Azevedo Pires Sérió e, principalmente, nas do professor José Antônio Damásio Abib, percebi que a Análise do Comportamento era mais que uma ciência; a sua filosofia, o Behaviorismo Radical, era uma forma completamente diferente, para mim, de entender o humano e as suas relações com o mundo. O Behaviorismo Radical era uma filosofia da ação, do comportamento, retirando a mente do papel de protagonista das explicações psicológicas. A partir daí meus interesses pela Análise do Comportamento se voltaram para a sua filosofia. Procurei o professor Abib para ser meu orientador de mestrado. Ele foi um dos primeiros pesquisadores a produzir estudos conceituais em Análise do Comportamento no Brasil, contribuindo para que hoje essa área de estudos tenha o nome de pesquisa, uma rubrica até então reservada para investigações empíricas. O professor Abib me acolheu gentilmente na Universidade Federal de São Carlos, onde lá também fiz meu doutorado investigando questões conceituais no âmbito do Behaviorismo Radical. O projeto de ser uma psicanalista foi sendo deixado pelo caminho e hoje leciono

mainly its relations with pragmatism, Darwinism and other theoretical trends in philosophy of science.

Based on your experience in philosophy, especially philosophy of science, what was the main contribution in this area for you as a researcher in behavior analysis?

Studying philosophy during my graduate studies at the Federal University of São Carlos was a unique experience. Brilliant thinkers were circling there, each specializing in a distinct philosophical doctrine. I witnessed heated, but always respectful, debates. I realized that the plurality was not necessarily a defect. That's because I hardly saw the respectful debate of ideas in psychology. The "epistemological pendulum" of psychology generally ranges between dogmatism and eclecticism. The stubborn defense of a theoretical approach ends up shielding it from criticism and consequently from its advances. At least in Brazil, I have seen similar movement in relation to behavior analysis: a dogmatic defense of scientific virtues, which ends up creating small groups and theoretical isolation. On the other hand, the eclecticism is not uncommon practice: some try to mend limitations of a given theoretical approach with elements of another despite the incompatibilities of their philosophical bases. I have also heard cases where a single professional "uses" behavior analysis to treat the more superficial psychological problems and uses psychoanalysis for more complex cases. I believe that a good education in the philosophical assumptions of psychological theories could be a step toward avoiding dogmatism and eclecticism. I think that this reasoning also applies to the teaching of behavior analysis.

Another contribution of philosophy to my education relates to the critical stance in respect of theories. Within my graduate program, Professors Abib and my doctoral advisor, who was educated under the logic way of thinking, Mark Julian Richter Cass, were responsible for the development of this critical stance. They always encouraged me to discuss ideas and arguments and especially to question everything, even the authors or theories that were very significant to me as a radical behaviorist. This reflected directly in the development of my doctoral thesis in which I discussed the issue of determinism and indeterminism in radical behaviorism. At times, Skinner declared to be deterministic. I tried to show that some of his assertions about behavior can be consistent with indeterministic theories without bringing in mentalism or abandonment of the scientific enterprise. I argued that this reading would also be consistent with the pragmatist and Darwinist roots of radical behaviorism,

Psicologia na Universidade Estadual de Maringá, instituição na qual desenvolvo estudos sobre os compromissos filosóficos do Behaviorismo Radical, notadamente, suas relações com o pragmatismo, o darwinismo e outras tendências teóricas em Filosofia das Ciências.

Com base na sua experiência em Filosofia, em especial, Filosofia das Ciências, quais foram as principais contribuições dessa área de conhecimento para você como pesquisadora em Análise do Comportamento?

Cursar filosofia na Universidade Federal de São Carlos foi uma experiência ímpar. Lá circulavam brilhantes pensadores, cada qual especializado em uma doutrina filosófica distinta; presenciei debates acalorados, mas sempre respeitosos. Percebi que a pluralidade não era necessariamente um defeito. Isso porque dificilmente conseguia ver na Psicologia o debate respeitoso de ideias. O "pêndulo epistemológico" da Psicologia geralmente oscila entre o dogmatismo e o ecletismo. A defesa obstinada de uma abordagem teórica acaba blindando-a de críticas e, conseqüentemente, de seus avanços. Pelo menos no Brasil já vi movimento semelhante em relação à Análise do Comportamento: uma defesa dogmática de suas virtudes científicas, o que acaba gerando guetos e isolamento teórico. Por outro lado, o ecletismo não é prática incomum: tenta-se remendar limitações de uma dada abordagem teórica com elementos de outra, a despeito das bases filosóficas de ambas serem incompatíveis. Também já ouvi casos em que um mesmo profissional "usa" Análise do Comportamento para tratar de problemas psicológicos mais superficiais e Psicanálise para os casos mais complexos. Acredito que uma boa formação nos pressupostos filosóficos das teorias psicológicas poderia ser um passo na direção de evitar o dogmatismo e o ecletismo. Penso que esse raciocínio também se aplica ao ensino de Análise do Comportamento.

Outra contribuição da Filosofia para a minha formação diz respeito à postura crítica diante das teorias. No âmbito da pós-graduação, devo isso ao professor Abib e ao meu orientador de doutorado, formado em lógica, o professor Mark Julian Richter Cass. Eles sempre me incentivaram a discutir ideias, argumentos e, principalmente, a questionar tudo, até mesmo autores ou teorias caras a mim, como a filosofia behaviorista radical. Isso repercutiu diretamente na elaboração de minha tese de doutorado, em que problematizei a questão do determinismo e do indeterminismo no Behaviorismo Radical. A despeito de Skinner, por vezes, ter se declarado determinista, procurei mostrar que algumas de suas assertivas sobre o comportamento podem ser consistentes com teses indeterministas, sem com isso incorrer

as well as expanding the opportunities for dialogue to philosophies of biology, physics and chemistry, which take similar positions. I think Skinner's work is open to different interpretations, and in this thesis, I tried to show the plausibility of alternative interpretation, the indeterministic.

Looking at the development of behavior analysis in Brazil, how do you assess the current level of conceptual research in this country at the institutional level, such as at the graduate courses in the area, and in terms of the scientific articles publication?

There is some evidence to suggest that conceptual research has gained ground in some contexts. For example, today in Brazil, several psychological conferences have taken the theoretical, conceptual, and historical research as a theme for the submission of papers. There are important papers in Brazil in particular those produced by Professor Emmanuel Zagury Tourinho. He has highlighted the losses for education and for professional practice resulting from neglecting conceptual research in favor of empirical research. On the other hand, there are other aspects that to me are discouraging. Some journals have restricted or even excluded from its editorial policy the publication of conceptual research results. There is room for literature review and bibliometric studies, which are of great value for scientific development. However, papers that discuss the philosophical commitments (ontological, epistemological, ethical, aesthetic, etc.) of the concepts of theories seem to have less editorial appeal. Added to this, psychology curricula have offered fewer disciplines to discuss philosophy of psychology or philosophical assumptions of psychological approaches. On one hand, it is difficult for anyone to deny explicitly the importance of conceptual research as seen in the cliché, "Theory is important for practice." On the other hand, the described aspects suggest that the technology is the one that has been important to practice.

In some of your works, you have defended radical behaviorism as a philosophy of post-modern science. In your opinion, what are the main features of Skinner's philosophy that allow framing it in post-modernity?

I am aware of the risk of using the "post-modern" expression mainly associated with radical behaviorism, which is a philosophy that underlies a given proposal for scientific study of behavior. Sometimes, the discussion of what is "scientific" in behavior analysis reiterates the already worn dichotomy between natural sciences and

no mentalismo ou no abandono do empreendimento científico. Argumentei que essa leitura seria também coerente com as raízes pragmatistas e darwinistas do Behaviorismo Radical, além de expandir possibilidades de diálogo para Filosofias da Biologia, da Física e da Química que assumem posicionamentos semelhantes. Penso que o texto skinneriano é aberto a diferentes leituras; e nesta tese procurei mostrar a plausibilidade de outra interpretação, a indeterminista.

Observando o desenvolvimento da Análise do Comportamento no Brasil, como você avalia o atual patamar da pesquisa conceitual no país, a nível institucional, como nos cursos de pós-graduação da área, e em termos de publicação de artigos científicos?

Há alguns elementos que sugerem que a pesquisa conceitual tem ganhado espaço em alguns contextos. Por exemplo, hoje, vários congressos em Psicologia no Brasil tem como um de seus eixos temáticos para submissão de trabalhos pesquisas teóricas, conceituais e históricas. Há importantes textos no Brasil, em especial, os produzidos pelo professor Emmanuel Zagury Tourinho, que têm destacado os prejuízos, para a formação e para a prática profissional, de preterir a pesquisa conceitual em favor das pesquisas empíricas. Por outro lado, há outros aspectos que, para mim, são desencorajadores. Alguns periódicos científicos têm restringido ou mesmo excluído de sua política editorial a publicação de resultados de pesquisas conceituais. Há espaço para pesquisas de revisão de literatura, estudos bibliométricos que são de grande valia para o desenvolvimento científico. Contudo, textos que discutem os compromissos filosóficos (ontológicos, epistemológicos, éticos, estéticos etc.) dos conceitos de teorias parecem ter menos apelo editorial. Somado a isso, os currículos de Psicologia têm destinado cada vez menos disciplinas para tratar de Filosofia da Psicologia ou dos pressupostos filosóficos das abordagens psicológicas. De um lado, é difícil alguém negar explicitamente a importância da pesquisa conceitual, como se vê no clichê "a teoria é importante para prática". Mas, por outro lado, os aspectos outrora descritos sugerem que apenas a tecnologia esteja sendo importante para a prática.

Em alguns de seus trabalhos você defende uma interpretação do Comportamentalismo Radical como uma filosofia da ciência pós-moderna. Em sua opinião, quais são as principais características da filosofia skinneriana que permite enquadrá-la na pós-modernidade?

Estou ciente do risco de usar a expressão "pós-moderno", principalmente associada ao comportamentalismo radical, a filosofia que embasa uma dada proposta de estudo científico do comportamento. Por vezes, a discussão do que seja "científico",

human sciences – a dichotomy that states the scientific superiority of the first and distrusts the scientific status of the latter. Behavior analysis is usually located next to the natural sciences. In this context, the “scientific” study of behavior means an investigation of the behavior that emphasizes the methodological rigor, operationalization of the variables, use of the experimental method, and the search for regularities in the phenomena described in terms of functional relations. All of this at first glance seems to be antithetical to the post-modern discourse that, as a rule, is linked to the human sciences. In the traditional view, there is skepticism about the scientific status of these sciences. The post-modern discourse is associated with lack of rigor, relativism, the abandonment of the key notions of modern science (such as explanation, prediction, and control), reducing the scientific knowledge to a mere instrument of power and domination. I understand that the term “post-modern” is sometimes associated to this discourse.

But away from this reading, I hold the approaches of radical behaviorism to post-modern discourse based on another meaning. “Post-modern” is an expression that intends to give visibility to the limits of modern design for mankind. It is a reasoned design that human relationships would culminate in the technological and social progress, as they are regulated by rationality, for order and scientific knowledge. Put another way, “post-modern” means on one hand a set of critiques of modern thought, and on the other, an effort to overcome these limitations by trying to find alternative livelihoods to those prescribed by modern thought in different social spheres: science, ethics, politics, arts, and so on. Approaching radical behaviorism of post-modern discourse can be a way to show some notions of radical behaviorist philosophy that are incompatible with the modern discourse. I think the dissolution of Skinner’s notion: removal of initiating agent, criticism of the idea of absolute truth in science, the supposed indeterminism mentioned here, skepticism to total predictability and control of behavior, conception of science as behavior of scientist; the importance of verbal behavior to understand the knowledge and self-knowledge, the critical class of the control agencies, defense of the face to face control, and the role of counter-control are some aspects that in my opinion give visibility to “post-modern” tendencies of radical behaviorism. I understand that behavior analysis is a science that has brought many contributions in terms of behavior change technologies. But I believe that the heuristic possibilities of the philosophy of a radical

em Análise do Comportamento, reitera a já desgastada dicotomia entre ciências naturais e ciências humanas – uma dicotomia que afirma a superioridade científica das primeiras e desconfia do status científico das segundas. A Análise do Comportamento é geralmente situada ao lado das ciências naturais. Nesse contexto, o estudo “científico” do comportamento significa uma investigação do comportamento que privilegia o rigor metodológico, a operacionalização das variáveis, o uso do método experimental e a busca de regularidades nos fenômenos, descritas em termos de relações funcionais. Tudo isso, à primeira vista, parece ser antitético ao discurso pós-moderno que, via de regra, é vinculado às ciências humanas. Como, na visão tradicional, há um ceticismo sobre cientificidade dessas ciências, o discurso pós-moderno é associado à falta de rigor, ao relativismo, ao abandono das noções mais caras à ciência moderna (como explicação, previsão e controle), reduzindo o conhecimento científico a um instrumento de poder e de dominação. Entendo que o termo “pós-moderno” está, por vezes, vinculado a esse discurso.

Mas, afastando-se dessa leitura, respaldo as aproximações do Behaviorismo Radical ao discurso pós-moderno com base em outra acepção: “pós-moderno” é uma expressão que pretende dar visibilidade aos limites do projeto moderno para a humanidade – um projeto assentado na ideia de que as relações humanas, uma vez reguladas pela racionalidade, pela ordem e pelo conhecimento científico, culminariam no progresso tecnológico e social. Explicando de outra forma, “pós-moderno” significa, de um lado, um conjunto de críticas ao pensamento moderno e, de outro, um esforço de superação dessas limitações buscando encontrar modos de vida alternativos àqueles prescritos pelo pensamento moderno, em diferentes esferas sociais: ciência, ética, política, artes etc. Aproximar Behaviorismo Radical do discurso pós-moderno pode ser uma maneira de mostrar algumas noções da filosofia behaviorista radical que vão na contramão do discurso moderno. Penso que a dissolução de Skinner da noção de eu-iniciador; as críticas à ideia de verdade absoluta na ciência; o suposto indeterminismo já mencionado aqui; o ceticismo em relação a total possibilidade de previsão e controle do comportamento; a concepção de ciência como comportamento do cientista; a importância do comportamento verbal para entender o conhecimento e o autoconhecimento; a crítica às agências de controle; a defesa do controle face a face; o papel do contra-controle são alguns dos aspectos que, na minha opinião, dão visibilidade às tendências “pós-modernas” do Behaviorismo Radical. Entendo que a Análise do Comportamento é uma ciência que tem trazido muitas contribuições em termos de tecnologias de mudança de comportamento. Mas acredito

behaviorist to understand contemporary issues in science and in other fields are largely unexplored due to a more technological concern.

Still on the theme of the previous question, in pragmatic terms, what are the major practical consequences for us, behavior analysts, if we assume radical behaviorism as a philosophy of post-modern science?

For me, the “logic” of the selection of variations present in the Skinner’s explicative mode of selection by consequences is heuristically useful to think about the evolution of scientific knowledge and the role of post-modern discourse in this process. I understand that the post-modern discourse was a variation inserted in cultural practices, which were hitherto guided by modern thought. Is it however a useful and effective variation? At first glance, I can say that the approach of radical behaviorism with post-modern discourse seems to be a useful way to become more eclectic, adding variation in the scientific discourse of behavior analysis. But, following Darwin, Skinner said variations are not all useful. Would post-modern trends outlined in the previous answer be useful and effective for the evolution of behavior analysis? In my view, they would make at least the scientific discourse of behavior analysis in relation to the human behavior less pretentious, which could extend the possibilities of dialogue with other fields of scientific knowledge and other knowledge areas.

However, a more modest stance does not mean an attitude of resignation, a resignation in relation to scientific knowledge. There is still a concern for scientific advancement, but this progress is not measured by the deepening metaphor. Scientific advancement occurs more superficially to deeper relations, that is, a variable for invariable relations. This more modest approach suggests that science gauges advances by the enlargement metaphor, that is, by increasingly broadening the spectrum of the description of the combinations between regularity and variation in explaining behavioral phenomena. This extension must be evaluated by the production of useful consequences: useful in terms of understanding and explanation of the phenomenon, useful in terms of technologies produced, useful in terms of the social consequences of scientific practices, a utility that has been deprecated by modern thought in favor of technological usefulness.

Behavior analysis can be understood as a cultural

que as possibilidades heurísticas da filosofia behaviorista radical para entender questões contemporâneas na ciência, e em outros campos, são pouco exploradas em função de uma preocupação mais tecnológica.

Continuando no tema da questão anterior, em termos pragmáticos, quais são as principais consequências práticas para nós, analistas do comportamento, ao assumirmos o Comportamentalismo Radical como filosofia da ciência pós-moderna?

Para mim, a “lógica” da seleção de variações, presente no modelo de seleção pelas consequências de Skinner, é heurísticamente útil para pensar a evolução do conhecimento científico e o papel do discurso pós-moderno nesse processo. Entendo que o discurso pós-moderno foi uma variação inserida em práticas culturais, que eram pautadas até então pelo pensamento moderno. Trata-se, todavia, de uma variação, útil, efetiva? À primeira vista, posso dizer que aproximar o Behaviorismo Radical do discurso pós-moderno parece ser uma forma útil de inserir acidentes, variações no discurso científico da Análise do Comportamento. Mas, acompanhando Darwin, Skinner disse que nem todas as variações são úteis. As tendências pós-modernas esboçadas na resposta anterior seriam efetivas para a evolução da Análise do Comportamento? A meu ver, elas tornariam, pelo menos, o discurso científico da Análise do Comportamento em relação ao comportamento humano menos pretensioso; o que poderia ampliar as possibilidades de diálogo com outros campos de conhecimento científico e com outras áreas do saber.

Uma postura mais modesta não significa, contudo, uma atitude de resignação, de conformismo em relação ao conhecimento científico. Trata-se de ainda se preocupar com o progresso científico, mas, do ponto de vista do discurso pós-moderno, ele não é aferido pela metáfora do aprofundamento, de acordo com a qual a ciência caminha de relações variáveis, mais superficiais, para relações mais profundas, as invariáveis. Trata-se de aferir o avanço científico pela metáfora do alargamento, de ampliarmos cada vez mais o espectro da descrição das combinações entre regularidade e variação na explicação do fenômeno comportamental. Esse alargamento precisa ser avaliado pela produção de consequências úteis: úteis em termos de compreensão, de explicação do fenômeno; úteis em termos de tecnologias produzidas; úteis em termos de consequências sociais das práticas científicas, uma utilidade que foi preterida pelo pensamento moderno em favor da utilidade tecnológica.

A Análise do Comportamento pode ser entendida como uma prática cultural. E, como tal, por vezes, me pergunto: ela precisa evoluir? Ela precisa mudar? Lembro-me de uma

practice. And as such, sometimes I wonder: Does it need to evolve? Does it need to change? I remember a discussion made by Skinner on a fault that occurs on the third level of variation and selection (cultural level): a culture prepares its members for just one similar to the culture in which their behaviors were selected. Many scientific behaviors of behavior analysts have been shaped in the context of modern scientific discourse. However, the post-modern discourse has signaled cultural changes, including changes in science itself. Has the teaching of behavior analysis considered these changes? It is my understanding that a very modest place behavior analysis occupies in the natural sciences, often threatened by neuroscience, and almost non-existent position it occupies in the humanities are indications that we need to evolve. But for evolution (change) to occur, there must be variations and selection of these variations. This explanatory logic leads me to other questions: Have behavior analysis variations been inserted in their scientific discourse? Is there variation or reproduction? If there are variations, which ones are being selected? In what direction is behavior analysis evolving? These are questions that I always have on the horizon as they relate to the very survival of behavior analysis as a cultural practice.

Some of the researchers flirt with other knowledge areas, such as biology. For you, what are the contributions that this type of exchange with other sciences can bring to the general understanding and development of behavior analysis?

Lately behavior analysis has sought a dialogue with quite prominent branches of biology and neurophysiology, exploring the neural processes underlying behavioral selection by reinforcement. I believe that another branch that deserves a special look from behavior analysis would be the evolutionary biology. A debate argued by Eva Jablonka and Marion J. Lamb has arisen about a more complex notion of evolution. This debate questions the view of the evolutionary process centered on random genetic variations. This complex or multidimensional theory not only defends a gradient of randomness of genetic variations but also broadens the sources of variation and inheritance systems, including epigenetic, behavioral, and symbolic dimensions. One of the conclusions is the defense of a mutual relationship between evolution and development.

What strikes me in this debate is the role given to behavior, which is now considered one of the dimensions of the evolutionary process. I understand that it established a fertile ground for dialogue between behavior analysis and evolutionary biology. More than that, it seemed to be a

discussão feita por Skinner sobre uma falha que ocorre no terceiro nível de variação e de seleção (o cultural): uma cultura prepara seus membros apenas para uma cultura semelhante àquela na qual seus comportamentos foram selecionados. Muitos comportamentos científicos dos analistas do comportamento foram modelados no contexto do discurso científico moderno. Todavia, o discurso pós-moderno tem sinalizado mudanças culturais, incluindo mudanças na própria ciência. O ensino de Análise do Comportamento tem considerado essas mudanças? Entendo que o lugar tímido que a Análise do Comportamento tem ocupado nas ciências naturais, frequentemente ameaçada pelas Neurociências, e o lugar quase nulo que ocupa nas ciências humanas são indícios de que é preciso evoluir. Mas para que a evolução (mudança) aconteça, é preciso haver variações e seleção dessas variações. Essa lógica explicativa leva-me a fazer outras indagações: a Análise do Comportamento está inserindo variações em seu discurso científico? Há variação ou há reprodução? Se houver variações, quais estão sendo selecionadas? Em que direção a Análise do Comportamento está evoluindo? Enfim, são perguntas que sempre tenho no horizonte, pois dizem respeito à própria sobrevivência da Análise do Comportamento como prática cultural.

Algumas de suas pesquisas flertam com outras áreas de conhecimento, tal como a Biologia. Para você, quais as contribuições que esse tipo de intercâmbio com outras ciências pode trazer para a compreensão e desenvolvimento geral da Análise do comportamento?

Nos últimos tempos a Análise do Comportamento tem buscado um diálogo com ramos bastante proeminentes da Biologia, como a Neurofisiologia, sondando os processos neurais subjacentes à seleção comportamental pelo reforçamento. Acredito que outro ramo que mereceria um olhar especial da Análise do Comportamento seria a Biologia Evolutiva. Isso porque, como argumentam Eva Jablonka e Marion J. Lamb, tem surgido um debate sobre uma noção mais complexa de evolução, que questiona a visão do processo evolutivo centrado em variações genéticas aleatórias. Essa teoria complexa ou multidimensional, além de defender um gradiente de aleatoriedade das variações genéticas, amplia as fontes de variação e os sistemas de herança, incluindo também as dimensões epigenética, comportamental e simbólica. Uma das decorrências dessa discussão é a defesa de uma relação mútua entre evolução e desenvolvimento.

O que me chama a atenção, nesse debate, é o importante papel dado ao comportamento, que passa a ser considerado uma das dimensões do processo evolutivo. Entendo que isso

very favorable and promising dialogue that went off the threat of biological reductionism, which is so present in attempts to approach behavior analysis with neuroscience. I think behavior analysis could contribute to this debate to elucidate, for example, the role of operant and respondent conditioning in development and evolution. At the same time, it could expand its conception of evolution, locating in other bases the analogies between natural selection and evolution of behavior. For me, the defense of epistemic autonomy of behavior analysis is not synonymous with isolation, and I believe that the stance of seeking a dialogue with other knowledge areas seems to be a more fruitful path for behavior analysts. ●

estabelece um terreno propício para o diálogo entre Análise do Comportamento e Biologia Evolutiva. Mais do que isso, parece ser um diálogo bastante favorável e promissor, que passa ao largo da ameaça do reducionismo biológico, tão presente nas tentativas de aproximação da análise do comportamento com as Neurociências. Penso que a Análise do Comportamento poderia contribuir com esse debate elucidando, por exemplo, o papel do condicionamento respondente e do condicionamento operante no desenvolvimento e na evolução. Ao mesmo tempo ela poderia ampliar sua concepção de evolução, situando em outras bases as analogias entre seleção natural e evolução do comportamento. Para mim, a defesa da autonomia epistêmica da Análise do Comportamento não é sinônimo de isolamento; e acredito que a postura de buscar um diálogo com outras áreas de conhecimento parece ser um caminho mais profícuo para os analistas do comportamento. ●

Starting January 2016, *Operants* magazine will be accompanied by the podcast, streamed through bfskinner.org. In the upcoming inaugural episode, Dr. Julie S. Vargas and Dr. Ernest A. Vargas are interviewed on the general subjects, including the state of behaviorology 25 years after Skinner.



The State of ABA in Europe

reflections

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President Obama's Executive Order: *Using Behavioral Science Insights to Better Serve the American People* (The White House, 2015) was based on the premises that "[a] growing body of evidence demonstrates that behavioral science insights [...] can be used to design government policies to better serve the American people."

This directive concurred with the fact that more and more States in the U.S. have laws that mandate autism services to include interventions based on applied behaviour analysis (presently, n=43), because of the overwhelming evidence that these interventions are linked to optimal outcomes.

Obama's Executive Order was based on findings from the United Kingdom, where Prime Minister David Cameron had appointed a highly effective Behavioural Insights Team. The team was set up to develop behaviour change procedures that would lead to economic savings by "nudging" large groups of the populations to make small behavioural changes. By making small changes in policies or procedures, i.e., minor "nudges", this team (aka the Nudge Unit) has already saved the U.K. economy millions of pounds.

One could be excused for thinking that with such a forward thinking government, autism interventions in the U.K. would embrace the science of behaviour analysis. Not so! Behaviour insights / analysis have not been adopted in the U.K. in the field of autism, disability, or education more generally. Consequently, the long-term outcomes for adults with autism are extremely poor in the U.K. and there are repeated reports of ill-treatment of



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For further information and list of publications, see www.qub.ac.uk/cba.

Le décret du président Obama: Utiliser les découvertes de la science du comportement pour mieux servir le peuple américain (The White House, 2015), était basé sur l'idée que «[a] de plus en plus de preuves montrent que les connaissances des sciences du comportement [...] peuvent être utilisées dans la conception des politiques gouvernementales afin de mieux servir le peuple américain.»

Cette directive concorde avec le fait que de plus en plus d'Etats aux Etats-Unis (actuellement, n = 43) ont des lois imposant aux services de prise en charge de l'autisme d'inclure des interventions basées sur l'analyse appliquée du comportement, en raison des preuves abondantes concernant les résultats optimaux liés à ces interventions

Le décret d'Obama repose sur les conclusions d'une équipe très efficace Behavioural Insights Team au Royaume-Uni, nommée par le Premier ministre David Cameron. L'équipe avait été déployée pour élaborer des procédures de changement de comportement qui devaient conduire à des économies, en «poussant» de grands groupes de la population à faire des petits changements de comportement. En générant de petits changements, tels des «coups de pouce» mineurs, dans les politiques ou procédures, cette équipe (Alias Nudge Unit) a déjà sauvé des millions de £ au Royaume-Uni.

On aurait pu être excusé de penser qu'avec un tel gouvernement avant-gardiste, les interventions dans le domaine de l'autisme au Royaume-Uni embrasseraient la science de l'analyse du comportement. Pas du tout! L'analyse du comportement / ses idées n'ont pas été adoptées au Royaume-Uni dans le domaine de l'autisme, du handicap, ou plus généralement de l'éducation. Par conséquent, les résultats à long terme pour les adultes atteints d'autisme sont

persons with disabilities, e.g., being physically or psychologically abused by staff who are ill prepared to deal with challenging behaviours. The cost of autism is rising, mainly due to the need for adult services for adults who did not receive early behaviour analytic interventions and loss of earning for parents who have to run their own child's home programmes.

In Europe, applied behaviour analysis (ABA) generally is not widely known, despite the fact that the European Association for Behaviour Analysis (www.EuropeanEABA.com) has endorsed the certification of behaviour analysts through the Behavior Analyst Certification Board (BACB). To date, none of the European governments have recognised or licensed Board Certified Behaviour Analysts (BCBA) as health or education professionals.

In actual fact, there is not a single European government that funds ABA-based interventions through their health or their education system. This leaves ABA-based interventions for children with autism predominantly sidelined and akin to other kinds of shadow education or private tutoring. For example, according to an independent report commissioned by the European Commission's Directorate-General for Education and Culture, private tutoring in the U.K. "...has become one of the most important, yet also unacknowledged, factors in a child's school performance. It disadvantages working-class children and undermines any pretensions to a comprehensive school system. Not only that, but it distorts the league tables of test and examination performance, which are supposed to reflect the quality of teaching in schools, and thus makes a nonsense of the government's entire strategy for raising standards..."

The big question is Why is ABA sidelined in Europe? A number of reasons come to mind:

1. There is a very strong tradition of psychoanalysis in Europe. For example, in France, most interventions for autism are based on Freudian theories conducted by psychiatrists, and many still hold with Bruno Bettelheim's theories of the refrigerator mother. The French government has recently agreed to set up test sites for ABA-based autism intervention, however, not surprisingly, it has proved to be difficult to find French speaking BCBA's to lead the teams at these sites.
2. The behaviour analyst's view of autism is diametrically opposed to the traditional mainstream view of autism, which purports that the best thing is to "accept the person with autism as they are." In fact, any attempt at changing the behaviour of a person with autism is ridiculed as being based on a "normalising" agenda. For example, a non-verbal child is said to have made a decision not to talk and this must be respected at all cost, regardless of the age or developmental level of this child.

extrêmement pauvres au Royaume-Uni et il existe de multiples rapports de mauvais traitements des personnes avec handicap, par exemple physiquement ou psychologiquement maltraités par le personnel qui est mal préparé à faire face aux comportements difficiles. Le coût de l'autisme est en hausse dans les services aux adultes, principalement en raison des besoins pour ceux qui n'ont pas reçu d'intervention précoce en analyse du comportement, et il y a une perte des revenus pour les parents qui doivent exécuter les programmes de leur propre enfant à la maison.

En Europe, l'analyse appliquée du comportement n'est généralement pas très connue, bien que l'Association Européenne pour l'Analyse du Comportement (www.EuropeanEABA.com) ait approuvé la certification des analystes du comportement à travers le comité pour la certification des analystes du comportement (Behavior Analyst Certification Board (BACB)). A ce jour, aucun des gouvernements européens n'a reconnu ou agréé des analystes du comportement certifiés (Board Certified Behavior Analyst BCBA) en tant que professionnels de la santé ou de l'éducation.

En réalité, pas un seul gouvernement européen ne finance les interventions basées sur l'ABA via leur système de santé ou leur système d'éducation. Les interventions basées sur l'ABA pour les enfants atteints d'autisme sont principalement mises sur la touche et perçues comme semblables à d'autres types d'éducation d'accompagnement ou de tutorat individuel. Par exemple, au Royaume-Uni, le tutorat individuel «... Est devenu l'un des facteurs les plus importants, mais également non reconnu, pour la réussite scolaire d'un enfant. Il désavantage les enfants de la classe ouvrière et ruine toute prétention à un système scolaire bienveillant. Non seulement cela, mais il altère les classements des test et examens de performances, censés refléter la qualité de l'enseignement dans les écoles, et fait ainsi un non-sens à l'ensemble de la stratégie du gouvernement pour relever les niveaux ...»

La grande question est «Pourquoi l'ABA est mise sur la touche en Europe?» Un certain nombre de raisons sont plausibles:

1. Il existe une très forte tradition de la psychanalyse en Europe. Par exemple, en France la plupart des interventions dans le domaine de l'autisme sont fondées sur des théories freudiennes, menées par des psychiatres, et beaucoup restent encore fidèles aux théories de la mère réfrigérateur de Bruno Bettelheim. Le gouvernement français a récemment ouvert des sites pilotes pour des interventions basées sur l'ABA pour traiter l'autisme, cependant, sans surprise, il s'est révélé difficile de trouver des BCBA's francophones pour mener les équipes sur ces sites.
2. La perception de l'autisme en analyse du comportement est diamétralement opposée à l'opinion traditionnelle dominante, laquelle prétend que « la meilleure chose est d'accepter les personnes avec autisme telles qu'elles sont ». En fait, toute tentative de changer le comportement d'une personne autiste est bafouée, vu comme étant fondée sur un programme de 'normalisation'. Par exemple, un enfant non-verbal est dit avoir choisi de ne pas parler, cela doit être respecté à tout prix, quel que soit l'âge ou le niveau de développement de cet enfant.

3. On the other hand, the lack of ABA in Europe may be due to matters of translation. The vast majority of behaviour analytic research is published in English and thus eludes those who speak other languages in Europe. Efforts to translate some of the ABA texts are under way (www.simplestepsautism.com), but this is an expensive and often painfully slow process. A number of glossaries now exist to ensure a common behaviour analytic vernacular in some countries (www.bacb.com), but this is difficult to achieve, especially when the few behaviour analysts that exist in specific European countries may not agree on the translated terms. Additional difficulties in some countries such as Iceland and Greece are that new terms cannot be simply assimilated into the existing language because they require government approval.
4. Relatedly, the lack of ABA in Europe may be due to the fact that there are very few BACB approved course sequences in Europe with most countries having no such courses at all. The BCBA exam is available in a very limited number of languages and thus not accessible to most Europeans or other international applicants. Of course, this is a question of supply and demand, but without a major initiative to translate the exam and related readings into all European languages, progress will be at a snail pace. Of course, the more ABA research is conducted in different countries, the more material will become available in arterial languages.
5. Of course, the main problem with lack of training and translation is that in this vacuum, the wrong messages about ABA are being propagated in Europe. There is widespread misuse of the term ABA with it being considered one method of autism intervention, but even worse, most people in the autism field or education more generally have never even heard of ABA. This problem is further conflated by behaviour analysts who market branded manualised procedures without acknowledging that these are based on ABA, thus confusing parents, professionals, and government agencies.
6. Finally: The autism wars! While not unknown in the U.S., the autism wars are particularly vicious in some parts of Europe. There are those who consider that they own the "autism turf" and who will fight dirty to protect their slice of the market. Careers have been built on autism without ABA, and these people are worried that their careers may be destroyed if they acknowledge the benefits of ABA. This is generally a very small group of very powerful people, some in academia, some in non-governmental organisations (NGO), but they do untold damage in the public perception of ABA. All available methods of propaganda,
3. Par ailleurs, le peu d'ABA en Europe peut être dû à des questions de traduction. La grande majorité des recherches en analyse du comportement est publiée en anglais et échappe ainsi à ceux qui parlent d'autres langues en Europe. Des efforts visant à traduire certains textes ABA sont en cours (www.simplestepsautism.com), mais cela est un processus coûteux et souvent terriblement lent. Un certain nombre de glossaires existent à présent dans certains pays pour assurer un langage commun en analyse du comportement (www.bacb.com), cependant cela est difficile à réaliser, surtout lorsque les quelques analystes du comportement qui existent dans les pays européens ne tombent pas d'accord sur les termes traduits. Dans certains pays tels que l'Islande et la Grèce, il existe des difficultés supplémentaires, comme le fait que les nouveaux termes ne peuvent pas être simplement assimilés dans la langue existante car ils nécessitent l'approbation du gouvernement.
4. De la même façon, le peu d'ABA en Europe peut être dû au fait qu'il y ait très peu de cursus approuvés par le BACB en Europe. La plupart des pays n'offrent pas du tout ces cours. L'examen du BCBA est disponible dans un nombre très limité de langues et n'est donc pas accessible à la plupart des Européens ou d'autres candidats internationaux. Bien sûr, cela est une question de l'offre et de la demande, cependant sans une initiative majeure pour traduire l'examen et les lectures annexes dans toutes les langues européennes, les progrès se feront à un rythme d'escargot. Évidemment, plus des recherches en ABA seront menées dans différents pays, plus il y aura de ressources disponibles dans les langues artérielles.
5. Immanquablement, le principal problème avec le manque de formation et de traduction est que, au travers de toute cette privation, des messages erronés au sujet de l'ABA sont véhiculés en Europe. Il y a une mauvaise utilisation du terme ABA de manière généralisée, dont le fait de considérer que c'est une méthode d'intervention de l'autisme. Pire encore, la plupart des gens dans le domaine de l'éducation ou de l'autisme, plus généralement, n'ont même jamais entendu parler de l'ABA. Ce problème est davantage intensifié par les analystes de comportement qui commercialisent des procédures sans reconnaître que celles-ci sont basées sur l'ABA, confondant ainsi les parents, les professionnels et les organismes gouvernementaux.
6. Enfin: Les guerres de l'autisme! Pas inconnues aux Etats-Unis, les guerres de l'autisme sont particulièrement vicieuses dans certaines régions d'Europe. Il y a ceux qui considèrent qu'ils possèdent le "terrain de l'autisme" et qui se battront durement pour protéger leur part du marché. Des carrières ont été construites sur l'autisme, sans ABA, et ces gens sont inquiets pour leur situation qui pourrait être détruite si elles reconnaissent les avantages de l'ABA. Cela représente généralement un très petit groupe de gens très puissantes, certaines dans le milieu universitaire, certaines dans des organisations non-Gouvernementales (ONG), mais elles font des dégâts incalculables à la perception publique de l'ABA. Toutes les méthodes possibles de propagande, tricherie, corruption, calomnie et mensonges sont utilisés par ces personnes. Certains exemples peuvent être exposés à

deceit, corruption, slander, and lies are used by these people. While some of this can be exposed through Freedom of Information requests, much happens in the corridors of power of the establishment where policy decisions are made. Ultimately, the children and adults with autism miss out on evidence-based interventions because personal politics rather than science informs decision making.

The science of behaviour analysis has progressed to a point where its maturity is commensurate with other natural sciences. Philosophically, conceptualisations of “behaviour in context” have progressed to a point that enables us to analyse public as well as private events and, as such, allows us to transcend Newtonian dualism that had delayed theories of causality of behaviour from maturing.

The real life applications of our science have become detailed and sophisticated and provide life-enhancing and life-saving protocols for large groups of varied populations, both human and non-human. In other words, the knowledge base and the application of behaviour analysis are now available to make the world a much better, less aversive, place for humans and other species to live together peacefully and “behave well”.

When we meet other behaviour analysts at conventions and conferences, we congratulate ourselves for the wonderful work we do. There is no doubt that the application of our science can achieve wonderful things. Yet, the vision that behaviour analysis would “save the world” has not yet become reality in the 21st century. Perhaps, we have been naïve about the magnitude of the obstacles.

Behaviour analysts are not viewed as essential part of the team in industry, policy, education, social and health-care, or disability. In fact, in many places in the U.K., they are positively excluded and deliberately ignored by policy makers and those who write important reports, especially in the field of education and management of children with autism. These people don’t attend our conferences, read our books, or visit our centres, and we seldom attend theirs. For example, while the Nudge Unit team made extensive use of insights from behavioural science, not a single BCBA is on the team.

This is a major behavioural problem of the 21st century, and behaviour analysts have not yet found the solution. We have not yet found procedures to ensure that behaviour analysts are viewed as the key professionals in important organizational, education, and social and health-care teams across Europe or elsewhere. A glimmer of hope are the new guidelines from the U.K. National Institute of Clinical Excellence. Time will tell if the National Health Service (NHS) will take heed and advertise for these jobs to be filled by CBAs. ●

travers une demande d’accès à l’information, mais malgré tout, bien des choses se passent dans les couloirs du pouvoir de l’établissement où les décisions politiques sont prises. En fin de compte, les enfants et les adultes atteints d’autisme passent à côté des interventions fondées sur des preuves parce que les politiques personnelles plutôt que de la science gouvernent les prises de décision.

La science de l’analyse du comportement a progressé à un point où sa maturité est comparable à celles des autres sciences naturelles. Philosophiquement parlant, les conceptualisations de “comportement dans un contexte” ont progressé à un point qui nous permet d’analyser les événements publiques ainsi que privés et nous permet ainsi de transcender le dualisme newtonien qui avait retardé les avancements des théories de la causalité des comportements.

Les applications de notre science dans la vie réelle sont devenues détaillées et sophistiquées, et fournissent une amélioration de la vie et des programmes pour sauver la vie de grands et divers groupes de population, à la fois humains et non-humains. En d’autres termes, la base de connaissances et l’application de l’analyse du comportement sont maintenant disponibles pour faire du monde un bien meilleur environnement, moins hostile, où les humains et les autres espèces pourraient vivre ensemble dans la paix et le «savoir se comporter».

Lorsque nous rencontrons d’autres analystes du comportement à l’occasion de congrès et conférences nous nous félicitons pour le merveilleux travail que nous faisons. Il ne fait aucun doute; l’application de notre science peut réaliser des choses merveilleuses. Pourtant, la vision de l’analyse du comportement pouvant «sauver le monde», n’est pas encore devenue réalité au 21^e siècle. Peut-être, avons-nous été naïfs quant à l’ampleur des obstacles.

Les analystes du comportement ne sont pas considérés comme partie essentielle des équipes dans l’industrie, la politique, l’éducation, le social et les soins de santé ou le handicap. D’ailleurs, dans de nombreux milieux au Royaume-Uni, ils sont réellement exclus et délibérément ignorés par les décideurs et ceux qui rédigent des rapports importants, en particulier dans le domaine de l’éducation et de l’accompagnement des enfants atteints d’autisme. Ces gens n’assistent pas à nos conférences, ne lisent pas nos livres, ni ne visitent nos centres, et nous assistons rarement à les leurs. Par exemple, tandis que l’équipe Nudge Unit fait un large usage des connaissances de la science comportementale, pas un seul BCBA ne fait partie de l’équipe.

Ceci est un problème comportemental majeur du 21^e siècle et les analystes du comportement n’ont pas encore trouvé la solution. Nous n’avons pas encore trouvé de procédures qui établiraient que les analystes du comportement seraient considérés comme des professionnels clés dans des équipes organisationnelles importantes, dans les équipes éducatives, sociales et de santé à travers l’Europe et ailleurs. Lueur d’espoir est la nouvelle ligne directrice de l’Institut national d’excellence clinique qui inclue les analystes du comportement dans des équipes multidisciplinaires. Le temps dira si le National Health Service (NHS) en tiendra compte et publiera des offres d’emploi à pourvoir par des CBAs. ●

Behaviorism, Humanism, Skinner and the Evolution of ABA in Israel



ביהיורזים, הומניזם, סקינר והאבולוציה של ניתוח יישומי של התנהגות בישראל

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During the past 25 years, the attitude toward behavior analysis in Israel's educational and clinical systems has gradually changed — from rejection to unswerving support. While only a handful of behavior analysts were active in Israel during the 1980s and early 1990s, today there are several hundred. The evolution of the applied behavior analysis (ABA) professional establishment was a carefully planned process of dissemination based on the following principles: training educators and clinicians from various sectors; supporting basic implementation of quality behavioral programs in schools and institutions; ongoing cooperation with superintendents and decision makers; “rehabilitating” students with severe “behavior problems” that the education system could not cope with and then returning these students to the system; writing books in Hebrew and maintaining a systematic research program in areas pertaining to the improvement of behavior and the inclusion of students with difficulties; and using “common” language.

The dissemination strategy, which experienced some major



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מהלך 25 השנים האחרונות, ההתייחסות לניתוח יישומי של התנהגות במערכת החינוך והבריאות בישראל השתנתה בהדרגה – מדחייה, לתמיכה משמעותית. בשעה שרק מנתחי התנהגות בודדים היו פעילים בישראל בשנות ה-80 וה-90 המוקדמות של המאה ה-20, ישנם כיום כמה מאות. התפתחות ניתוח התנהגות כפ רופסיה התבססה על מהלך מתוכנן של הטמעה, הכולל את העקרונות הבאים: הכשרת מחנכים / קלינאים מתחומים שונים; תמיכה ביישום תכניות התנהגותיות איכותיות במערכת החינוך / מוסדות; שיתוף פעולה מתמשך עם מפקחים / מקבלי החלטות; שיקום תלמידים עם “בעיות התנהגות” קשות עמם התקשתה מערכת החינוך להתמודד, והחזרתם למערכת הרגילה; כתיבת חומרים מקצועיים בעברית וקיום תוכנית מחקר שיתופית המתייחסת לשיפור התנהגות ושיילוב תלמידים מתקשים; ושימוש בשפה מדוברת המובנת לכל. אסטרטגיית ההטמעה אשר חוותה קשיים והצלחות משמעותיים לאורך הדרך, הוצגה לראשונה בכנס ABAI בסאן דיאגו (2007) תחת הכותרת “הטמעת ניתוח התנהגות בישראל – אסטרטגיה ותוצאות”. מאוחר יותר בשיקגו (2014) כ”אבולוציה של העמותה לניתוח התנהגות בסביבה לא התנהגותית”. יש לציין שתהליך הטמעה זהיר זה התבסס בעיקרו על האידיאולוגיה ועל השליחות הסקינריאנית. כאשר התחלנו במאמצינו בשנת 1989, ניתוח יישומי של התנהגות היה מושג זר לקהילת המחנכים והקלינאים בישראל. יותר מכך, אלה אשר נחשפו בצורה שטחית, ראו בה שיטת “מקל וגור” או פסיכולוגית גירוי – תגובה. הליכים התנהגותיים היו נחלת של פסיכיאטרים שהתמקדו בעיקר ביישום הקהיה (דה-סנסיטיזציה) של התנהגות מטופליהם. שיטות התנהגותיות לא הונהגו רשמית במערכת החינוך או בשירותים קליניים נלווים. מעורבותי האישית בהטמעת ניתוח

difficulties and successes along the way, was first presented at the ABAI conference in San Diego (2007) under the title "ABA Dissemination in Israel — Strategy and Outcomes", and later in Chicago (2014) as "ABA Chapter Evolution — in a non-Behavioral Community".

It should be noted that this careful dissemination process relied greatly on Skinners' ideology and mission. When our efforts were first initiated in 1989, applied behavior analysis was alien to the Israeli educational and clinical communities. Furthermore, those who had been exposed to some sketchy idea of ABA perceived it as the carrot and stick approach, or as S-R Psychology. Behavioral methods were the province of psychiatrists mainly in the attempt to desensitize their patients. No ABA educational processes were formally employed by schools or related services.

My own involvement with ABA dissemination in Israel started after I returned home following several years of study and teaching at The Ohio State University, collaborating with Daryl Siedentop, John Cooper, Bill Heward and Tim Heron. My own part in planning this process was heavily influenced by Skinner's writings. Some casual corridor meetings and small talk with B. F. significantly strengthened and directed my behavioral orientation to the strategies and tactics I later implemented. One of the academic courses I have taught, called "The Philosophy of Behaviorism," is based on Skinner's *About Behaviorism*. While planning the dissemination process, I listed some dissemination goals on one side and Skinner's state of the art claims on another. Connecting the two lists based on the notion that behaviorism and humanism are aligned (Bobby Newman's book provided a strong backwind) paved the way for implementation of the blueprint.

Reflecting now, some 25 years later, I find that the evolution of ABA in Israel went through the stages described below. It should be noted that this portrayal is neither complete nor empirical. It is based on my own observations and experience. Also, it is strongly related to the education system which is my ecology of operation. Obviously, other individuals, groups, and processes were also involved.

Milestones in the evolution of ABA in Israel

- Ignorance – Prior to 1990.
- Hostility – Began to brew in the late 1980s with the emergence of initial "buds" of ABA. Behaviorism was depicted as non-humanistic as more like animal training. This was when the first ABA academic program was initiated at the Zinman College.
- Suspicion – During the 1990s, graduates of the ABA program were hired in schools and other institutions and showed significant effective outcomes.
- Scrutiny – Later in the 1990s, several ABA projects were

התנהגות בישראל החלה כאשר שבתי הביתה לאחר שהות של כמה שנים בהן למדי ולימדתי באוניברסיטת אוהיו, במחיצתם של דריל סידנטופ, ג'ון קופר, ביל יוארד וטים הרון. לכתביו של סקינר הייתה השפעה מכרעת על חלקי בתכנון ובביצוע התהליך. פגישות אקראיות ושיחות חטופות להן זכיתי עם ב. פ. סקינר עיצבו את משנתי החינוכית. אחד הקורסים האקדמיים אותם הנני מלמד – "הפילוסופיה של הביהביוריסם" מבוסס על ספרו של סקינר "על הביהביוריסם". תכנון הליך ההטמעה כלל ניסוח מטרות מחד, וחיידוד אבני דרך במשנתו של סקינר, מאידך. החיבור בין שני אלה, התבסס על ההבנה שניתוח התנהגות והומניזם חד הם (ספרו של בובי ניומן סיפק רוח גבית חזקה), וסלל את הדרך להמשך.

במבט לאחור, כעבור 52 שנים, נראה שהאבולוציה של ניתוח התנהגות בישראל כללה את השלבים הרשומים מטה. ראוי לציין שתיאור זה אינו מושלם ואינו אמפירי. הוא מבוסס על ראיות וניסויים אישיים, כפי שהתבקשתי לעשות על ידי עורכי כתב עת זה. בנוסף, מוצגת זיקה חזקה למערכת החינוך שם הייתה עיקר מעורבותי. מובן שאנשי מקצוע נוספים ותוכניות נוספות תרמו אף הם להתפתחות ניתוח התנהגות בישראל.

אבני דרך באבולוציה של ניתוח התנהגות בישראל

חוסר עניין – לפני 1990.

עיונות – החלה לבוא לידי ביטוי בשנות ה-80 המאוחרות עם הופעת הניצנים הראשונים של ניתוח התנהגות. ביהביוריסם נפתס כבלתי הומני בדומה לאילוף חיות. בתקופה זו יזמתי את פתיחת התוכנית ללימודי התעודה הראשונה במכללת זימן.

חשדנות – במהלך שנות ה-90 שולבו בוגרי התוכנית לעבודה בבתי ספר ובמוסדות אחרים והפגינו יעילות רבה.

חקרנות – בשנות ה-90 המאוחרות יושמו בהצלחה תכניות התנהגותיות נוספות. אנשי מקצוע היו סקרנים ורצו להבין מה, אם בכלל, מסתתר מאחורי שיטת "המקל והגזר". בנקודת זמן זו, יזמנו כמה התערבויות בקידום ילדים על הספקטרום האוטיסטי. יעילות ההתערבות ההתנהגותית משכה אליה יותר ויותר משפחות וקלינאים. המרכז לניתוח התנהגות, שהיווה חלק מתוכנית לימודי התעודה צמח במהירות הודות להתערבויות מעין אלה.

דיגימות – בסוף שנות ה-90, מספר בתי ספר ומשפחות השתמשו בשירותיהם של מנתחי התנהגות, בוגרי התוכנית.

שילוב ניתוח התנהגות – מתחילת שנות ה-2000 גדל מספרם של המוסדות אשר שילבו ניתוח התנהגות כחלק בלתי נפרד מהמערך החינוכי / קליני שלהם, תוך שילובם של אנשי צוות אחרים במערכת.

תכניות בית ספריות – ניתוח התנהגות הפך לחלק בלתי נפרד מהמערך החינוכי בבתי ספר, ששילבו מנתחי התנהגות בתקן שלהם. שלב זה, בתחילת שנות ה-2000 נבע מהמלצותיהם החמות של אנשי חינוך והורים. מנהלי בתי ספר עודדו מורים מצוותם ללמוד את התחום ומשרד החינוך קיבל החלטה לממן חלק ניכר משכר הלימוד. תכנית נוספת ללימוד ניתוח התנהגות נפתחה באוניברסיטת תל אביב, ומאוחר יותר (2011) עברה התכנית שלנו לסמינר הקיבוצים. במהלך שנים אלה נפתחו תכניות הכשרה נוספות במוסדות אקדמיים שונים, עובדה המעידה על הדרישה הרבה לניתוח התנהגות.

התארגנות אזורית – מספר ערים / רשויות הגבירו את מעורבותם של מנתחי התנהגות בצוותיהם המקצועיים, אשר הונחו בידי מנתחי התנהגות בכירים. מהלך זה הפך למשמעותי במחצית השנייה של שנות ה-2000. ערים בהם תפקידו יותר מ-01 מנתחי התנהגות הן: פתח תקווה (20), נתניה (14), רחובות (13), וחפר שרון (11). גם רשויות מרוחקות כמו אילת (סטודנטים הגיעו ללימודים בטיסה) וצפון הארץ, שילבו מנתחי התנהגות במערכים המקצועיים שלהן. במפתיע, תל אביב וירושלים, הערים הגדולות בישראל עדיין לא הצטרפו

successful. Professionals were curious — they wanted to understand what if anything lurked behind the “carrot and stick.” It was at this point that we initiated some interventions with children with autism. The effectiveness of ABA as a treatment attracted more and more families and professionals. The ABA Clinical Center affiliated with the ABA preparation program grew rapidly thanks to such intervention programs.

- **Sampling – Starting in the late 1990s**, some schools and families hired graduates of our program as part-time specialists and behavioral intervention advisors.
- **Ad hoc interventions – Starting in 2000**, several institutions around the country implemented in-depth behavioral interventions involving a wider cross-section of staff members.
- **School wide programs – Some schools started adopting ABA as their major pedagogical and clinical core** and added a substantial number of behavior analysts to their staff. This stage, in the first decade of 2000, was characterized by strong recommendations from educators and parents to hire behavior analysts for schools and families. This was when school principals began to encourage teachers who wished to study ABA, and the Ministry of Education decided to subsidize a substantial part of their tuition. Another ABA preparation program opened at Tel Aviv University, and later (2011), our program moved to the Kibbutzim College in Tel Aviv, and a few additional preparation programs opened within a few years in different academic institutions.
- **Regional – A number of cities and municipalities increased the involvement of behavior analysts on their professional teams that were led by a senior behavior analyst.** This trend became prominent in the second decade of 2000. Major cities employing more than 10 behavior analysts on their professional teams are Petach Tikvah (20), Netanya (14), Rehovot (13), and Hefer Sharon (11). Even remote municipalities like Eilat (students had to take a weekly flight to attend classes) and the North region have managed to hire behavior analysts. Surprisingly, Tel Aviv and Jerusalem – the two largest cities in Israel – added almost no behavior analysts to their educational staff. This indicates that the allocation of ABA resources is still regional and depends on the preferences of local decision makers.
- **Countrywide Strategy – In 2006**, the Ministry of Education formed a steering committee for coordinating ABA in Israel. This effort was followed by the appointment of a “national specialist” to coordinate ABA activities and initiatives around the country. At this stage, the Ministry of Education

למהלך זה. נראה שהקצאת המשאבים האזורית מבוססת לא מעט על תפיסתם ועל העדפותיהם האישיות של מקבלי ההחלטות.

אסטרטגיה ארצית – בשנת 2006 הוקמה במשרד החינוך ועדת היגוי לשילוב ניתוח התנהגות בישראל. מהלך זה לווה במינוי מדריכה ארצית לתיאום פעילות מנחי תחי התנהגות וליישום תכניות ברחבי הארץ. בשלב זה שיתף משרד החינוך פעולה עם העמותה הישראלית לניתוח התנהגות (היל"ה) ואף אישר השתתפות בכנסים ובימי עיון. ניתן לומר שלאחרונה, נמצא תחום ניתוח התנהגות “בפריחה” במדינת ישראל, ויישומו מגיע לאזורים ולמגורים נרחבים. שיתופי פעולה בין אנשי מקצוע מתחום הפסיכולוגיה ומתחומים נוספים, לבין מנתחי התנהגות הפכו לדבר בשגרה.

אסטרטגיה

המפגשים הראשונים עם מומחים וקלינאים, בתקופה של הטמעת ניתוח התנהגות היו מאתגרים. רובם כללו ביקורת נוקבת על ניתוח התנהגות בטענת נוקשות, פשטות וחסר הומניזם. כאילו מבקרים אלה קראו את ההקדמה בספר “על הביהיוריזם”, שם פירט סקינר 20 טענות רווחות העולות אצל מתנגדי ניתוח התנהגות. נראה כי אלה עצרו את קריאתם בסוף ההקדמה, והחמיצו את הסבריו של סקינר על המהות האמיתית של הביהיוריזם, אשר סתרו את הטענות. בשלב זה קיבלתי החלטה להשתדל ולהימנע מתקיפת נגד או מהצטדקות בהקשרים אלה. לפיכך, בחרתי באסטרטגיה המבוססת על: 1. זיהוי המרכיבים העיקריים של הומניזם כפי שנתפס במערכת החינוך והבריאות, והגדרתם מחדש במונחים התנהגותיים; 2. הדגשת ההגדרה התנהגותית להומניזם בבנייתן של תכניות התנהגותיות שיושמו בידי התלמידים ואנשי הצוות שלנו.

אחת המשימות שקיבלו התלמידים שלנו כללה מתן מענה במונחים אקדמיים, לאותן 20 טענות המפורטות בהקדמה לספרו של סקינר, ובהמשך להפוך אותן לחלק בלתי נפרד מעשייתם.

הומניזם

דיון כולל בנושא ההומניזם הינו מעבר לתחומי מאמר זה. מספיק יהיה לומר שרוב המילונים מגדירים מונח זה כתמיכה בחופש וקידמה אנושיים. תנועות הומניסטיות מציבות את האדם במרכז ומנסות להבין את העולם דרך המדע ולא דרך התגלות של כוח עליון כלשהו. הן מדגישות את הכבוד האישי ואת הערך של הגשמה עצמית באמצעות ההיגיון.

רוב תלמידינו יכולים להסביר בקלות את מונחי היסוד של ההומניזם המפורטים לעיל ולהראות כיצד ניתן ליישם במונחים התנהגותיים.

עצות אותן נמנעו מלקבל

במהלך הדרך הוצעו לנו רעיונות וגישות להטמעת ניתוח התנהגות בישראל. להלן כמה מאלה שלא קיבלנו: **עלו לבמה ותקפו בחזרה –** אני זוכר היטב את הכנס הראשון אליו הוזמנתי. מוקמתי על הבמה כחלק מחברי הפאנל, יחד עם פסיכולוגים, פילוסופים ומחנכים. האתגר המשמעותי שהוצב בפנינו היה לדון באסטרטגיות לשיפור ההכשרה להוראה במערכת החינוך. שניים מהמשתתפים פתחו את דבריהם באומרים, “בניגוד לביהיוריזם...”, ולאחר מכן התמקדו בכשלים של גישה זו במערכת החינוך, אך לא הציעו אלטרנטיבות במקביל.

בדברי, נמנעתי מלהתמקד בטיעונים אלה והעדפתי לתאר את הראיות האמפיריות להצלחה של תלמידים הלוקחים חלק בתכניות התנהגותיות, דוגמת למידה ללא שגיאות והליכים התנהגותיים אחרים. מילות הפתיחה שלי היו “הרשו לי לשתף אתכם במה שלמדתי מסקינר”. כאשר השתמשתי במונחים כמו “שיפור הדימוי והביטחון העצמי” (שיעור הצלחה גבוה), או הגברת האחריות האישית (ניהול עצמי, שהיה נושא עבודת הדוקטורט שלי) הבחנתי בהנהוני ראש של הסכ-

collaborated with IABA, the Israel Association for Applied Behavior Analysis, and approved paid leave for teachers to attend day-long ABA conferences. The present is a very promising time in many respects and locations. It is not uncommon now to see school psychologists and professionals joining forces with behavior analysts in projects and consulting together.

Strategy

The first encounters with scholars and clinicians following my return to Israel were quite intriguing. Most were based on criticism of ABA, most commonly that it was rigid, simplistic and anti-humanism. It was as if these "critics" had read Skinner's introduction to *About Behaviorism* and had adopted as gospel truth the 20 "things commonly said" about behaviorism, which he believed were all wrong!

At the time, I had the feeling that dissemination should not resort to counterattack or justification. Instead, the strategy chosen was based on identifying the most common "ingredients" of humanism as used in the current educational and clinical systems and defining them in behavioral terms, and introducing these behavioral conceptualizations of humanistic components into ABA program content and interventions implemented by our staff and students.

One assignment we gave our students was to answer the 20 claims from Skinner's list in academic terms and then to resolve and "neutralize" them in every intervention in which they were involved.

Humanism

A comprehensive discussion of humanism is beyond the scope of this paper. Suffice it to say that most dictionaries define humanism as a perspective that affirms some notion of human freedom and progress. Humanist movements are typically centered around human agency and seek to understand the world through science rather than through revelation from a supernatural source. They stress an individual's dignity and worth and capacity for self-realization through reason.

Most of our students could fluently explain the underlined concepts and show how they were implemented in behavioral terms.

Advice we didn't take

Along the way, many ideas and tactics for dissemination were suggested. Here are those that we did not adopt: Go onstage and fight – I have a vivid memory of the first conference I was invited to, arranged by the Ministry of Education. I was seated on stage as a panel member with several psychologists, philosophers, and educators. Our major challenge was to find or discuss strategies for improving teacher education.

מה מהקהל. מיותר לציין שרוב המשתתפים "לא קנו" את החיבור לביהיוריסם, ולמרות זאת פנו אלי מספר משתתפים בסיום הכנס בשאלה "כיצד ניתן לעשות זאת?"

שכנעו. דברו עם מקבלי החלטות - הנה שיעור אותו למדתי במהלך השנים. כאשר פונים אל מקבלי החלטות כדי לקבל את תמיכתם, יהיה היוזם תמיד בעמדת נחיתות. במלים אחרות - מקבל החלטות הוא "סוכן החיזוק" אשר עלול לשים אותך תחת הכחדה מסיבות שונות. שיעור זה הוביל לתהליך ממושך אשר כלל: 1. הכשרת הקרקע (הקמת תכנית ניתוח התנהגות איכותית); 2. טיפוח (השגת אחוזי הצלחה גבוהים והבטחת שימור השינוי ההתנהגותי); 3. שיתוף מידע.

זו הייתה האסטרטגיה היעילה ביותר לקירוב מקבלי החלטות והורים להערכת הפוטנציאל של ניתוח התנהגות. למרות אורכה, היו התוצאות של דרך זו יעילות ביותר והולכי לפיתוחם של מרכזי ניתוח התנהגות במקומות שונים בישראל.

דברים שעשינו

- הצעת תמיכה תיאורטית מוצקה לתכניות התנהגותיות, באמצעות קורסים אקדמיים, כתיבה מדעית וכנסים.
- הצגת התערבויות יעילות המבוססות על איסוף נתונים בכנסים, הרצאות, וכתבי עת.
- להיות שם תמיד - התמודדות עם אתגרים מורכבים, כאשר הערכה תפקודית תומכת בסיכויי הצלחה של יישום תכנית התנהגותית.
- הדגמת הוראה יעילה הנתמכת בתוצאות.
- תמיכה בשיתוף בעלי מקצוע אחרים.
- לא להתפשר - למרות הפיתוי יש להבטיח את הימצאות התנאים ההכרחיים לקיום התערבות איתת ומוצלחת.
- שיתוף פעולה עם צוותים בין-מקצועיים, תוך הבטחת התנאים ההכרחיים, תוך כדי מתן כבוד לאנשי הצוות הנוספים. לדוגמה, לפני שנתיים קיימנו כנס שנושא "שיתוף פעולה בין מנתחי התנהגות ואנשי מקצוע מדיסציפלינות שונות".
- הפגנת ידידותיות - מתן כבוד למאמצי השותפים לעשייה.

הטמעת ניתוח התנהגות באמצעות חינוך גופני

המודל "חינוך לערכים באמצעות פעילות גופנית" פותח במקביל לכינונה של תכנית לימודי התעודה בנייתוח התנהגות במכללה לחינוך גופני. מודל זה מבוסס על פעילות גופנית ומשחק כהקשר להעצמת למידה, כישורים חברתיים, שליטה עצמית וערכים, במגוון רחב של אוכלוסיות. המודל מדגיש את הייחודיות של תנועה ומשחק כהקשר אידיאלי, המאפשר למורים ולקלינאים ליצור סביבת לימודים מאתגרת עבור תלמידיהם. הליכים התנהגותיים הינם הערוץ העיקרי אשר דרכו מושגת ההשפעה היעילה של הפעילות הגופנית. המודל התקבל בהתלהבות ע"י המערכת החינוכית מכיוון שנגע בתפיסות מקובלות ש"הוצאת מרץ" יכולה "למתן" התנהגות היפראקטיבית ואגרסיבית. מורים נהגו לשחרר תלמידים משיעורים כדי לאפשר להם לפרוק מתחים דרך פעילות גופנית. העדפה זו חוזקה שלילית בהתנהגות של הצוות ושל התלמידים. עברו כמה שנים עד שניתן היה לקשור היעילות ואת הערך המשמעותי של יישום הליכי המודל להצלחת של התלמידים. הצעד המתבקש הבא היה להחזיר את ההליכים ההתנהגותיים אל הכיתות בהן למדו התלמידים המאתגרים (העברת שליטה גירוי מפעילות גופנית לניתוח התנהגות).

Two of the speakers initiated their talk by saying: “Contrary to behaviorism...” after which then talked mostly about the faults of behaviorism in teacher education. Not that they had much to offer instead!

In my presentation, I avoided any talkback about the previous speakers’ statements. “Please let me share with you what I have learned from Skinner” were my opening words, and I talked about the power of the positive versus aversive and how we could increase the success rate of our student teachers by using errorless learning and other behavioral procedures. When I used phrases like “increasing their self-esteem and confidence” (i.e., high-success rate) and “teaching them how to assume responsibility” (i.e., self-management, which was my dissertation topic), there were ample head-nods of agreement in the audience. Needless to say, most of the participants didn’t buy the connection to behaviorism. But a few approached me at the end of the convention to ask “How can we do that?”

Persuade. Meet decision makers — here is a lesson I have learned through the years. When approaching decision-makers to recruit their support, the initiator will be on the “down side.” In other words, the decision-maker is the reinforcing agent who may put you on extinction for various reasons.

This lesson has led to a lengthy process. It included planting seeds (establishing a quality ABA program), nurturing (reaching high rates of success and ensuring maintenance), and data sharing.

This has been the most effective strategy for bringing decision-makers and parents to the ABA doorstep. Although it was much longer than other possible approaches, the results have been substantial, and they paved the way for the establishment of many ABA “hubs” around the country.

Things we have done

- Offering sound theoretical support for behavioral programs through academic courses, writings, and conferences.
- Presenting effective data-based interventions through conferences, lectures, and newsletters.
- Always be there – entertain challenges when functional and antecedent assessment support the implementation of a behavioral intervention.
- Demonstrate effective teaching backed by outcomes.
- Support other professionals who join in.
- Don’t compromise despite the temptation. Make sure all conditions for an ethical and successful intervention are met.

ניתוח התנהגות והומניזם חד הם – הליכים ומובאות

- להלן כמה מההליכים ההתנהגותיים אותם יישמנו והמשמעות ההומניסטית שלהם.
 - הצגת עקומת למידה מבוססת נתונים, המעידה על התקדמות לאורך זמן בפרויקטים שונים.
 - שימוש בהוראה מדויקת בניגוד לשימוש ביעדים ואמות מידה עמומים.
 - שימוש במומנטום ובהוראת שטף להבטחת הצלחה.
 - קיצור “זמן העיכול” להגברת הביטחון העצמי.
 - הקניית אסטרטגיות למידה יעילות וכישורי התמודדות להפחתת הצורך ב“נחות” בלמידה.
 - יישום למידה ללא שגיאות להגברת מודעות עצמית ובטחון עצמי.
 - הקניית מיומנויות איתור עקרונות והליכים התנהגותיים ושימוש בניהול עצמי לשיפור יכולת עצמאית.
 - יישום הליכים התנהגותיים כתחליף לטיפול תרופתי בשיתוף עם רופאים.
- להלן כמה מובאות סקינריאניות בהם השתמשתי בהרצאות ובכתיבה:
- “ביהיבוריזם והומניזם חד הם. הייחוד של הביהיבוריזם הוא בהיותו הומניזם יעיל.”
 - מנתחי התנהגות הם אנשים שרואים “הזדמנות ליישום הליכים מחקרניים להתמודדות עם בעיות, ואשר מודעים לחלוטין לסכנות הכרוכות בשימוש בלתי הולם בכוח שהם מייצרים.”
 - בני האדם יכולים לשלוט בהתנהגותם מכיוון שהם יודעים מה צריך להיעשות.
 - התנהגות היא תוצאה של אינטראקציה עם הסביבה – ולפיכך, נכללת בהגדרת ניתוח מחקר.
 - אוטופיה (וולדן 2) – בני אדם יכולים להיות מאושרים, יצירתיים ותורמים לסביבה.
 - הבנת תלויות החיזוק תשפר את איכות החיים ותסב אושר לבני האדם.
 - הבעת דאגה היא עניין אחד, עניין שונה הוא להצליח לעשות משהו בנדון (אנגלמן).
 - “התלמיד תמיד צודק. הוא אינו ישן, אינו עצלן, אינו חולה, ויכול ללמוד רבות אם נספק לו את תנאי החיזוק המתאימים” (קלר).

היום, אנו יכולים להביט לאחור, על עשרים וחמש השנים האחרונות בסיפוק רב. מנתחי התנהגות נמצאים כאן כדי להישאר. האתגרים החדשים הנצבים בפנינו נוגעים בעיקר להבטחת איכות השירות הניתן. לא מדובר יותר במספרם של מנתחי התנהגות בשטח, אלא באיכות ובאטיקה המקצועית של עבודתם. הנוסחה להשגת כל אלה יכולה להימצא בכתיב סקינר, הקולגות שלו וממשיכי דרכו.

- הכתוב בלשון זכר – מתוך נוחיות בלבד ומתייחס לזכר ולנקבה.

- Collaborate in multidisciplinary teams, making sure that our goals are met and that respect is given to teammates on the other side. For example, two years ago, we conducted a conference on “Collaboration between behavior analysts and professionals from different disciplines.”
- Be friendly – respect others’ effort.

Dissemination through Physical Education

The “educating through the physical” model was developed concomitantly with the initiation of the ABA preparation program in a Physical Education Teacher Education College. This model is based on physical activity and games as a context for enhancing learning, social skills, self-control, and values in a wide range of populations. It emphasizes the uniqueness of movement and games as an ideal context, enabling teachers and clinicians to design a challenging, learning atmosphere for their students. Behavioral procedures are the main channel through which this model is implemented.

The model was eagerly accepted by the education system. It was appealing because it coincided with the belief that “expending energy” could “deactivate” hyperactive and aggressive students. Educators used to release students from academic lessons to allow them to discharge their energies through physical education. This pattern was negatively reinforced in the behavior of both staff and students. It took a few years to demonstrate the effectiveness and the prominent value of the model’s behavioral procedures. The next obvious step was to watch the behavioral procedures move back into the classroom with the challenging students (transfer of stimulus control from PE to ABA).

Behaviorism is Humanism — Procedures and Citations Used

Here are some of the behavioral procedures implemented with their humanistic connotation:

- Presenting a learning curve indicating progress over time in various projects by means of empirical evidence.
- Using precision teaching as opposed to setting vague goals and standards.
- Using momentum and fluency to ensure success.
- Shortening “digestion time” to strengthen self-confidence.
- Teaching effective learning strategies and coping

skills to reduce the need for “discounts” in learning.

- Implementing errorless learning to strengthen self-realization and self-esteem.
- Teaching students to identify behavioral principles and procedures and to use self-management skills to improve independence.
- Replacing the use of medications with learning skills in collaboration with medical doctors.

Here are some Skinnerian citations used in lectures and writings:

- “Behaviorism is humanism. It has the distinction of being effective humanism.”
- Behaviorists are the people who see “a chance to bring the methods of science to bear on those problems and who are fully aware of the dangers of the misuse of the power they are creating.”
- Humans can control their own behavior because they know what is to be done.
- Behavior is a product of selection — it falls within the scope of scientific analysis.
- Utopia (*Walden Two*) — people are happy, creative, and productive.
- Knowing the reinforcing factors should improve the quality of life and make people happy.
- It is one thing to express concern. It is another to do something about it (Engelmann).
- The student is always right. He or she is not asleep, not unmotivated, and not sick and can learn a great deal if we provide the right contingencies of reinforcement (Keller).

Today, we can look back on the past 25 years with satisfaction. Behavior analysis is here to stay. The new challenges we face are mainly concerned with ensuring the quality of service. It is no longer the quantity of behavior analysts in the field but rather the quality and ethics that matter. The formula for reaching these goals can also be found in the writings of B.F. Skinner, his colleagues, and followers. ●

A Remarkable Flight from the Experimental Analysis of Behavior?

reflections

by Per Holth, Ph.D.
Oslo and Akershus University College
of Applied Sciences
Oslo, Norway

Throughout most of the 1980s, with changing partners, I taught a rat lab course for psychology students at the University of Oslo. We used Charlie Catania's *Learning* as our textbook, the students were given one rat each, and their main assignment was to shape lever pressing in a standard experimental chamber. After that, the students were free to pick any type of schedule of positive reinforcement to study how their rat would behave under those specific contingencies of reinforcement.

In the mid 1980s, yet another group of young psychology students entered their first rat lab course. As was often the case with new psychology students, some of them were primarily interested in summarizing or characterizing the rats' behavioral patterns in colloquial "cognitive" terms. There were expectations, frustrations, cognitive maps, and so on. My colleague and I were doing our best to get rid of that and to have the students' verbal repertoires replaced by concrete descriptions of behavior and explanations in terms of historical and prevailing contingencies of reinforcement. I also made use of Catania's argument in the textbook: "It might be suggested that our problem of definition [of learning] would be resolved if we added that the change in behavior had to come about through some kind of change in the brain. But we do not look at an organism's brain to decide whether it has learned something. We all have learned to say when we or others have learned something, but few if any of us have ever seen a brain doing anything. Even if we could watch a brain doing something, how would we know that what it was doing was learning?"

Two of the students, however, were particularly eager and persistent and very specifically interested in neurophysiological explanations. Our lab was not equipped for the study of neurophysiological phenomena, and naturally, I tried my best to convince the students to be interested in a science of behavior, in the words of Skinner, as "a science in its own right—apart from internal explanations, mental or physiological."

All of my efforts failed, and these two students eventually moved on to utilizing techniques to study directly what goes on in brain cells during different types of learning. Eventually, they succeeded in establishing their own lab to make several discoveries, including what they have called "grid cells" that are said to "generate a coordinate system and allow for precise positioning and pathfinding." On October



Dr. Per Holth, Professor of Behavior Analysis at Oslo and Akershus University College, received his license to practice psychology in 1983, and his Ph.D. in 2000 with a dissertation on the generality of stimulus equivalence. His clinical work has been in services for people with autism and developmental disabilities, in psychiatric units, and in the military services. His research activities span basic research, on stimulus equivalence and joint attention, and applied work and management of large research projects. His current research interests include verbal behavior, joint attention, establishment of conditioned reinforcers, contingency management treatment of drug abuse, and the implementation of evidence-based practices. He has written for peer-reviewed publications on basic research, applied work, and philosophy of science. Per Holth joined the faculty of Oslo and Akershus University College in 2004.

Dr. Holth has been an editor of the European Journal of Behavior Analysis and is or has been member of the editorial boards of Journal of Applied Behavior Analysis, Behavioral Interventions, The Behavior Analyst, Behavior Analyst Today, Journal of Early and Intensive Behavioral Interventions, and the Norwegian Journal of Behavior Analysis.

6, 2014, the Nobel Committee for Physiology or Medicine announced that these two researchers, Edvard and May-Britt Moser, now professors of neuroscience, were winners of this year's prize—together with John O'Keefe.

So, was I wrong in trying to talk them out of their interest in neurophysiological explanations of behavior? First, it is important to remember that in order for a lab to foster discoveries such as those made in Edvard and May-Britt Moser's lab, a necessary half of it is a behavioral lab, as Skinner consistently argued. Surely, these researchers are well aware that "a behavioral analysis is essentially a statement of the facts to be explained by studying the nervous system," as Skinner wrote in *Contingencies of Reinforcement: A Theoretical Analysis*. Second, I still agree with Skinner's lament in *Cumulative*



Edvard I. Moser and May-Britt Moser.
(AFP PHOTO/NED ALLEY/NTNU)

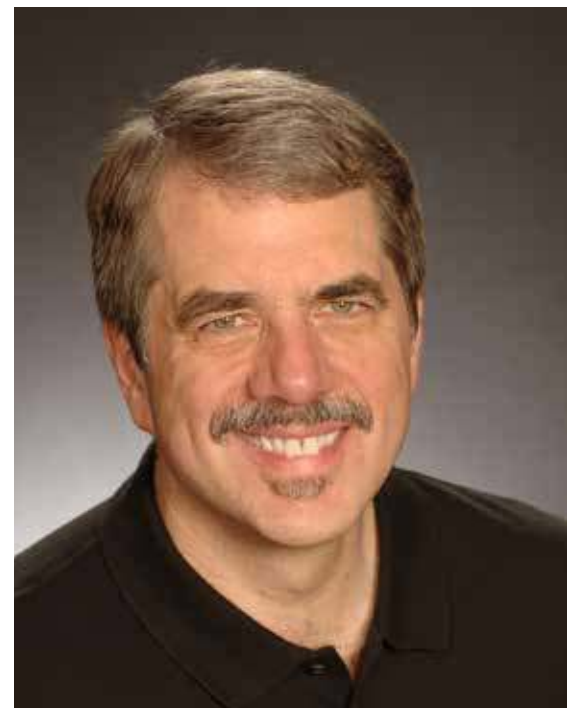
Record that "... many brilliant men [and women] who began with an interest in behavior, and might have advanced our knowledge of that field in many ways, have turned instead to the study of physiology. We cannot dispute the importance of their contributions, we can only imagine with regret what they might have done instead."

In any case, the achievements of the Mosers are really impressive, and certainly, no Nobel prize would have come their way if they had been dedicated to a pure science of behavior. Psychology itself may be partly to blame for that: "Once you tell the world that another science will explain what your key terms really mean, you must forgive the world if it decides that the other science is doing the important work" (Skinner, *Recent Issues in the Analysis of Behavior*). ●

Bridging the Generation Gap: We Have Responsibility to Learn

by Carl Binder, Ph.D.
Seattle, WA

Behavior science is an important contributor to evolution. Viewed in the biggest possible context, i.e., the evolution of our species as inhabitants of the Earth, a science of behavior engages us in a process of learning and passing on what we learn. Learning provides a source of variation, and passing on what we learn sets the occasion for selection by consequences. While this statement might seem a bit intellectual or abstract, it becomes quite concrete in everyday life. For as behavior scientists, whether basic or applied, we each serve as both student and teacher. And everyone we touch, whether participants in the field or not, may be able to benefit from something we have learned or discovered if we can pass it on effectively. Every time we learn something, whether from another person, via media, or in our experiments and applications, we gain something of potential value for others. When we pass it on, as teachers, writers, or in personal interactions, we feed the evolutionary process. To the extent that behavior science and its application are evidence-based and remain faithful to scientific method, our contributions are perhaps more likely to accelerate human development and effective action than are many other sources of



rules or guidelines for helping humans to behave constructively.

Given the power of behavior science, those of us who work in the field of behavior analysis have a special responsibility to learn as much as we can and to pass on what we learn. This is clear in our personal and professional relationships when we make an effort to bring what we have learned to others.

My participation in human evolution as a behavior scientist began when I read *Walden Two* in college and wrote a passionate “fan” letter to B. F. Skinner. His book delivered a simple message to me: if we approach human behavior with the same rigor and scientific method as we apply in other natural sciences, we can discover how to improve education, therapy, management, social work, interpersonal relations, and all other activities of human life and interaction. This was an exciting insight for me, prompting my hurriedly typed thank-you note.

The unexpected consequence was that Dr. Skinner wrote me back with an encouraging note still framed on my wall more than 35 years later. As I came to learn later, he practiced what he recommended, which was to reinforce positive behavior often in a progression that involved shaping. His letter led to my hitching a ride with a friend to Cambridge, arriving at Dr. Skinner’s office unannounced, his generously devoting an hour of his time to me, and subsequently inviting me to apply to the Harvard Ph.D. program.

That first connection with Dr. Skinner led to many other conversations and learning opportunities for me, including independent study with Skinner, introductions by him to other prominent behaviorists in the area, a 10-year apprenticeship with Dr. B. H. Barrett, and a career graced by many generous mentors and teachers, including Eric Haughton, Ogden Lindsley, Hank Pennypacker, Aubrey Daniels,

Tom Gilbert, Geary Rummel, Joe Harless, and others. Over the course of my career, I’ve had the opportunity to pass on what they taught me to many other colleagues and students, and have hopefully contributed a few bits of my own. As my own career progressed, as with the few minutes that Dr. Skinner spent with me at the beginning of my journey, I have found that responding to an email or taking time for a conversation with advice for young, passionate newcomers has enabled some of them to move forward to make remarkable contributions. This history has also shown me that we should never pass up a chance to help those who show interest.

Skinner and other leaders in our field have set examples of generosity, willingness to help, teach, mentor, and offer encouragement to aspiring behavior scientists. My own experience as a student showed me that young people should never be afraid to ask, to step out of their comfort zones, and to seek personal contact with people whose work interests or inspires them. If there is one thing that I’ve repeated over the years to students and young colleagues, it’s that you should try to find people, not just programs or departments, whose work you admire and from whom you would like to learn. Step forward, stick your neck out, send an email, make an office appointment, do your homework, and come prepared. Show your interest and enthusiasm. In that way, you will gain both the academic and personal knowledge and experience that will lead to your own important contributions.

We have an amazing potential in our understanding and application of behavior science to learn and pass on what we learn as contributions for the benefit of our species, our fellow species, and of the Earth. We may over time be participants in one of the most important lineages of learning and teaching in the history of human evolution. ●

Dr. Carl Binder has been helping individuals and organizations improve learning and performance since studying with B.F. Skinner in the doctoral program at Harvard during the 1970s. He conducted laboratory studies and seminal research and development in Precision Teaching during the 1970s working with B.H. Barrett and Eric Haughton then shifted his focus from education to organizational performance improvement with prompting from another of his important mentors, Ogden Lindsley. Founder of four consulting firms and two widely-used performance improvement methodologies, Carl is a recipient of the APA Division 25 Fred S. Keller Award, ISPI’s Thomas F. Gilbert and Honorary Life Member awards, and most recently, the OBM Network’s Lifetime Achievement Award. Co-Founder of The Performance Thinking Network, he teaches and coaches performance consultants, leaders, and managers to apply Six Boxes® Performance Thinking in organizations worldwide.

Young Faces of Behavior Science



Anine Walle, Norway

My name is Anine Walle, and I'm studying behavior analysis at Oslo and Akershus University College in Norway. Behavior analysis has had a big impact on my life in several ways. Before I started to study behavior analysis, I often wondered and asked myself questions about why people acted the way they did. This is something I still do. However, I now have a framework to rely on to interpret other people's behavior and my own behavior. First and foremost, learning about contingencies of reinforcement has made me analyze situations at home, university, and the workplace in a different and more effective manner.

Secondly, doing my bachelor thesis in Professor Erik Arntzen's laboratory (Experimental Studies of Complex Human Behavior Lab) which have many highly educated and dedicated members, made me want to be at the same level as them.

I have during my Master's realized the importance of hard work, documentation and experimental control, especially after conducting stimulus equivalence experiments and assisting other members of the laboratory group scoring experimental data. Documentation is important for how practitioners should work, and documentation makes us as practitioners more professional. Experimental control is something that I now consider to be important both in experimental and applied settings. Although experimental control can be difficult in applied settings, I still think at least it's important to try to eliminate potential confounding variables.

Surely, behavior analysis has affected my life. I find myself thinking more pragmatically and certainly feel that my knowledge about behavior analysis can make a difference to the people around me and at the workplace. In regards to Skinner specifically, it's the principle of reinforcement that Skinner discovered that has had the biggest impact. However, I really like *Science and Human Behavior*. Describing how the environment affects behavior from a scientific perspective really makes sense. ●



Adam Hockman, U.S.

My interest in teaching and learning began at a very early age. Growing up in the household of a public-school educator and speech-language pathologist undoubtedly led me to my interests in behavior analysis many years before I realized it. My environment was constantly filled with the edu-babble and musings of life as educators and those who worked with children. Being a teacher's child marks you in many ways and influenced the many areas in which I dabbled once I grew older.

I was first introduced to behavior analysis by a brilliant clinician who guided me through my eleventh grade internship in working with students with autism. It was here in this setting that I observed the many nuances of the science and its application. Though I enjoyed my time in special education, that summer I read Skinner's *Science and Human Behavior* and *Walden Two*; texts that profoundly impacted my understanding of the science behind what humans do and how it can be shaped and influenced. Even at an early age, I observed scattered puzzle pieces coming together as I interacted with my friends, family, and organizations. However, nothing was more influenced by my study of behavior than my music.

I spent many years of my life classically studying piano and voice performance, in hopes of one day being a professional piano accompanist or music educator. As skilled as I was, the arduous task of learning music always seemed defeating and lacking reinforcement. The fire passion for playing and performing decreased rapidly during my late teens with no hope of maintaining any sort of playing behavior in the future. However, I uncovered something powerful one afternoon while

practicing excerpts from a tremendously challenging Rachmaninoff Piano Concerto. After spending four grueling hours dreadfully repeating the same difficult measures over and over, I stumbled upon my little blue tagger that I had been using to practice shaping with one of our animals. Out of sheer curiosity, I decided to test out this clicker-thing with piano. After a bit of trial and error, I was finally putting together complex movement patterns from measures that seemed impossible only weeks before. Minutes later, I continued tagging using a tongue click, so I could bring both hands together for an entire section. Success! That was a moment of major discovery that changed my perspective about music and behavior analysis.

Though seemingly simple, my little discovery shattered the dreams of ever becoming a concert musician, but instead it fostered the dream of becoming a scientist. I found a desire for examining everything around me through a behavioral lens in studying the learning processes through music. My interactions with the piano were no longer aimlessly misled but influenced by goal setting, data analysis, and sound decision-making. I consulted the piano pedagogy and behavior analysis literature to find solutions to the everyday problems my piano students, many musicians, and I face. Amongst many of these lines of work, I have been most heavily influenced by the writings of Doug Greer and Francis Mechner who both wrote little but very powerful texts about music and behavior analysis. Their publications have helped marry the behavioral science with piano performance and music, seeing as both are scientist and musicians in the same skin. This too was my ambition: to be both the musician and scientist in one body. Though we often discredit the worth of being a dually knowledgeable content expert and behavior analyst, there is great utility in knowing the science well and having been conditioned by the contingencies of music-making at an advanced level of practice. These roles are intricately woven and better understood as one.

Aside from these preliminary discoveries at the keyboard, the greatest hook for my pursuit of the learning science came from Precision Teaching and my use of the chart for others and myself. From etudes (technique-building exercises) to more composite, larger works, I have consistently timed and charted my performances while observing my behavior change through beautiful data displays. Rather than using a live or recorded performance to capture what occurs in real time, the chart provides the permanent product to watch the evolving role of the musician. For instance, it was in the chart that I found how the turning of my left wrist too far outward during a five-measure passage decreased my endurance and changed my overall sound along with hundreds of other findings. While many criticize the chart and view it as a data-holding apparatus, I have always felt intimately connected with its powers, giving me a sophisticated understanding of its sensitivity as a measurement system.

The science of human behavior has only started to impact my life, and my perspectives and understanding change each day. As I attended Morningside's Teacher Acad-

emy this summer, I was once again reminded of the exciting promise behavior analysis holds for our future. It was there that I had the opportunity to interact with great minds, and constantly question what I knew, and thought I knew, and to definitely learn what I didn't know. The Academy knit together many behavioral technologies into a comprehensive instructional package with a special emphasis on the inclusion of instructional design research and practices. The writings of Susan Markle and Philip Tiemann seemed ever-present in Morningside's work and impactful for my interests as a budding instructional designer. In four short months since leaving Seattle, the spines of two of their beloved texts have nearly disintegrated from being read and re-read many times over.

As for what the future holds, I have no idea. My interests are unbelievably varied within the fields of piano performance, the teaching of speech-language pathology, training paraprofessionals, teaching adults to be playful interactors with children, and training Starbucks baristas among others. Though these areas seem rather diverged, they meet at a crossroads where behavior analysis solves many of their problems.

Best summarized by one of my beloved mentors, I wish to contribute to our field by helping to solve many of the world's "instructional woes." ●



Fernando Tavares Saraiva, Brazil

I believe a good way to treat the importance of Skinner and behavior analysis in my life would be to punctuate it within both the academic development and personal life, two perspectives that to some extent, could hardly be separated in the course of a student in psychology.

I was born in Fortaleza, a city in north-eastern Brazil. I started my training in psychology in 2007. Until that year, I had never heard of Skinner and his proposal for science. My first contact occurred in the first half of the course. This was the only contact I had for about two and a half years until another behavior analysis discipline returned to part of the curriculum. Therefore, the initial contact with this area was somehow reduced, especially when compared to other theoretical perspectives that mostly permeate the course subjects. So, early on I had personal interest in Behavior Analysis, but at first, the studies were irregular and sporadic.

Then, about a year after the end of the initial disciplines on behaviorism and behavior analysis, students orga-

nized a meeting at the university to promote the studies of such courses. I was excited with the possibility to find others with whom I could discuss these topics. Two things in particular caught my attention at that meeting. First, I was intrigued by the fact that it had been proposed by the students at the university who, like me, felt the need for a more constant and systematic study in behavior analysis. In a way, I identified with the people who were present throughout the rest of my undergraduate studies, both as friends and colleagues. Later, I will return to comment why I consider relevant the fact that the meeting was organized by the students themselves. Second, at the time of that meeting, a video of Skinner's speech at APA's annual meeting in 1990 was exhibited, when he was recognized for his contributions to psychology. I believe that in addition to words printed on paper, it was the first time in which I saw and heard Skinner himself talking on his ideas. Still today, I quite like that speech!

Well, why do I mention this occasion? Mainly, for two reasons. First, in Skinner's speech, he presents a number of arguments criticizing mentalism. There is a premise extremely valuable in his theory expressed in key concepts (e.g., operant behavior and the selection by consequences mode), which I believe had a major impact both in my academic and personal life. The idea that the most effective way to study behaviors, as well as predict and even modify them, would turn our attention and our analysis not within himself or the other, but to the environment where behaviors occur. Unfortunately, I observed throughout my undergraduate period that many people tend to misinterpret this idea since they claim that in this perspective we would be mere passive receptacles of what happens in the environment. On the contrary, thinking from this premise may ultimately lead us to potential agents of change with respect to the ways we ourselves deal with the world where problems occur. This conception gives us the possibility to develop healthier relationships between ourselves and the world.

The second reason I mentioned that meeting is the relevance of organization by the students. I see that meeting as a great example of students who turned their eyes to the environment. It was through an environmental arrangement—the convening of the meeting, disclosure of it in classrooms and among the other students, and structuring of material and how it could be studied together—that both students who organized and those who sought the meeting promoted change in the institution albeit informally. However, this informal movement later reached teachers who wanted to promote extensive debates and disseminate the discussions promoted in this area, giving rise to more formal movements, such as conference organization. All these actions turned to the environment and were guided on strategies that could modify the university so that it was feasible to foster discussions regarding behavior analysis.

Acredito que uma boa maneira de tratar sobre a importância de Skinner e da Análise do Comportamento em minha vida seria pontuá-la no âmbito tanto do desenvolvimento acadêmico quanto da vida pessoal, duas perspectivas que, em certa medida, dificilmente poderiam ser separadas no percurso de

um estudante de graduação em Psicologia.

Nasci em Fortaleza, cidade localizada no nordeste do Brasil e foi lá onde fiz minha formação em Psicologia, iniciada em 2007. Até aquele ano, nunca havia ouvido falar sobre Skinner e sua proposta de ciência. Meu primeiro contato com ambos se deu logo no primeiro semestre do curso. No entanto, à exceção de duas disciplinas de seis meses cada, a princípio este deveria ser o único contato que teria por cerca de dois anos e meio, quando outra disciplina de Análise do Comportamento voltaria a fazer parte da grade curricular. Portanto, o contato inicial com a área foi de certa forma reduzido, principalmente quando comparado a outras perspectivas teóricas que permeiam majoritariamente as disciplinas do curso. Assim, desde cedo havia o interesse pessoal na área, mas, a princípio, os estudos se davam de forma irregular e esporádica.

Até que, cerca de um ano após o término destas disciplinas iniciais sobre Behaviorismo e Análise do Comportamento, soube que haveria uma reunião na universidade com a finalidade de organizar grupos de estudo sobre tais áreas de estudo. Animei-me com a possibilidade de que poderia encontrar outras pessoas com quem discutir sobre estes temas. Não poderia deixar de estar presente e duas coisas em particular me chamaram a atenção naquela reunião. Primeiro, o fato de que ela havia sido convocada pelos próprios estudantes da universidade, que, assim como eu, sentiam falta de um estudo mais constante e sistematizado daquelas áreas. De certa forma, senti-me identificado e, como mostraram os anos que se seguiram, uma parte considerável daquelas pessoas se fez presente ao longo do resto de meu percurso na graduação, tanto como amigos quanto como companheiros de atividades acadêmicas, em salas de aula e fora destas. Posteriormente, voltarei ao motivo pelo qual considero relevante o fato de aquela reunião ter sido organizada pelos próprios estudantes. Segundo, na ocasião daquela reunião, foi exibido um vídeo do discurso de Skinner na reunião anual da APA em 1990, quando fora reconhecido por suas contribuições à Psicologia. Acredito que, para além de palavras impressas em papel, aquela tenha sido a primeira vez na qual vi e escutei o próprio Skinner falando sobre suas ideias. Ainda hoje, gosto bastante daquele discurso!

Bom, por que menciono esta ocasião? Acredito que também por dois motivos. O primeiro deles seria porque naquela fala de Skinner, enquanto apresenta uma série de argumentações a partir das quais criticava o mentalismo, se faz presente uma premissa que considero extremamente valiosa em sua teoria, manifesta em conceitos-chaves como o comportamento operante e o modelo de seleção por consequências, e que acredito que teve um importante impacto tanto em minha vida acadêmica quanto pessoal: a ideia de que a forma mais efetiva para se estudar comportamentos, assim como prevê-los e inclusive modificá-los, seria voltando o nosso olhar e nossa análise não para dentro de si ou do outro, mas sim para o ambiente no qual ocorrem. Infelizmente, algo que observei ao longo de todo o meu período de graduação foi que muitas pessoas tendem a interpretar esta ideia de uma forma deturpada, apontando que, nesta perspectiva, seríamos meros receptáculos passivos

do que ocorre no ambiente. Ora, pelo contrário! Pensar a partir dessa premissa pode vir a nos tornar potenciais agentes de mudanças, seja dos modos como nós próprios lidamos com o mundo, seja dos problemas que neste ocorrem. Tal concepção nos oferece a possibilidade de desenvolvermos, inclusive por iniciativa própria, relações mais saudáveis entre nós mesmos e entre nós e o mundo.

O segundo motivo pelo qual mencionei aquela reunião, e é neste ponto que retomo o comentário sobre a relevância desta ter sido organizada pelos próprios estudantes, é porque vejo nela um ótimo exemplo da premissa referida acima quanto a voltar os nossos olhares para o ambiente. Foi através do manejo do ambiente – da convocação daquela reunião, da divulgação desta em salas de aula e entre os demais alunos, da estruturação de que material e de como este poderia ser estudado em conjunto – que tanto os estudantes que organizaram quanto os que procuraram a reunião, promoveram mudança em relação ao quanto e como era possível estudar Análise do Comportamento naquela instituição, ainda que informalmente. No entanto, esta movimentação informal posteriormente foi ao encontro de professores que desejavam promover amplos debates e disseminar as discussões promovidas por esta área, dando origem a movimentos mais formais, por assim dizer, como organização de congressos. O que acredito que todas estas ações têm em comum é o fato de que provavelmente tiveram suas origens em olhares que se voltaram para o ambiente e pautadas em estratégias que pudessem modificá-lo, a fim de que fosse viável a fomentação das discussões propostas pela Análise do Comportamento. ●



Athina Desypri, Greece

chologist Dr. Robert Mellon, cleared away all the misconceptions (and all the Freud for that matter!)

I vividly remember that throughout the course, the whole world and everything (I thought) I knew about it just “fell into place.” Scattered information about behavior, its antecedents, consequences, were all pieces of the same puzzle

finally coming together in an early understanding of the circumstances that define our interactions. I was startled by the new, unfamiliar, yet fascinating perspectives of thinking and analyzing, realizing the contingencies that maintain the emission of our actions, pointing out the patterns of behavior under certain frames. It all made sense.

Sadly, this opportunity is very restricted in Greece as it is quite unlikely to come across an unprejudiced approach to behavior analysis outside the doors of Panteion University. That was one of the main reasons we decided to found the Hellenic Community of Behavior Analysis in an attempt to spread the word on the principles of applied and experimental behavior analysis to as many as possible by organizing conferences, workshops, seminars, get-together events, and speeches. After extensive struggling with bureaucracy and funding, the chairman of the community, Dr. Mellon, managed to ensure a science laboratory which provides the younger students (and the older ones!) with the opportunity of designing and conducting their own experimental procedures both on humans and animals.

I always believed that fully approaching behavior analysis demands a “leap” from the traditional, essentialistic point of view we are raised to adopt; a leap that once you take, you can never go back. I dare say that I find behavior analysis to be liberating and binding at the same time. Liberating in a way that sets us free from the crooked causalities and puts us one step closer to understanding the origins of behavior, and binding in the constant, ever-demanding effort of shaping. Throughout the years there have been lots and lots of beautiful moments: experiments, presentations, posters, long meetings in the lab, countless small achievements while working in special care, but none of those will ever top the day that someone opened my eyes to what reinforcement is and its decisive role into making us all that we are and all that we are not.

Beyond Freedom and Dignity is an exceptional piece of work that challenges the core of traditional rhetoric on values and impels the reader to rethink in an out-of-the-box way when approaching the concepts of morality, autonomy, or ethics. ●



Odessa MacLean, U.S.

For as long as I am able to recall, I have wanted a career working to improve the lives of individuals with special needs. In Kindergarten, I developed a close friendship with a classmate with severe autism. I wanted to help him be safe, and independent and be the best he could be, but I didn’t always know how to do it. I volunteered at an Early Intervention preschool during high school and studied human

development as an undergraduate, considering different ways I could work with this population. When I discovered applied behavior analysis and began working at Applied Behavior Consultants, Inc., I felt I had found a clear path for myself. Working in ABA allows me to help individuals acquire new skills, ultimately helping them increase their quality of life. In my day-to-day work, I get to see children acquire individual skills such as imitation or listener behavior. Over longer durations of time working with these children, I see them increase social skills, their behavior excesses decrease as adaptive behavioral repertoires strengthen, and their independent living skills grow. Being a part of both these short-term and long-term changes is highly reinforcing for me. It is what keeps me coming back even after the most challenging days. ABA allows me to be part of a field that offers real, lasting, and critically important changes to individuals and their families. As I complete my master's and prepare to sit for the BCBA exam, it is these lasting benefits they bring to my clients that continues to push me forward. The more I study, the more I feel committed to this field. In the future, I hope to work with parents at increasing their ability to teach their child skills to help them lead more independent lives.

While studying in this field, I have had the opportunity to read multiple articles by B.F. Skinner and his books *About Behaviorism*, *Science and Human Behavior*, and *Beyond Freedom and Dignity*. Reading *Beyond Freedom and Dignity* has been my favorite as I have learned to see the behaviorist view of the self, emotions, and our culture written in a language I feel I can help communicate to others. ●



Sophie Robitaille, Canada

Analysis (MABA). This year, I assumed the positions of both Member-at-large and Co-Chair of Public Relations. I have also chosen to conduct my thesis research on an ABA-related topic. More specifically, I have developed and will be testing the effectiveness of an online parent training program to teach basic behavioural techniques. When given this topic as an option for my thesis, I immediately knew that it was

It all began in the fall of 2012 when I decided to register for Principles of Behaviour Modification with Geneviève Roy-Wsiaki, who is now my honors thesis advisor. Due to the course content and my wonderful, passionate professor, my interest in ABA began to grow. I can now say that taking this course changed my life. Since then, I have taken more courses related to behavior analysis, and I have become a member of the Manitoba Association for Behaviour

the right fit for me. The fact that I will be offering support and resources to parents in need, while contributing to the research, means the world to me, and that is what makes me want to pursue research in this field. Before learning about behaviour analysis and its applications, I did not know what I wanted to do in life. All I knew was that I wanted to pursue a career in psychology. Now, I have a newfound passion for ABA. Although I am still not exactly sure what field of psychology I would like to specialize in, I know with great certainty that I will adopt a behavioural perspective and integrate ABA principles into my practice. I will also continue to contribute to the research. For my honours thesis, I will be teaching individuals how to use positive reinforcement through operant conditioning — a term introduced by the influential founder and father of operant conditioning, B. F. Skinner. Skinner once stated: “When you run into something interesting, drop everything else and study it.” I can relate to this quote because I felt lost during my first year of university not knowing what it was that I wanted to do, taking a variety of courses. Upon completion of Introduction to Psychology, I found it so fascinating and interesting that I decided to sign up for multiple psychology classes and claimed psychology as my major. In addition, I am a musician, and I performed regularly in the past. After discovering my passion for psychology, specifically behaviour analysis, I decided to “drop” music so that I could devote all of my time to my coursework and research. My goal is to advance knowledge in ABA so that we can further improve the science and its applications. ●



Valeree Sullivan, U.S.

Fostering the education and development of children has been instilled in me throughout my life. Growing up with a preschool in my home afforded me the opportunity to watch my mother interact with children on a daily basis. From an early age, I witnessed the importance of positive social interaction. As I grew older, I became increasingly aware that there were some children who required extra assistance to master social behaviors, and I admired my

mother's ability to make a positive impact on all children's lives.

It wasn't until taking an Applied Behavior Analysis class with Caio Miguel during my undergraduate studies at California State University Sacramento that I discovered what I wanted to do with my life. Learning about how to apply the principles of ABA, including contingencies of reinforcement and stimulus control, opened my eyes.

To further my understanding of ABA and pursue a career in this field, I decided to enroll in a master's program. Having the opportunity to study at the Florida Institute of Technology has been an incredible opportunity that allowed me to better serve my clients. Seeing the range of emotions experienced by a parent, especially when their child engages in a novel behavior for the first time, is what drives me to push myself in this field. Being able to systematically change the life of an individual for the better is what ABA is really about. There is no better specialty of which I could be associated with.

I personally have read four of Skinner's works: *About Behaviorism*, *Science and Human Behavior*, *Walden Two*, and *Beyond Freedom and Dignity*. *Beyond Freedom and Dignity* has had the biggest impact on my life due to how applicable it is to our society today. One of the most overwhelming passages from *Beyond Freedom and Dignity* is when Skinner states how important our science is due to the lack of understanding our society has regarding our own behavior. He stated, "Twenty-five hundred years ago it might have been said that man understood himself as well as any other part of his world. Today he is the thing he understands least." This passage to me personally shows how important our science is. ●



Vette Berthelsen, Norway

other people is different, the way I look at society is different as well as the way I look at myself.

B. F. Skinner shaped behavior analysis into becoming a field based on strict scientific methods. This has laid the foundation for a science based on observable facts, and thus, it has produced great amounts of research of high validity. Through large amounts of research, he proved that behavior follows laws and principles on equal footing with other natural sciences such as physics. To be able to witness an everyday verification of these laws and theories through observation of other people's behavior is not just very interesting, but also makes it easier to interact with people in a way that is beneficial to both parties because of an

A question that I have asked myself throughout my years of studying behavior analysis is, "Why isn't this taught in high school?" This question is built on the understanding of how behavior analysis can impact many different platforms in society through the understanding of why people behave the way they do. I can say this based on the great impact behavior analysis has had on my own life. My world views have changed completely, the way I interact with

understanding of the principles that underlie behavior. Just imagine a society where people apply basic techniques like positive reinforcement to promote behaviors that contribute to a more fair society where it is easier to meet the needs of other individuals.

You could also say that understanding behavior analysis is a unique way of getting to know yourself better. To know why we behave the way we do facilitates self-change, and this might be the most important aspect of behavior analysis for me on a more personal level. In my late teens, I started to develop some struggles when it came to interacting with other people. I became both introverted and limited in my everyday life. Getting to know new people became my biggest fear, and almost anything that required social interaction became aversive. When I first started studying behavior analysis, I soon discovered that many of the basic techniques I learned in school, I could also apply to try to fix my own struggles. By learning about functional analysis, I was able to look at my own behavior through a new perspective. Amongst other things, I identified that my behavior was being maintained through negative reinforcement by avoiding aversive situations. This new perspective gave me ideas on how I could try to modify and change my own behavior, and I then started a process of exposing myself to my fears through challenges I gave myself in everyday situations. By applying the techniques of both shaping and systematic desensitization, I started challenging myself with increasing difficulty to be able to make new associations and to reinforce myself through experiencing that social interaction is not aversive after all. Just writing this piece can both be considered a challenge, but also a verification on how much better I am doing and how the knowledge on behavior analysis truly has changed my life. By possessing knowledge on how the history of reinforcement shapes an individual, anyone can be able to influence and possibly rewrite their own to increase one's quality of life. That is at least what I did. ●



Burrhus Frederick Skinner, U.S.

From the *The Shaping of Behaviorist*, where B. F. Skinner gives a first-hand account of his arrival for graduate school at the age of twenty-four:

Harvard University takes little or no interest in the private lives of its graduate students. The policy was affirmed on an issue of moral turpitude shortly before I arrived for graduate study in the fall of 1928. No matter how serious the offense or how lurid the newspaper stories, the University declared

itself not responsible; it refused to play a parental role.

I could rent a small, well-lighted room on the third floor for \$5.50 a week, and there would be no objection to an electric grill to make toast for breakfast or toasted cheese sandwiches for Sunday-night snacks. The bathroom was on the second floor, but, as far as I could tell, I should be sharing it with only three people.

On a mantel which no longer had a fireplace beneath it I began to build a library, starting with Bertrand Russell's *Philosophy*, John B. Watson's *Behaviorism*, and I. P. Pavlov's *Conditional Reflexes*—the books which had, I thought, prepared me for a career in psychology.

I had not played my saxophone for several years, and because it did not seem like a suitable instrument for a psychologist, I decided to sell it. I had hoped to buy a secondhand piano but my room was too small, and I settled for a portable Victrola. My only neighbour had no objection to music at a reasonable hour, and my schedule would send me to bed before an unreasonable one.

I wrote to Percy Sanders, the Professor of Chemistry at Hamilton College. "I'm taking it easy my first semester," I said. "After January I expect to settle down and solve the riddle of the universe. Harvard is fine."

The Director of the Psychological Laboratory, Edwin Garrigues Boring, was on sabbatical leave during my first term. Boring was responsible for most of the graduate research then under way. One student was finishing a thesis on how people judged the weights of little pillboxes fill with lead shot embedded in wax. Another had chosen the question of how well people could estimate the properties of stimuli without comparing them with other stimuli. Another would shortly be seeing how well people could judge the temperature of surface on which they placed their fingertips.

All this would have been anathema to John B. Watson, and to me, too, in my soberer moments. I was a *behaviorist*. Nevertheless, I went on writing notes which were scarcely behavioristic in tone. Most of these notes were far from behaviorism and they were even farther from physiology, which I thought I should also explore. Pavlov was a physiologist, and if I were to carry on his work I needed to look more closely at his field.

I came closer to physiology in a new branch of the Department of Biology at Harvard. W. J. Crozier had been brought in as its head only three years before. He had done fairly traditional work in biology until bitten by the bug of a new discipline, General Physiology, and now, a true believer, he could not easily control his contempt for those who did not see the light. Crozier was ambitious. He was building an empire in another ways; instead of bringing in mature scientists with established reputations, he was training a staff of younger man. Among them were two fresh Ph.D.'s from psychology, one of whom, Hudson Hoagland, taught General Physiology 5.

It was exactly the course I was looking for. The text was *Recent Advances in Physiology* by Evans, and it actually discussed the conditioned reflexes of Pavlov! It also report-

ed the work of Rudolph Magnus on the reflexes involved in posture and locomotion. Pavlov's reflexes, conditioned and unconditioned, were glandular secretions, but here was physical *movement*, something much closer to what was ordinarily called behavior.

The department encouraged individual research and Hoagland's students were passed about among the staff, who assigned topics. I drew an assistant professor who suggested that I follow up an observation he had made of what might be a conditioned reflex in a frog. The project sounded like Pavlov and I was delighted.

Unfortunately, I had to report to my parents:

My experiment turned out much simpler than I expected, for I ended by proving that the observation ... which was the basis of my work was unscientific. It turned out to be, not a case of a conditioned reflex but of lowered threshold. If you know what I mean. The man was somewhat embarrassed and Dr. Hoagland who put me to work on the question was amused. I'll have to try another one now.

The psychologists felt that Crozier was rather too openly wooing their graduate students, and near the end of the fall term he and Hoagland did indeed try to persuade me to change my field.

Psychology, as I found it at Harvard, had not been all I expected, and I had always liked biology.

Fortunately I could postpone a decision. I had signed up for a full year's program, including a spring-term course with Crozier, and would not make a change in any event before June. I should then have a clearer picture of both fields.

I was confirmed in my choice of psychology as a profession not so much by what I was learning as by the machine shop in Emerson Hall. Every department of psychology had a shop, because researchers made most of their own equipment. An old and valued machinist had recently died and had yet been replaced only by a framed photograph. Students had the unsupervised run of the shop, and I found it new and exciting. I had never before used anything more complex than a vise, a hand drill, a hand saw, and a coping saw, but the shop had a circular saw, a drill press, a lathe, and even a small milling machine discarded by the Physics Department. All sorts of supplies were available: shelves of brass and iron wood screws and machine screws and nuts in Salisbury cigarette tins (Boring was a chain smoker) and rivets, cotter keys, and small brass and iron pins in tins that once held Cuticura or Resinol ointment (the old machinist had psoriasis). There were boxes of piano wire, with which you could wind springs on the lathe, and shelves of strap and plate brass and steel.

The shop became my center of activity. I had bought a cafe espresso brewer and made a tripod to hold it over an alcohol lamp, using strips of brass hammered to an attractive finish, but a remark or two and a few glances among my fellow students alerted me to the fact that the shop and supplies were there only to advance the science of psychology. I was ready to advance it. ●

New Visions of *Walden Two*

books

Daniel B. Sundberg, Ph.D.
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Dr. B. F. Skinner published his first and only piece of fiction, *Walden Two*, in 1948. When the book first came out, Skinner stated that it sat in relative obscurity for a dozen or so years, however as the 1950s drew to a close, the popularity of the book grew. Today it has more than 4,000 reviews on popular book site www.goodreads.com, four times as many as Skinner's next most reviewed book, *Beyond Freedom and Dignity*. In the years that followed, some took inspiration from Skinner's book to create societies held together not by religion or anti-authority ideals, but by science and a scientific approach to improving the human condition. Others took that inspiration and wrote of how the principles of *Walden Two* could be applied to different social environments.

Two books in particular built upon the idea of using a scientific approach to designing a society. *Walden Three: A Scientific Utopia*, written by Dr. Rueben Ardila, tells a fictional story of a country that attempts to build itself based on *Walden Two*. *The Liberated Workplace: Transitioning to Walden Three* by Dr. William Abernathy is a semi-fictional story of a company that is redesigned with *Walden Two* in mind in what amounts to a very practical guide.

In Skinner's novel the reader is taken on a tour of a unique community that has at its core "a constantly experimental attitude toward everything." In this society, every facet of life is treated as an experiment designed to produce happy, intelligent, and productive people who support a flourishing well-designed society. In this way, *Walden Two* was depicted as a society that could become a utopia through experimentation. While Ardila's and Abernathy's books are written in dissimilar styles, they both pay great homage to Skinner and are fundamentally based on the same idea of taking an experimental approach to improving the human condition and the effectiveness of a social community.

Walden Three: A Behavioral Utopia

In 1979, Dr. Reuben Ardila published *Walden Three: A Scientific Utopia*, in which we are told a fictional story of a society designed on the principles of Skinner's *Walden Two*. However, unlike Skinner's *Walden Two*, this is not a single community of individuals seeking to escape the grind of modern society. Instead, it is a whole country transformed into a scientific society by an eccentric dictator at the head of a military coup. Ardila's society encompasses every facet of life from education and health, to economy and religion, all of which are designed based on science and experimentation.

In Ardila's story, the scientific approach to creating a society and culture is applied to a much grander and ambitious scale than was done in Skinner's *Walden Two*. This book shows us an interesting perspective on what the potential impact on human life if a *Walden Two* were created out of an entire country. Ardila also shows some of the immense challenges of engineering a society that large, including the effects of international politics, and large-scale cultural change, and of relying on a benevolent dictator to lead the system. The perspective on how such a society would be



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Dan is currently Regional Manager of Consulting Services at ABA Technologies, where he helps to develop and deliver OBM consulting services. Dan is also guest reviewer for the Journal of Organizational Behavior Management, and in his spare time, he creates behavior-based products that allow people to manage their time and accomplish their goals. He also has a special interest in building effective work practices and cultures for start-up companies and increasing the positive effects of organizations, working toward an environmentally-sustainable future.

treated by the world community, especially as the book is set during the height of the Cold War, is particularly interesting. In the end, the book gave the impression that building a *Walden Two* by political action is far from the most effective approach and that the organic growth that is depicted in Skinner's and Abernathy's books have the best chances of success.

The Liberated Workplace: Transitioning to Walden Three

Skinner devotes a significant amount of the story of *Walden Two* to describing a reimagined approach to our working lives, in which the goal is to "get rid of the work, not the worker" to make the society as effective and efficient as possible. In *Walden Two*, traditional management is non-existent, and people work about four hours a day on tasks that are most interesting or desirable to them. Work is treated as a means to an end only, not an end in and of itself. This approach has the effect of creating a not just a happier community but a more effective one as well.

Focusing on eliminating work may seem at odds with the objectives of today's economy. However, Dr. William Abernathy's book shows us this is not the case. In 2014, Abernathy published *The Liberated Workplace: Transitioning to Walden Three*, which shows that a science-based community does not have to be constrained to a residential setting and can flourish in a workplace. As a behavior analyst who focuses on applying the science of behavior to improving organizations, my attention was immediately drawn to Abernathy's vision of bringing *Walden Two* to the world. Particularly attractive was Abernathy's stance that we do not need to flee society at large to begin creating a Walden Two community. Abernathy suggests instead that the workplace is the perfect vessel for creating the sort of "revolution" described by Skinner.

Abernathy tells the story of a fictional company, Superior Button, that seeks to create a Walden Two environment in their place of work. This story reads more like a case study or instruction manual than the piece of fiction that it is, and many of the examples and data used in the book feel like real examples from Abernathy's extensive experience.

While the book maintains much of the idealism of Skinner's and Ardila's works, it is at the same time much less grand in its scale in that it seeks to change one aspect of society rather than society as a whole. However, this has the effect of depicting a very feasible society, and one very similar to many progressive (and effective) companies that exist today. Abernathy describes in extensive detail the methods and systems for maximizing the reinforcement available for the participants in the system (the workers) as well as the owners of the system who seek to maximize impact and profitability.

Abernathy's system is also more likely to appeal to America's culture of individualism, which, in both Skinner's and Ardila's societies, is seen as an obstacle to be overcome, rather than leveraged. Abernathy's ap-

Novas visões de Walden Two

Translated by Bruna Colombo dos Santos

Dr. B. F. Skinner publicou sua primeira e única peça de ficção, *Walden Two*, em 1948. Quando o livro foi lançado, Skinner declarou que ele ficou numa relativa obscuridade por cerca de doze anos, entretanto conforme a década de 1950 aproximou-se do fim, a popularidade do livro cresceu (hoje existem mais de 4,000 revisões em um site de livros populares www.goodreads.com, 4 vezes mais do que o próximo livro mais revisado de Skinner, *Beyond Freedom and Dignity*). Nos anos que se seguiram, alguns se inspiraram no livro de Skinner para criar sociedades mantidas unidas não por religião ou ideais anti-autoritários, mas pela ciência e uma abordagem científica para melhorar a condição humana. Outros se inspiraram e escreveram como os princípios de *Walden Two* poderiam ser aplicados a diferentes ambientes sociais.

Dois livros em particular foram construídos sobre a ideia de usar a abordagem científica para o planejamento da sociedade. *Walden Three: A Scientific Utopia*, escrito pelo Dr. Rubén Ardila, conta uma história fictícia de um país que tentou se construir com base em *Walden Two*. *The Liberated Workplace: Transitioning to Walden Three* escrito pelo Dr. William Abernathy, é uma história semi-fictícia de uma empresa que é replanejada com *Walden Two* em mente, o que equivale a um guia muito prático.

No romance de Skinner o leitor é levado a uma viagem por uma comunidade única que tem em sua essência, "uma atitude experimental constante em relação a tudo" (p. 25). Nesta sociedade cada faceta da vida é tratada como um experimento, planejado para produzir pessoas felizes, inteligentes e produtivas que sustentam o florescimento de uma sociedade bem planejada. Nesse sentido, *Walden Two* foi retratado como uma sociedade que poderia se tornar uma utopia, por meio da experimentação. Enquanto os livros de Ardila e de Abernathy foram escritos em estilos diferentes, ambos prestam grande homenagem a Skinner, e são fundamentalmente baseados na mesma ideia de adotar uma abordagem experimental para melhorar a condição humana e a efetividade da comunidade social.

Walden Three: Uma utopia comportamental.

Em 1979, Rubén Ardila publicou *Walden Three: A Scientific Utopia*, no qual conta uma história fictícia de uma sociedade planejada de acordo com os princípios de *Walden Two* de Skinner. Entretanto, diferente do *Walden Two* de Skinner, isso não é uma única comunidade de indivíduos tentando escapar da rotina da sociedade moderna. Ao contrário, é todo um país, transformado em uma sociedade científica por um ditador excêntrico encabeçando um golpe militar. A sociedade de Ardila engloba cada faceta da vida, desde educação e saúde, a economia e religião, todas as quais foram planejadas com base na ciência e experimentação.

Na história de Ardila, a abordagem científica para criar uma sociedade e cultura é aplicada a uma escala muito maior e mais ambiciosa do que foi feito no *Walden Two* de Skinner. Este livro nos mostra uma perspectiva interessante sobre qual o impacto potencial sobre a vida humana se *Walden Two* fosse criado

proach is also highly realistic and can perhaps be thought of as a shaping step towards creating a Walden Two for society at large. If the lessons of the many failed communities that have attempted to emulate *Walden Two* (in spirit if not in fact) are to be heeded, a scientific society is by no means a small undertaking. Piggybacking such a society on existing structures and building them in a way that supports existing systems of reinforcement is not at all an unreasonable proposition.

Many companies today strive to build a system like Abernathy's to move them towards a liberated and "utopian" workplace. Google, Zappos, and Lincoln Electric are just a few examples of organizations that work to engineer environments that maximize employee autonomy, choice, and effectiveness, and that minimize work for work's sake.

Abernathy's approach to creating a Walden Two is realistic enough to be adopted by organizations such as these. One could almost imagine the owner of a company with these ambitions coming across Abernathy's book and being so inspired by the ideas discussed therein that she goes into work the next day and begins taking steps to create a "liberated workplace." Perhaps, the only reason that we are not seeing more organizations doing so is because Abernathy's vision of a utopian workplace has not reached that audience yet.

Abernathy's book follows both Skinner's spirit of changing the world for the better and is pragmatic in making that change. If you don't have a chance to pick up the book, here are some great lessons from the book in how to create a Walden Two in the workplace:

- Focus on results, rather than activity wherever possible.
- Allow people to maximize positive reinforcement through choice and by maximizing their work output.
- Treat the transition to a Walden Two as a shaping process, and proceed slowly in steps.
- Eliminate bureaucracy wherever possible.
- Do the above by allowing people to grow within their existing roles, rather than through promotions.
- Reinforce behaviors and results that actually contribute to the output of the organization.

Conclusion

Overall, these two books make for interesting reads and show that Skinner's vision of a behavioral utopia is still inspiring people around the world. Those who have had the opportunity to read Skinner's *Walden Two* have no doubt imagined how intriguing it would be as a scientist to live in such a society. In these two books, we have the opportunity to imagine once more scientific societies based on an experimental attitude. ●

em um país inteiro. Ardila mostra alguns dos imensos desafios de engenharia de uma sociedade tão grande, incluindo os efeitos das políticas internacionais, mudança cultural de larga escala, e confiando em um ditador benevolente para liderar o sistema. A perspectiva sobre como tal sociedade seria tratada pela comunidade mundial, especialmente porque o livro se passa durante o auge da Guerra Fria, é particularmente interessante. Por fim, o livro deu a impressão que construir *Walden Two* via ação política está longe de ser a abordagem mais efetiva, e que o crescimento orgânico que é retratado nos livros de Skinner e Abernathy tem mais chances de sucesso.

O Ambiente de trabalho liberado: Transição para Walden Three

Skinner devota uma parte significativa da história de *Walden Two* para descrever uma abordagem reinventada para as nossas vidas de trabalho, no qual o objetivo é "livrar-se do trabalho, não do trabalhador" (p. 69) para fazer a sociedade tão efetiva e tão eficiente quanto possível. Em *Walden Two* a gestão tradicional é não existente, e as pessoas trabalham em torno de 4 horas por dia em tarefas que são mais interessantes e desejáveis para eles. Trabalho é tratado como um meio para um fim apenas, e não como um fim em si e por si. Esta abordagem tem o efeito de criar não apenas uma comunidade mais feliz, mas bem como mais efetiva.

Foco na eliminação do trabalho parece estar em desacordo com os objetivos da economia atual, entretanto o livro do Dr. William Abernathy os mostra que este não é o caso. Em 2014, Abernathy publicou o *The Liberated Workplace: Transitioning to Walden Three*, que mostra que uma comunidade baseada na ciência não precisa ficar restrita ao contexto residencial, e pode florescer no contexto de trabalho. Como um analista do comportamento focado na aplicação da ciência do comportamento para melhorar organizações, minha atenção foi imediatamente chamada para a visão de Abernathy de trazer *Walden Two* para o mundo. Particularmente atrativa foi a posição de Abernathy de que nós não precisamos fugir da sociedade ampla para começar a criar um *Walden Two*. Abernathy sugere ao invés que o contexto de trabalho é o local perfeito para criar o tipo de "revolução" descrito por Skinner.

Abernathy conta a história de uma empresa fictícia, *Superior Button*, que procura criar um *Walden Two* no seu local de trabalho. Essa história se parece mais com um estudo de caso ou um manual de instruções do que a peça de ficção que é, e muitos dos exemplos e dados usados no livro parecem exemplos reais a partir da extensa experiência de Abernathy.

Enquanto o livro mantém muito do idealismo dos trabalhos de Skinner e Ardila é ao mesmo tempo muito menos grandioso em sua escala, na qual procura mudar um aspecto da sociedade ao invés da sociedade como um todo. Entretanto, isto teve o efeito de retratar uma sociedade muito mais viável, e muito similar a muitas empresas progressivas (e efetivas) que existem hoje em dia. Abernathy descreve em detalhes extensivos os métodos e sistemas para maximizar o reforçamento disponível para os participantes do sistema (os trabalhadores), bem como os donos do sistema que procuram maximizar impacto e lucro.

O sistema de Abernathy também é mais propenso a apelar para cultura individualista da América, o que em ambas as sociedades de Skinner e Ardila é visto como um obstáculo a ser

superado, ao invés de alavancado. A abordagem de Abernathy é também altamente realista, e pode talvez ser pensado como um passo de modelagem em direção à criação de um *Walden Two* para a sociedade em geral. Se as lições das muitas comunidades que falharam tentando copiar *Walden Two* (em espírito, não em fato) estão para ser ouvidas, uma sociedade científica não significa um pequeno empreendimento. Verticalizar tal sociedade sobre as estruturas existentes, e construí-las de uma forma que os sistemas de reforçamento existentes se sustentem, não é de forma alguma uma proposição ilógica.

Muitas empresas de hoje esforçam-se para construir um sistema como o de Abernathy para movê-las em direção um contexto de trabalho liberado e “utópico”. *Google*, *Zappos* e *Electric Lincoln* são apenas poucos exemplos de organizações que trabalham para projetar ambientes que maximizem a autonomia do empregado, escolha, efetividade e minimizar o trabalho pelo trabalho. A abordagem de Abernathy em criar um *Walden Two* é suficientemente realista para ser adotada em organizações como essas. Alguém poderia quase imaginar a dona de uma empresa com essas ambições se deparando com o livro de Abernathy e ficando tão inspirada pelas ideias discutidas lá, que ela vai para o trabalho no próximo dia e começa tomar medidas para criar um “ambiente de trabalho liberado”. Talvez a única razão pela qual não vemos mais organizações fazendo isto é porque a visão de Abernathy de um ambiente de trabalho utópico não atingiu esta audiência ainda.

O livro de Abernathy segue tanto o espírito de Skinner de mudar o mundo para melhor e seu pragmatismo em

fazer esta mudança. Se você não tiver a chance de pegar o livro, aqui estão algumas grandes lições do livro de como criar um *Walden Two* em um contexto de trabalho:

- Foco nos resultados, ao invés de atividade sempre que for possível
- Permitir que as pessoas maximizem reforçamento positivo por meio da escolha e por meio da maximização do seu rendimento no trabalho
- Trate a transição para o *Walden Two* como um processo de modelagem, e proceda vagarosamente em passos
- Elimine burocracia sempre que possível
- Faça o que está descrito acima permitindo que as pessoas cresçam dentro de seus papéis existentes, em vez de através de promoções
- Reforce comportamentos e resultados que de fato contribuam para o rendimento da organização

Conclusão

No geral, esses livros são leituras interessantes e mostram que a visão de Skinner de uma utopia comportamental ainda está inspirando pessoas ao redor do mundo. Aqueles que tiveram a oportunidade de ler *Walden Two* de Skinner sem dúvida imaginaram o quão intrigante seria, como cientista, viver em tal sociedade. Nesses dois livros nós temos a oportunidade de imaginar uma vez mais, sociedades científicas baseadas em uma atitude experimental. ●

reflections

Living in a Walden Two

Darrel E. Bostow, Ph.D.
Pembroke, Maine



Let me introduce myself. I am Darrel, and I spend most of my time living in a *Walden Two*. Yes, a “*Walden Two*” DOES exist! I have been asked to describe what it is like to live here in mine.

First, a little history. I was born the year Professor Burrhus assembled his notes on Frazier’s *Walden Two* in the form of the book. If you have read the book, you will recall that Burrhus visited the utopian community and decided to live there. He subsequently spent a great deal of his time writing in the public relations area. I first read *Walden Two* in the fall of 1966 when I began graduate school in the psychology department at Western Michigan University. At WMU, I accidentally fell into the context of the many “operant conditioners” in my program. Several faculty members knew Professor Burrhus, Frazier, and their field of the experimental analysis of behavior. Variables at Western Michigan quickly converged to pull together my professional and personal identity. I became a dyed-in-the-wool Skinnerian, and now live in an “intentional community.” A powerful influence was, of course, B. F. Skinner’s book, *Walden Two*.

I had come through many natural science courses during my undergraduate years, all of which established a firmly deterministic point of view. I eventually questioned the possibility of supernatural forces, including a miraculous creative mind. Somewhere during the first few pages of *Walden Two*, it dawned on

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Ruben Ardila, Ph.D. National University of Colombia

profile

Interview and Translation by Elberto Antonio Plazas

Dr. Ardila is a Colombian researcher in psychology and professor at the National University of Colombia. He received a Ph.D. in Experimental Psychology from the University of Nebraska – Lincoln. He has done research on experimental analysis of behavior, history of psychology, and the application of psychology to socio-economic development. Dr. Ardila has published 32 books and more than 300 scientific papers in journals from several countries. Some of his books have been translated into English, German, Portuguese, and other languages. As a visiting professor in several countries, including the United States, Germany, Puerto Rico, Spain, Argentina, and others, he has promoted behavior analysis, international psychology, and history of psychology. Dr. Ardila has been President of the Interamerican Society of Psychology (SIP), the International Society for Comparative Psychology (ISCP), the Latin American Association for the Analysis and Modification of Behavior (ALAMOC) and others. He founded the *Revista Latinoamericana de Psicología* (Latin American Journal of Psychology) and edited this journal from 1969 to 2003. He was a member of the executive committee of the International Union of Psychological Science (IUPsyS) between 1992 and 2004. He belongs to the Board of Directors of the International Association of Applied Psychology (IAAP, 2006-2018). In 2004, he received the Science Award from Colombia. His most recent recognition is the APA Award for Distinguished Contributions to the International Advancement of Psychology (2007). His most recent books are entitled *Autobiografía, un Punto en el Tiempo y en el Espacio* (Autobiography, a Point in Time and Space, 2012), and *Historia de la Psicología en Colombia* (History of Psychology in Colombia, 2013).



Dr. Ruben Ardila

Rubén es un psicólogo e investigador colombiano, profesor en la Universidad Nacional de Colombia. Recibió su Ph.D. en Psicología Experimental en la Universidad de Nebraska-Lincoln. Ha realizado investigaciones en el análisis experimental del comportamiento, la historia de la psicología, y la aplicación de la psicología al desarrollo socio-económico. Ha publicado 32 libros y más de 300 artículos científicos en revistas de diferentes países. Algunos de sus libros han sido traducidos al inglés, alemán, portugués, entre otras lenguas. Como profesor visitante en varios países, incluidos Estados Unidos, Alemania, Puerto Rico, España, Argentina, entre otros, ha promovido el análisis de la conducta, la psicología internacional y la historia de la psicología. El Dr. Ardila ha sido presidente de la Sociedad Interamericana de Psicología (SIP), the International Society for Comparative Psychology (ISCP), la Sociedad Latinoamericana para el Análisis y la Modificación de la Conducta (ALAMOC), entre otros. Fundó la *Revista Latinoamericana de Psicología*, y fue su editor desde 1969 hasta 2003. Fue miembro del comité ejecutivo de la International Union of Psychological Science (IUPsyS), entre 1992 y 2004. Pertenece a la Junta Directiva de la International Association of Applied Psychology (IAAP, 2006-2018). En el 2004 recibió el Premio de la Ciencia de Colombia. Su reconocimiento más reciente fue el Premio APA por sus Contribuciones Distinguidas al Avance Internacional de la Psicología (2007). Sus libros más recientes se titulan *Autobiografía, un Punto en el Tiempo y en el Espacio* (2012) e *Historia de la Psicología en Colombia* (2013).

Can you share with us a bit about yourself and your relation to behavior analysis?

I am a Colombian research psychologist who has worked on behavior analysis, social issues, and history of psychology during several decades. My Ph.D. degree is in experimental psychology. My first publication on behavior analysis goes back to 1965, and it is entitled "Behaviorism: towards a scientific psychology" (in Spanish), published in the psychology journal of the National University of Colombia. My first book on the area is entitled *Psychology of Learning* (1970). I have been an active researcher on operant conditioning with human and non-human subjects and published several papers in international

Puedes hacer un breve perfil acerca de ti y tu relación con el análisis de la conducta?

Yo soy un psicólogo e investigador colombiano, que ha trabajado durante varias décadas en el análisis de la conducta, los problemas sociales y la historia de la psicología. Mi doctorado es en psicología experimental. Mi primera publicación sobre análisis de la conducta se remonta a 1965 y se titula "Conductismo: hacia una psicología científica", publicada en la revista de psicología de la Universidad Nacional de Colombia. Mi primer libro en el área se titula *Psicología del Aprendizaje* (1970). He sido un investigador activo en condicionamiento operante con animales humanos y no-humanos, y he publicado varios artículos en revistas internacionales, principalmente en Español e Inglés.

Trabajé en varias instituciones de América Latina e intenté introducir el análisis de la conducta, tanto como una

journals, the majority of them in Spanish and English.

I worked in several Latin America institutions and tried to introduce behavior analysis, both as a laboratory science and as an applied area.

Tell us about *Walden III* and its relation to *Walden II*

My book *Walden Three* was written while I was a visiting professor in Puerto Rico and was published in Spain in 1979. It has been translated into German, Portuguese and English (New York: Carlton Press, 1990). It describes a utopian society in a developing country, based on behavior analysis. It takes into consideration political issues, global problems, and the role of international affairs. The whole body of the book is devoted to a description and analysis of every area of society that is planned according to behavior analysis and international politics (education, work, family, sexuality, use of leisure time, modification of criminal behavior and delinquency, economics, social justice, aging, etc.).

The general inspiration for the book is Skinner's *Walden Two*, but it takes place in a broader context (a whole country), and takes into consideration "big issues," such as economics, political philosophies, ideologies, etc.

Are the original motivations to write *Walden III* still important for today's society?

Yes, they are. Of course, the world has changed during these decades, but the role of behavior analysis for social planning continues being relevant for today's society.

What is the main obstacle for implementing a society such as *Walden III*?

The complexity of present-day social issues, and the lack of proper communication between scientists (behavior analysts) and policy makers.

Have there been efforts to make some practical implementation of *Walden III* proposals?

I am not aware of any implementation at the national-political level. In smaller communities, behavior analytical proposals, together with political goals, have been tried.

From the Skinnerian point of view, the success of a society is assessed from the maintenance of their cultural practice and expansion. In utopian attempts such as "Los Horcones," the community has not grown. Is it an indication of the failure of the utopian dream?

I don't think so. Experimental communities are usually small, and life in a utopian community is not an alternative for everybody. ●

ciencia de laboratorio, así como una ciencia aplicada.

Cuéntanos brevemente acerca de *Walden Tres* y su relación con *Walden Dos*

Mi libro *Walden Tres* fue escrito mientras era profesor visitante en Puerto Rico, y fue publicado en español en 1979. Ha sido traducido al Alemán, Portugues e Inglés (New York: Carlton Press, 1990). El libro describe una sociedad utópica en un país en desarrollo, basada en el análisis de la conducta. Tomé en consideración problemas políticos, problemas globales y el papel de las relaciones internacionales. El libro en su totalidad está dedicado a una descripción y análisis de cada área de la sociedad que es planeada de acuerdo al análisis de la conducta y las políticas internacionales (educación, trabajo, familia, sexualidad, uso del tiempo libre, modificación de la conducta criminal y delincuencia, economía, justicia social, envejecimiento, etc.).

La inspiración general para el libro es *Walden Dos* de Skinner, pero toma lugar en un contexto más amplio (un país completo), y toma en consideración "problemas mayores", tales como problemas económicos, de filosofía política, ideología, etc.

¿Las motivaciones originales para escribir *Walden Tres* son aún importantes para la sociedad de hoy en día?

Si, así es. De hecho el mundo ha cambiado durante estas décadas, pero el papel del análisis de la conducta para la planeación social continúa siendo relevante en la sociedad de hoy.

¿Cuál es el principal obstáculo para implementar una sociedad tal como la de *Walden Tres*?

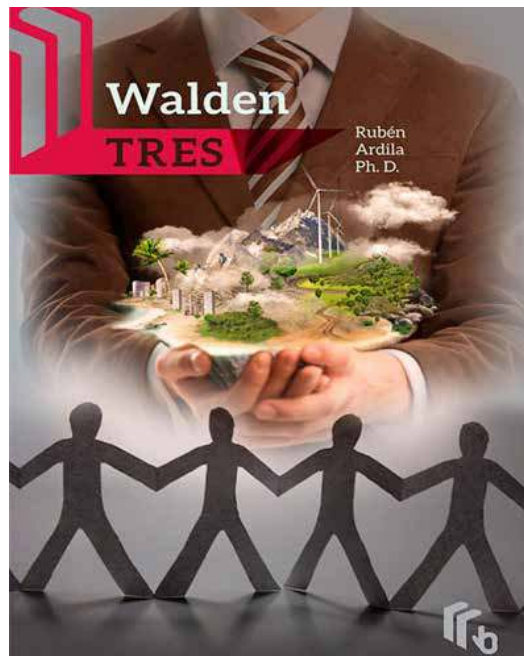
La complejidad de los problemas sociales de hoy día, y la falta de una adecuada comunicación entre científicos (analistas de la conducta) y los encargados de hacer las políticas.

¿Ha habido algún esfuerzo para hacer alguna implementación práctica de las propuestas de *Walden Tres*?

No tengo conocimiento de alguna implementación en algún nivel de política nacional. Se han intentado propuestas analítico comportamentales, junto con metas políticas, en comunidades más pequeñas.

Desde un punto de vista skinneriano, el éxito de una sociedad es evaluado a partir del mantenimiento de sus prácticas culturales y su expansión. En intentos utópicos, tales como "Los Horcones", la comunidad no ha crecido. ¿Este es un indicador del fracaso del sueño utópico?

No creo que sea así. Las comunidades experimentales usualmente son pequeñas, y la vida en una comunidad utópica no es una alternativa para todo el mundo. ●



The Liberated Workplace by Bill Abernathy

books

reviewed by Rodrigo Araujo Caldas, Ph.D.

The not-so-utopic presentation of Dr. William Abernathy, in the book *The Liberated Workplace* is an elegant description of the application of behavioral principles to organizations. I will try to present the main points of the author's argument and the reflections that emerged with the reading both the behavioral implications, and the implications for a cultural design. The scathing critique to the bureaucratic environment and to aversive control applied to behavior in companies is a detailed analysis, much in the description of the bureaucratic environment's effect on people and the implication of this environment to the organization as a whole.

Abernathy presents a short review of the historical establishment of a bureaucratic management. He asserts that a bureaucratic management implies aversive control and detachment of natural contingencies of work. Formal wages, the strategy of habitual remuneration, is presented as a problem to performance, where the worker does a minimum necessary to achieve pre-established performance criteria.

When the performance is not achieved, an arsenal of rules, warnings, sanctions, and several strategies that imply aversive control are applied. Due to this, work is attached to contingencies of negative reinforcement. This is the reality of many work stations in the whole world due to the contingencies employees and organizations submit to. It is common that such practices produce socially-aversive contingencies.

The fragile relationship between rate of pay and work produces a worker who stays under control of rules and supervisors. The supervisors created strategies, rules, and policies inside the organization to address the supervision of the workers. In that way, the perception of pay for work stays attached to the supervisor or manager raising the time,



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Rodrigo Araújo Caldas é formado em psicologia pela Faculdade DeVry Ruy Barbosa, em Salvador, Bahia, Brasil. Ele tem mestrado e doutorado em Psicologia Experimental: Análise do Comportamento, pela Pontifícia Universidade Católica de São Paulo (PUC-SP), São Paulo, Brasil. Atualmente ele ensina Análise do Comportamento em Salvador. Seus principais interesses são evolução cultural e metacontingências.

não tão utópica apresentação do Dr. William Abernathy, no livro "The liberated workplace", é uma elegante descrição da aplicação dos princípios comportamentais às organizações. Tentarei apresentar os pontos principais do argumento do autor e as reflexões que surgiram com a leitura, tanto as implicações comportamentais como as implicações para um planejamento cultural. A crítica contundente ao ambiente burocrático e, especialmente, ao controle aversivo aplicado ao comportamento em empresas é uma detalhada análise, tanto na descrição dos efeitos do ambiente burocrático sobre as pessoas, quanto das implicações desse ambiente para as organizações como um todo.

A partir de uma curta apresentação do estabelecimento histórico de uma gestão burocrática enquanto prática humana, Abernathy defende que a gestão burocrática implica em controle aversivo e distanciamento das contingências naturais do trabalho. O salário formal, enquanto estratégia de remuneração habitual, é apresentado como um problema para performance, sobretudo pela pobre relação de contingência entre os comportamentos fundamentais para a organização e a remuneração. Além disso, a prática de remuneração salarial leva a uma performance onde o trabalhador desempenha um mínimo necessário para cumprir determinados critérios de desempenho pré estabelecidos.

Quando o desempenho não é atingido um arsenal de regras, avisos, sanções, e diversas estratégias que implicam em controle aversivo, são aplicadas. Decorrente disso, o trabalho sistematicamente está atrelado a contingências de reforçamento negativo.

Essa é uma realidade de muitos postos de trabalho no mundo todo, devido as contingências que os empregados e

steps, and events between the work realized and the remuneration produced. This organizational culture leads to the formation of big hierarchical pyramids, where great creativity and innovation are allowed in the highest levels, and in lowest levels there are more restrictions about what can and cannot be done.

The hierarchization, specialization of the work, and bureaucracy have a logical impact on the cost of an organization as a whole: as the number of different functions increase inside an organization, more paid positions are created. Redundant functions or excessive divisions of labor are not rare in the organizational context. The redundancy can produce a significant raise in the cost of a company's operation and reduce its competitiveness.

Another implication of bureaucracy is the inflexibility of organizations. The flexibility in the practices of a group can be a determinant factor to the adaptation to variations in the market. In the bureaucratic context, creativity and innovation are encouraged in the groups of employed entrepreneurs and managers but discouraged in the labor force. Thus, the work environments with greater supervision are more restricted from innovation resulting in an organization that is less responsive to external changes.

Consequently, the contingencies involved in the culture of bureaucracy imply mediocre performance of engaged people. The lack of performance results in organizations that do not achieve all their potential. Abernathy presented data on the implementation of a mensuration system and remuneration attached to the performance. The data collected and presented significantly raised the performance of the organization as a whole.

The author summarizes seven sets of problems related to the conventional management system based on rate of pay, derived from his book *The Sin of Wages* (1996). The problems include the fixed costs of wages even with the oscillations of the market and productivity; the payment by time and not by production; the payments done by position held; the dispute relations between the employer and employee derived from payment for time; the competition relation inside the organization derived from promotions as reward; the Halo effect of management by perception; and the management by exception, which leads managers to be much more alert to the problems than the solutions.

In a conventional management system, the worker is submitted to contingencies of negative reinforcement and contingencies where the consequence "remuneration" is not contingent on productivity. The transition to a liberated workplace implies a transformation of work relations into reinforcing positive relations where the remuneration is contingent on productivity. For the beginning of these relations' transformations, the concept of the free operant is presented.

Abernathy presented the Skinnerian notion of the free operant and the selectionist position of radical behaviorism and directly applied both to the work situation. The author highlighted the importance of behavior variation by reviewing the importance of variation and selection (Darwin concepts), the comprehension of behavior of organisms, and the Skinnerian explanation. He presented the position

as organizações como um todo estão submetidas, ou mesmo devido ao tamanho do grupo que precisa da coordenação de seus membros. O surgimento de práticas que produzem contingências aversivas socialmente impostas são muito frequentes.

A frágil relação de contingência entre remuneração salarial e trabalho, produz que o trabalhador fique cada vez mais sob controle de regras dos supervisores, que por sua vez criam estratégias, regras e políticas dentro da organização para a supervisão dos trabalhadores. Assim, a remuneração do trabalho fica atrelada à percepção do supervisor ou gestor, aumentando o tempo, as etapas e eventos entre o trabalho realizado e a remuneração produzida. Essa cultura organizacional leva a formação de grandes pirâmides hierárquicas, onde nos níveis mais altos da pirâmide são permitidos maior criatividade e inovação e nos níveis mais baixos mais restrições sobre o que pode e o que não pode ser feito.

A hierarquização, bem como a especialização do trabalho e a burocracia de maneira geral tem um impacto lógico para o custo de uma organização como um todo: quanto mais funções diferentes dentro de uma organização, em tese, mais funções precisam ser pagas. Não são raras no contexto organizacional funções redundantes ou divisões do trabalho em excesso; isso pode produzir um aumento significativo no custo de operação de uma empresa e reduzir sua competitividade.

Outra implicação da burocracia apresentada por Abernathy é a inflexibilidade das organizações. A flexibilidade nas práticas de um grupo pode ser fator determinante para a adaptação às variações no mercado. No contexto burocrático a criatividade e inovação é incentivada nos grupos de empreendedores e gestores, mas desencorajada na força de trabalho. Assim, os ambientes de trabalho com maior supervisão ficam mais restritos à inovação e daí decorrendo uma organização menos responsiva às mudanças externas. Dado que o gestor passa a ser a principal fonte de recompensas e punições para a força de trabalho, cabe aos gestores também a sensibilidade ao ambiente externo da empresa, assim as mudanças externas só produzem mudanças nas práticas do grupo se afetarem a parte superior da cadeia de operações, o que torna a organização menos responsiva a mudanças em seu ambiente selecionador.

Conseqüentemente, as contingências envolvidas na cultura da burocracia implicam em um desempenho medíocre das pessoas engajadas, bem como organizações que não atingem todo seu potencial. Abernathy apresenta dados onde a implementação de um sistema de mensuração e remuneração atrelado às performance pode aumentar significativamente o desempenho da organização como um todo.

O autor sumariza sete conjuntos de problemas relacionados ao sistema de gestão convencional baseado na remuneração salarial, derivado do seu livro "The sin of wages" (1996). Abernathy cita o custo fixos dos salários mesmo com as oscilações do mercado e da produtividade; o pagamento por tempo e não por produção; os pagamentos feitos pelo cargo ocupado e não pela performance; as relações de disputa entre empresário e empregado derivados do pagamento por tempo; as relações de competição dentro da organização derivadas de promoções como recompensas; o efeito Halo

of Adam Smith's free market and selection of goods and services by the consumers as a selectionist description. The author provided a complete description of biological, behavioral, and cultural phenomena that implied many functionally related event chains which led him to indicate the relations between radical behaviorism and Zen Buddhism. Abernathy described behavior selection as the origin of the fundamental questions regarding performance.

The Skinnerian dichotomy between behavior governed by rules and shaped by contingencies is presented in order to demonstrate the aversive character of rules involved in the control of behavior. Notwithstanding, this discussion led me to reflect about the use of rules and contrived reinforcers in the maintenance of behaviors that were not naturally reinforced or shaped by natural contingencies. Would the rules be necessarily aversive or dictatorial as the author suggests in the problem's presentation? In the text, there seems to be a clash between contrived socially imposed and aversive consequences versus natural reinforcing consequences.

The natural consequences of a task are not always selective/reinforcing and the shaping may be extensive or costly. The relation with the consequences about an organization as a whole follow in the same direction. The success of a group sometimes has selective consequences very distant, or intermittent enough to maintain practice without control by rules and contrived consequences. Thus, the discussion brought by the author to the business context led me to think contrived consequences and rules would not be natural products when we analyze the history of the current contingencies. Could a longer historical analysis of the phenomenon demonstrate the natural consequences of the use of rules, including rules with aversive functions? The author's argumentation considers how to produce work environments based on the conception of free operant, where the relations are more positively reinforcing and consequences are more contingent on performance.

For the transformation of the work environment based on the conception of free operant, the author suggests four key ingredients: (a) personal consequences clearly communicated and contingent on performance of each employee while being aligned to the aims of the organization as a whole, (b) focused performance measurement, (c) positive leadership by making necessary changes in the supervision practices of the managers in order to replace aversive control by positive reinforcement through positive feedback contingent upon improvement in performance, and (d) stakeholder pay, where the employees are paid contingent both on the personal performance and objective

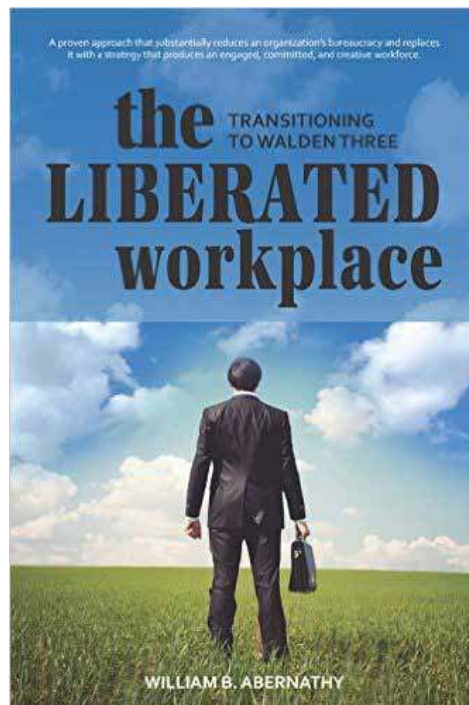
da gestão por percepção; e a gestão por exceção que leva os gestores a estarem muito mais atentos aos problemas do que às soluções.

De maneira geral no sistema convencional de gestão, o trabalhador é submetido a contingências de reforçamento negativo e à contingências onde a consequência "remuneração" é não contingente a produtividade. A transição para um ambiente de trabalho liberado (liberated workplace) implicaria a transformação de relações de trabalho em relações reforçadoras positivas onde a remuneração fosse contingente à produtividade. Para o início da transformação dessas relações é apresentado o conceito de operante livre.

Abernathy apresenta a noção skinneriana de operante livre, e a posição selecionista do behaviorismo radical, fazendo uma aplicação direta para a situação de trabalho. A importância da variação e seleção, conceitos Darwinianos, na compreensão do comportamento dos organismos e na explicação skinneriana, leva o autor ressaltar a importância da variação dos comportamentos dentro de uma organização. Para o autor a posição de Adam Smith a respeito do livre mercado e a seleção de bens e serviços pelos consumidores é também uma descrição selecionista. Uma descrição mais completa dos fenômenos biológicos, comportamentais e culturais implicaria na descrição de muitas cadeias de eventos relacionados funcionalmente, o que leva o autor a fazer relações entre o behaviorismo radical e o zen budismo. Abernathy assim, coloca a seleção do comportamento na raiz das questões fundamentais relativas a performance.

A dicotomia skinneriana entre comportamento governado por regras e comportamento modelado por contingências é apresentada de maneira a evidenciar o caráter aversivo das regras envolvidas no controle do comportamento. Não obstante, essa discussão me levou a refletir sobre o uso de regras e reforçadores arbitrários na manutenção de comportamentos que não foram naturalmente reforçados e modelados por contingências naturais. As regras precisariam ser aversivas ou ditatoriais, como o autor sugere na apresentação do problema? A discussão no texto varia na direção do embate entre consequências arbitrárias, socialmente impostas e aversivas versus consequências naturais e reforçadoras.

Por outro lado as consequências naturais de uma tarefa nem sempre são selecionadoras/reforçadoras e a modelagem pode ser extensa ou custosa, a relação com as consequências sobre a organização como um todo, seguem na mesma direção. O sucesso de um grupo as vezes tem suas consequências selecionadoras muito distantes ou suficientemente intermitentes para a manutenção da prática sem controle de regras e consequências arbitrárias. Dessa maneira, a discussão trazida pelo autor para o contexto empresarial me levou a pensar se consequências arbitrárias e regras seriam também produtos naturais quando analisamos a história das



achievements of the organization. In this way the employee shares risks and gains, which produces employees that are partners, committed to the organization.

Abernathy argues that these changes bring benefits to the performance of employees and the organization, starting with a greater strategic alignment between employee performance and productivity and profit of the company. To the extent that high employee performance would lead to compensation above the market and poor performance would lead to payments below market, this would imply more committed employees.

Another benefit from the suggested changes would be a major adaptability of the organization since the alignment of individual and group consequences would bring a bigger sensibility to market variations. The withdrawing of aversive control of direct supervision would produce teams of employees that are more flexible, responsive to changes, and innovative.

The changes in the management practices lead the author to a discussion of broader scenarios involving behavioral systems. When interlocked systems of behavior and their contingencies have become subjects of analysis and interest of the manager, the market and external environment analysis become important to the design of contingencies in an organization. The relations and the contingencies derived from consumers, suppliers, competitors, and governmental agencies affect the performance system of the company as a whole, having a direct impact on the adaptation and productivity of the company. The conception of a company as a system is fundamental to good performance of the organization. A change in one employee's behavior cannot be accompanied by the broad internal or external system, which leads to the necessity of systemic changes, not only the contingencies that function inside of an organization.

Thereby, the production of self-regulated systems of an organization would be a fundamental step to the organizational change suggested by the author. An automatic adjustment of an organization to the suggested changes would be the ideal for a more competitive and profitable company facing environmental changes. This concept of operation re-imagines a company as an open network system where employees and departments in an organization interact directly, minimizing the hierarchy of traditional systems, where the changes need to go through a command hierarchy for the organizational change to take place. Besides, the organization needs to be seen as an open system responsive to external changes.

The change to a liberated workplace is indeed an application of the Skinnerian principles, as presented in *Walden Two*, to a capitalist system. Abernathy argues that companies with a liberated workplace need to configure themselves as an open system that would be aligned to an economic capitalist system, as opposite to a closed system of utopian communities. A company could not operate in a close system as it would not be sensible to variations in the external environment, thus generating vital economic problems.

The adjustment of the work relationships to positively reinforcing relationships inside a company, where the worker is more connected to the selective consequences of work than

contingências em vigor. Uma análise histórica mais longa do fenômeno evidenciaria as consequências naturais do uso das regras, inclusive as regras com função aversiva? Produzir ambientes de trabalho baseado na concepção de operante livre onde as relações são mais reforçadoras positivas, onde as consequências estejam mais contingentes à performance norteia a argumentação do autor.

Para a transformação do ambiente de trabalho baseado na concepção de operante livre o autor sugere quatro ingredientes chave: (a) consequências pessoais (personal consequences) claramente comunicadas e contingentes à performance de cada empregado, alinhadas aos objetivos da organização como um todo; (b) foco na mensuração do desempenho (focused performance measurement); (c) liderança positiva (positive leadership), mudança nas práticas de supervisão dos gestores substituindo o controle aversivo por reforçamento positivo, através de feedbacks positivos contingentes a melhora na performance; e (d) pagamento às partes interessadas (stakeholder pay), onde os funcionários são pagos contingente tanto ao desempenho pessoal, quanto as realizações de objetivos da organização, dessa forma o empregado compartilha riscos e ganhos, produzindo empregados que sejam parceiros comprometidos com a organização. Abernathy argumenta que essas mudanças trazem benefícios para o desempenho dos empregados e da organização: a começar por um maior alinhamento estratégico entre performance dos funcionários e produtividade/lucro da empresa. Na medida em que alto desempenho dos funcionários levaria a remuneração acima do mercado e performances pobres levaria a pagamentos abaixo do mercado, isso implicaria em funcionários mais comprometidos.

Outro benefício proveniente das mudanças sugeridas seria uma maior adaptabilidade da organização, dado que o alinhamento de consequências individuais e grupais trariam uma maior sensibilidade a variações do mercado, bem como a retirada do controle aversivo da supervisão direta, produziria equipes de trabalhadores mais flexíveis, responsiva a mudanças e com maior capacidade de inovação.

Essas mudanças na prática de gestão, levam o autor a discussão de cenários mais amplos envolvendo sistemas comportamentais. Quando sistemas entrelaçados de comportamentos e suas contingências se tornam objeto de análise e interesse do gestor, as análises do mercado e do ambiente externo da organização são importantes para o planejamento das contingências de uma organização. As relações e as contingências derivadas dos consumidores, fornecedores, concorrentes, agências governamentais muitas vezes afetam o sistema de performance da empresa como um todo, tendo impacto direto na adaptação e produtividade da empresa. A concepção da própria empresa enquanto um sistema é fundamental para um bom desempenho da organização, dado que mudanças no comportamento de um funcionário podem não ser acompanhadas pelo sistema mais amplo interno ou externo, o que leva a necessidade de mudanças sistêmicas e não apenas nas contingências de um cargo ou função dentro de uma organização.

Assim, a produção de sistemas auto regulados em uma organização seria uma etapa fundamental para a mudança organizacional sugerida pelo autor. Um ajustamento

the rules imposed by their supervisors, guides the author's argumentation. The managers in a company would have similar functions to the planners in Skinner's novel. They would not have a role of supervisors, rather, they would plan the contingency relations between performance and remuneration.

Abernathy maintains that the socialists' utopias would be in opposition to a liberated workplace since the profits would be equally divided and not contingent to different performances inside the group. Moreover, he surmises that many companies that maintain programs of profit division with the employees, where part of the profits are equally shared with the employees, independent of performance, would result in the problems already presented.

The author describes a detailed guide to organizational transformation in a liberated workplace. Pragmatic steps are designed to produce a self-regulated system and of payment by results, where the performance and the profit are contingent.

Abernathy describes four transition levels that would be gradually implemented in the company. In level one, precise measurement and the alignment of behavior and involved results in organization would be produced. This step involves an important discussion of the functioning of the system as a whole: How much does each employee work? The alignment of the values of each worker's work in to the function of organization productivity is crucial. Level two is the implementation of payment for individual performance or of small groups. The author argues that the larger the group, the more diffuse are the effects of the consequences. In this step, the manager shares risks and profits with the employees.

In level three, job enrichment, the commitment of the employees to the organization would be raised; the employees would be more active in the decision-making process and would be stimulated to work in different functions in the organization. Also, there would be implementation of more flexible time schedules of work adapted to service flows that vary with market. The final step (level four) to the transition to a liberated workplace would be the formation of self-managed teams, where hierarchy would be diminished to a minimum as well as the number of managers.

Abernathy describes a hypothetical case of an organization moving forward with these changes. The description in the literary molds of *Walden Two*, written by B. F. Skinner, and *Walden Three*, written by Rubén Ardila, directs the readers to comparisons between the books and the different realities pictured; be it in a small community as in Skinner's novel, in a company as in Abernathy's presentation, or in whole country as in Ardila's text.

The utopic character of Skinner and Ardila's books is, in a certain way, camouflaged in the operational description of Abernathy's book. The fact that Abernathy describes the necessary steps for the proposed change, as well as the contextualization and planning for the establishment of a liberated workplace in a capitalist environment, gives a much more practical character for the author's description. A direct comparison between the proposals certainly would

automático da organização à mudanças, seria o ideal para uma empresa mais competitiva e lucrativa frente as mudanças ambientais. Essa concepção de funcionamento, leva a necessidade de pensar a empresa como um sistema de rede aberto (open-network system) onde os trabalhadores e departamentos de uma organização interagem de forma direta, minimizando a hierarquia dos sistemas tradicionais, onde as mudanças precisam passar por uma hierarquia de comando para que a mudança organizacional ocorra. Além disso, a organização precisa ser encarada como um sistema aberto (open system) sensível às mudanças externas.

A mudança para um ambiente de trabalho liberado (liberated workplace) é de fato uma aplicação dos princípios skinnerianos, como apresentados em *Walden II*, a um sistema capitalista. Abernathy argumenta que, diferente das comunidades utópicas, empresas com ambiente de trabalho liberado precisam se configurar como um sistema aberto, que estaria alinhado a um sistema econômico capitalista, diferentemente de outras tentativas de comunidades utópicas que consistiram em sistemas fechados, não sensíveis a variações no ambiente externo, gerando problemas econômicos vitais.

O ajuste dentro de uma empresa das relações de trabalho para relações reforçadoras positivas, onde o trabalhador esteja mais ligado às consequências selecionadoras do trabalho, do que a regras impostas por seus supervisores, norteia toda a argumentação do autor. Os gestores em uma empresa teriam funções similares às funções dos planejadores na novela skinneriana, não teriam o papel de supervisores mas planejariam as relações de contingências entre performance e remuneração.

Abernathy sustenta que as utopias socialistas estariam em oposição a um ambiente de trabalho liberado, dado que os lucros seriam divididos igualmente e não contingentes a performances diferentes dentro do grupo. Ademais, faz a analogia com práticas de muitas empresas que mantem programas de divisão de lucro com os funcionários, nos quais parte do lucro são partilhados igualmente com os funcionários, independente da performance, o que implicaria nos problemas já apresentados.

Com essa argumentação o autor descreve um guia detalhado para a transformação organizacional em um espaço de trabalho liberado. Passos bem pragmáticos são desenhados para produzir um sistema auto regulado e de pagamento por resultados, onde a performance e o lucro sejam contingentes. Abernathy descreve quatro níveis de transição que seriam implementados gradualmente na empresa. No nível um, seriam produzidos a mensuração precisa e o alinhamento de comportamentos e resultados envolvidos na organização, sejam individuais ou grupais. essa etapa envolve uma discussão importante para o funcionamento do sistema como um todo: quanto vale cada trabalho realizado? Alinhar os valores de cada trabalho em função da produtividade da organização são cruciais nessa etapa. No nível dois, a implantação do pagamento por performance individual ou de pequenos grupos, o autor argumenta que quanto maior o grupo mais difuso os efeitos das contingências. Nessa etapa, o gestor compartilha riscos e lucros com os empregados.

Na etapa três, chamada de enriquecimento do trabalho (job enrichment), seria ampliado o comprometimento

raise questions about the scale of change required, the planning of a whole culture versus the planning of relations of a unique organization, the profit as a natural reinforcer and the impacts that it can produce in behavior, the competition situations produced by not equitable reinforcement in a group, and so on. Indeed, in the three books, questions emerge about cultural changes that affect a whole behavioral system. Cultural changes in great scales certainly involve many risks, whether in a small community, a company, or a whole country. Despite the pragmatic character that Abernathy brings to the cultural changes in organizations, it still seems very risky to the entrepreneur. Such extensive change leads us to question if the implementation of a liberated workplace in all kinds of organizations would be possible. Organizations working with natural contingencies that select the necessary behaviors or involve chains of extensive relations until the production of final profit can seem very risky. In these conditions, behaviors governed by rules are almost inevitable and bring the planners a great challenge.

Another important discussion in the cultural changes is the planning of consequences that affect the group as a whole. Even in small work teams, when a quantity of remuneration is placed contingent on the group performance, the occurrence of rules with motivating functions between the team members may frequently and unintentionally configure aversive contingencies. However, at least in thesis, the payment for performance and the alignment with the objectives of the organization are strategies that tend to produce positive reinforcing relations in the system as a whole.

It is difficult to predict the changes in the system that will occur while implementing the changes that Abernathy describes. In spite of a long experimental tradition derived of the free operant conception, this tradition in great part produces its researches through data of an organism as a whole, and its relevance and applicability have already been well demonstrated and evaluated. The explanation, prediction and control of human behavior, in my point of view, are much more efficient now than before radical behaviorism and behavior analysis.

Furthermore, experimental research that investigates functional relations between whole behavioral systems and their functional environments can engender experimental programs that use group measurements as a whole without excluding the traditional experimental researches that use single-subject design, working with measures of the organism as a whole. In 1986, Glenn discussed the conceptual and experimental works derived from the concept of metacontingencies. I follow this direction. The steps to a liberated workplace applied in different types of organizations, and in different orders of implementation can be the base to a program of experimental research about cultural changes. The experimental investigation of broader relations involving entire systems today with the virtual environments for example are much more viable, and a experimental program can be developed from descriptions such as Abernathy's, utopian or not. ●

dos empregados com a organização, os empregados participariam de mais decisões, seriam estimulados a trabalharem em diferentes funções na organização. Também haveria implementação de esquemas de tempo de trabalho mais flexíveis adaptados aos fluxos de serviço que variam com o mercado. O passo final (nível 4) para a transição para um espaço de trabalho liberado seria a formação de equipes auto geridas, onde a hierarquia seria diminuída ao mínimo, bem como o número de gestores.

Além da descrição dos passos necessários para essa mudanças Abernathy descreve um caso hipotético de um organização realizando essas mudanças. A descrição nos moldes literários do walden two de B. F. Skinner e do walden three de Rubén Ardila, remete o leitor as comparações entre os livros e as diferentes realidades retratadas, seja em uma pequena comunidade como na novela do Skinner, seja em uma empresa na apresentação do Abernathy ou em um país inteiro como no texto do Ardila.

O caráter utópico dos livros de Skinner e Ardila, é de certa forma, camuflado na descrição operacional de Abernathy. O fato de Abernathy descrever passos necessários para a mudança proposta, bem como a contextualização e planejamento para o estabelecimento do "liberated workplace" em um ambiente capitalista, dá um caráter muito mais exequível para a descrição do autor.

Uma comparação direta entre as propostas certamente levantariam questões sobre a escala da mudança exigida, o planejamento de toda uma cultura versus o planejamento das relações de uma única organização, o lucro colocado como reforçadores naturais e os impactos que isso pode produzir no comportamento, as situações de competição produzidas por reforçamento não equitativo em um grupo etc. De fato, em todos os três livros são levantadas perguntas sobre mudanças culturais que afetam todo um sistema comportamental.

Mudanças culturais em grande escalas certamente envolvem muitos riscos, seja em uma pequena comunidade, uma empresa ou um país inteiro. Apesar do caráter pragmático que Abernathy traz para a mudança cultural em organizações, ainda parece muito arriscado para o empreendedor uma mudança tão extensa e nos leva a pensar se seria de possível a implementação de um espaço de trabalho liberado em todos os tipos de organização. Muitas organizações envolvem trabalhos cujas contingências naturais que selecionam comportamentos necessários para sua realização são muito arriscadas, ou envolvem cadeias de relações muito extensas até a produção do lucro final. Nessas condições, comportamentos governados por regras são quase inevitáveis e traz aos planejadores um desafio e tanto.

Outra discussão importante nas mudanças culturais é o planejamento das consequências que afetam o grupo como um todo. Mesmo em pequenas equipes de trabalho, quando uma quantidade de remuneração é colocada contingente ao desempenho do grupo é muito comum a ocorrência de regras com funções motivadoras entre os membros da equipe, o que frequentemente se configuram contingências aversivas. Não obstante, ao menos em tese, o pagamento por performance e o alinhamento com os objetivos da organização, são estratégias que tendem a produzir relações reforçadoras positivas no sistema como um todo.

A difícil previsão das mudanças no sistema podem ser supridas com a experimentação de mudanças do tipo que Abernathy descreve. Apesar de uma longa tradição experimental derivada da concepção de operante livre, essa tradição em grande parte produz suas pesquisas através de dados do organismo como um todo, e sua relevância e aplicabilidade já foram muito bem demonstradas e avaliadas. A explicação, previsão e controle do comportamento humano hoje são, a meu ver, muito mais eficientes agora do que antes do behaviorismo radical e a análise do comportamento.

Por outro lado, pesquisas experimentais onde sejam investigadas as relações funcionais entre sistemas comportamentais inteiros e seus ambientes funcionais podem engendrar programas experimentais que utilizem de medidas do grupo como um todo, sem excluírem as pesquisas experimentais tradicionais com o modelo de sujeito único utilizando medidas do organismo como um todo. Os trabalhos conceituais e experimentais derivados do conceito de metacontingência (Glenn, 1986), ao meu ver vão nessa direção. Os passos para um espaço de trabalho liberado aplicados em diferentes tipos de organização, em diferentes ordens de implementação já podem ser a base para um programa de pesquisa experimental sobre mudanças culturais. A investigação experimental de relações mais amplas envolvendo sistemas inteiros hoje, com os ambientes virtuais por exemplo, são muito mais viáveis e todo um programa experimental pode ser desenvolvido a partir de descrições como a de Abernathy sejam elas utópicas ou não. ●

Reflections on Bill Abernathy Reflexiones sobre Bill Abernathy

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profile

I was a graduate student in the behavior analysis program at West Virginia University when I first heard of Bill. Those of us interested in Organizational Behavioral Management (OBM) avidly read his article with Elaine Duffy and Rich O'Brien about performance-pay systems in banking in the 1982 edited book *Industrial Behavior Modification*. I was excited at the prospect of performance pay and bided my time for an opportunity to apply it. I later read his little book *The Sin of Wages* and had my grad students read it when I became a faculty member at the University of North Texas beginning around 1990. By then, I had seen Bill give talks on his scorecard-based performance-pay system at ABA conventions and chatted with him at OBM conferences in Florida. He always gave interesting talks, punctuated by his dry sense of humor. Eventually, we got him to visit my OBM group at UNT and lead us through heavy discussions of performance pay. By then, I had met my future wife actually designing a performance-pay system for her accounting firm in Dallas, so you could say that Bill brought us together!

Early on, I thought Bill's genius was in the mechanics of his performance-pay systems: collections of metrics, counterbalanced carefully so that quantity wouldn't trump quality, all indexed to a solid indicator of profitability so that the performers would be motivated equally by their own metrics

Yo era un estudiante graduado del programa de Análisis de la Conducta de la West Virginia University cuando por primera vez escuché hablar de Bill. Aquellos de nosotros interesados en OBM (*Organizational Behavior Management*) ávidamente leímos su artículo con Elaine Duffy y Rich O'Brien sobre los sistemas de pagos por rendimiento en los bancos en el libro editado de 1982 *Industrial Behavior Modification*. Yo estaba emocionado ante la perspectiva del pago por rendimiento y esperé el momento de tener una oportunidad para aplicarlo. Después leí su corto libro *The Sin of Wages* (El pecado de los salarios), y mis estudiantes lo leyeron cuando llegue a ser un miembro de la facultad en la University of North Texas a inicios de 1990. Para entonces había visto a Bill dar charlas en las convenciones de ABA sobre su sistema de pago por rendimiento basado en tarjetas de puntuación, y conversé con él en las conferencias de OBM en la Florida. Él siempre ofreció discursos muy interesantes, marcados por su sentido del humor. Al final, logramos visitarlo con mi grupo OBM en la UNT y nos llevó a través de discusiones muy pesadas sobre pago por rendimiento. Para entonces yo había conocido a mi futura esposa diseñando un sistema de pago por rendimiento para su firma de contadores en Dallas, por lo que se podría decir que Bill nos unió.

Al principio pensé que el genio de Bill estaba en el mecanismo de su sistema de remuneración por rendimiento: colecciones de métricas, contrabalanceadas cuidadosamente para que la cantidad no venciera a la calidad, todo indexado a un indicador sólido de la rentabilidad de manera que el trabajador estaría igualmente motivado por sus propias métricas así como también por el éxito total de la organización. Era lo



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as well as the overall success of the organization. It was the height of contingency design in complex systems. Later on, it was clearer to me that Bill was a kind of utopian thinker and even a revolutionary. He was convinced that if we could design compensation contingencies just right, the conventional role of supervisors and managers as overseers would vanish, replaced by a “free operant” kind of work atmosphere in which performers sought out assistance as needed to help them achieve goals for which they would earn large chunks of money. It would turn the whole idea of management upside down. Base wages and salaries would be only a floor and a passing phase on to a completely variable compensation system — the same system an entrepreneur works under.

Bill wanted to bring the owner and the employee closer together in how they cared for and influenced the company. My wife’s experience at the accounting firm with the Abernathyesque pay system she designed showed signs of this: accountants asked questions they never had asked before that system was rolled out. They asked about metrics they had long been responsible for in order to really understand what influenced those metrics. And they questioned unprofitable work and unprofitable clients—exactly what an owner should do.

In spending time talking with him, it was also clear that Bill knew more about business results metrics and how they related to human performance than anybody I had met in the field of OBM. I told him as much once, and he paused, drew back, and said as if surprised, “I guess I am kind of a measurement savant!” I also told him that I’d like to do some work with him someday soon because he was the only one who knew all of this information and I’d like to learn some of his insights.

That day came in an ADI engagement over the summer of 2007 when he and I did some consulting to a food manufacturer in the Midwest. We had grueling meetings with all levels in this company, discussing what set of measures best reflected performance at their level to use in a comprehensive scorecard system cutting across production, sales, supply chain, etc. The client would suggest a metric, and Bill could instantly decide what the strengths and weaknesses of the metric were and how to counterbalance it to prevent systemic problems. It was brain-draining work. I was awed with his “measurement savant” abilities. At the end of long days we would discuss everything over a drink or two. This is where he would unwind and work in some of his stories.

Bill was a great storyteller—mainly stories about how his own behavior occasionally got him in some kind of hilarious trouble. Like the time he bought a cabin cruiser and decided to sail it without much seagoing knowledge or experience. Part of that trip ended up with him entering a naval bombing practice zone in the Chesapeake and having some military aircraft make runs at his boat. So that’s what that symbol on the navigation chart meant, he said! Bill’s stories would make you laugh till your face hurt. I wish I had recorded him somehow just telling stories. Bill could also deliver a very dry one-liner as well as the best of them. When he visited UNT, my wife drove him from

máximo en el diseño de contingencias para sistemas complejos. Después, fue claro para mí que Bill era un tipo de pensador utópico y aún un revolucionario. Él estaba convencido de que si podíamos diseñar contingencias de compensación tan correctas que se desvanecería el papel convencional de los supervisores y gerentes como controladores, siendo reemplazados por una atmósfera de trabajo tipo operante libre en la cual los trabajadores buscaran la asistencia necesaria para ayudarles a alcanzar las metas por las cuales ellos ganarían grandes cantidades de dinero. Toda la idea de la gestión sería puesta de cabeza. Los sueldos y salarios no serían más que un piso o una fase pasajera a un sistema de compensación completamente variable el mismo sistema bajo el que trabajan los empresarios.

Bill quería acercar más a los propietarios y empleados en cómo ellos debían cuidar e influenciar a la compañía. La experiencia de mi esposa en la firma de contadores con sistema de pago Abernathy que ella diseñó mostró signos de esto: los contadores preguntaban cosas que nunca habían preguntado antes de que el sistema se pusiera en marcha. Ellos preguntaban acerca de las métricas de las que habían sido responsables para entender realmente qué influenciaba tales métricas. Y ellos cuestionaban el trabajo sin provecho y con clientes no rentables, exactamente como lo haría un propietario.

Pasando el tiempo con él me fue claro que Bill sabía más que nadie que había conocido en el campo del OBM acerca de las métricas de resultados de negocios y cómo se relacionaban con el rendimiento humano. Yo se lo dije como mucho una vez y él se detuvo, retrocedió y dijo como si estuviera sorprendido, Supongo que son un tipo de genio de la medición! Yo también le dije que me gustaría trabajar con él pronto porque él era la única persona que conocía toda esta información y me gustaría aprender de sus dilucidaciones.

Ese día llegó en una reunión de ADI hacia el verano de 2007, cuando él y yo hicimos algunas consultorías para un fabricante de alimentos del Oeste Medio. Tuvimos reuniones agotadoras con todos los niveles de esa empresa, discutiendo qué conjuntos de medidas reflejaban mejor el rendimiento en su nivel para usarlo en un sistema comprensivo de tanteo evaluando la producción, las ventas, la cadena de suministros, etc. El cliente sugería una métrica y Bill instantáneamente podía decidir cuáles eran las fortalezas y debilidades de la métrica y cómo contrabalancearla para evitar problemas sistemáticos. Este fue un trabajo de drenaje cerebral. Yo estaba impresionado con sus habilidades de genio de la medición. Al final de largos días discutiríamos todo con una o dos bebidas. Aquí es donde iba a descansar y trabajar en alguna de sus historias.

Bill era un gran contador de historias sobretodo historias acerca de cómo su propia conducta en ocasiones lo metía en algún tipo de problema divertido. Como la vez que él se compró un yate y decidió navegar sin mucho conocimiento o experiencia de navegación marítima. Parte de ese viaje terminó con él entrando en una zona de prácticas de bombardeo naval en la bahía de Chesapeake y con un grupo de aviones militares haciendo carreras en su bote. Así que eso es lo que quería decir ese símbolo en la carta de navegación, dijo! Las historias de Bill te harán reír hasta que te duela el rostro. Me gustaría haberlo grabado en el momento en que contaba historias. Bill también podría dar comentarios ingeniosos muy sarcásticos tan buenos como el mejor de ellos. Cuando él visitó la UNT, mi esposa lo condujo de

one hotel to a second after some kind of problem where we had booked his room. Bill was a chain smoker, and he was actually changing from a non-smoking hotel to one that permitted smoking. But, not knowing this, when my wife asked him why he was changing hotels, he quipped, "I did not approve of their animal rights policy." That's something you might have heard W.C. Fields say! Spending time with Bill was intellectually stimulating and hilarious; you don't find that combination too often. In fact, I don't know anyone else in all of behavior analysis that had the particular combination of his measurement-centric business knowledge, new ways to pay employees to free them from unnecessary supervision and improve performance, and his sense of humor to boot. I will miss him, and the field of OBM has lost an important visionary. ●

un hotel a otro después de algún problema donde había reservado su habitación. Bill era un fumador empedernido y en realidad estaba cambiando de un hotel para no-fumadores a uno que le permitiera fumar. Pero, sin saber esto, mi esposa le preguntó que por qué se cambiaba de hotel, él bromeó: Yo no apruebo su política de derecho de los animales. Esto es algo que podrías haber escuchado decir a W.C. Fields. Pasar tiempo con Bill era intelectualmente estimulante y divertido; no encuentras esta combinación tan frecuentemente. De hecho, no conozco a nadie más en todo el análisis de la conducta que tenga la combinación particular de su conocimiento de negocios centrados en la medición, nuevas formas de pagar a los empleados y liberarlos de supervisión innecesaria y mejorar sus resultados, y su sentido del humor para iniciar. Lo voy a extrañar, y el campo de la OBM ha perdido a un visionario importante. ●

Translation by Elberto Plaza

Living in a Walden Two (continued from p. 46)

reflections

me that human behavior is part of the physical universe and also governed by the laws of nature, not the product of a free will ordained by a supernatural force. If this scientific conception were true, we could build behavior just as we can build a bridge.

The idea of a planned world that produces behavior by design shook me but was logical. I eagerly read each new chapter of *Walden Two* and a purpose in my life evolved—make a better world and live in it—piecemeal if necessary. I began to wonder why we should continue to build a world that cannot possibly be sustained with Earth's resources.

Before I move on to other issues, let me tell you about Frazier. T. E. Frazier was the man who started Walden Two. He was, indeed, an activist and a visionary. Frazier was around 31 years old when he began forming the community. (Burrhus asked Frazier to recount exactly how the community got started, but Frazier's notes were somehow lost.) Burrhus and Frazier enjoyed long and productive lives, refining the details of a science of behavior and promoting behavior patterns typical of the original Walden Two. Sadly, they both died in 1990. Their roles in the community of Walden Two remained significant until their deaths, but both had refused to play any administrative roles because they did not want the community to depend upon their leadership. They remained relatively quiet, largely out of view, yet attended occasional professional conferences and speaking engagements. When you listened to them speak, I am told they were much like Benjamin Franklin has been described—good listeners who spoke briefly and directly. I first met both Frazier and Burrhus at a Division 25 Hospitality Suite at the American Psychological Association Convention in 1967. Unfortunately, I could not spend significant time with either of them. I had to depend upon their writing, which I, of course, studied diligently. Eventually, I did visit with them more extensively.

During the latter part of their lives, Frazier and Bur-

rhus became firmly convinced that burgeoning world population, excessive consumption of natural resources, pollution of the environment, and wars based upon contests for the remaining resources increasingly threatened the survival of many species, including humans. We now consume energy and natural resources at a prodigious level. We have acquired pleasures and creature comforts that consume our time and money at such a rate that we work long hours only to have brief periods in which to enjoy them. We cannot imagine a world without smartphones, motor vehicles, large living spaces, and a vast media system. But in all of this, humans have lost basic self-supportive skills. Few people grow what they eat, know how to prepare basic foods, and have no inclination to do either one. Few people can play musical instruments, do craftwork, or compose literature that they and others find interesting to hear, see, or read.

Now, let me tell you a little about how I have developed my Walden Two. The process has happened in slow stages. We all begin any enterprise as prisoners of our circumstances and genetic endowments of course. At the time I read *Walden Two*, I was preparing to possibly work in a private school that accelerated learning with the application of behavioral principles, and I had adopted Frazier's world vision. But a university teaching position came to my attention when I was finishing my dissertation, and I applied for it. This offered the security of working in an established educational system with its health and retirement benefits, and I postponed attempting to visit what I thought might be the original Walden Two community. Instead, I began to prepare to eventually live in my own Walden Two by adopting behavioral practices very much like those described by Professor Burrhus in the novel.

In my Walden Two, members live by a code and each member reviews parts of the code in some way at least weekly to keep on track in a manner similar to that described in

Walden Two. This code is occasionally revised based upon intermittent discussions about problems and trends in the behavior of members. Originally, the community wanted to reproduce itself physically by rapidly acquiring and reproducing members. But world population has burgeoned and population *control*, not expansion, has taken over as a community objective.

We here at my Walden Two have taken personal action to reinvent life. We are moving to a less consuming lifestyle. Like Frazier's Walden Two, each adult member has his or her personal room for sleeping and privacy. We spend a good deal of time in our personal rooms because they offer a retreat from community life and provide the solitude that brings renewal. Here, personal security does not depend upon social or legal commitments. All members maintain strong caring for each other. Members apply for personal rooms when they reach the age of 18. The community is small and arranged in a network of garden apartment/personal rooms accessible from central halls and outside patio entrances. A central kitchen with a buffet and a variety of eating areas allows for the semblance of private dining, and members often take their meals to their personal rooms. We maintain an extensive store of food, and our gardens and greenhouses supply year around fresh food. There is no fear of manual labor. Good exercise happens as a natural course of things. Every effort is made to reduce petroleum-consuming vehicle use to the minimum necessary.

Our members tend to have good health. The code insists that all members hold their personal weight to ideal recommendations. No members smoke. Recreational drugs are rarely used by anyone because all members engage in artistic pursuits, play some form of instrument, sing, and practice a variety of crafts. The natural emotional byproducts of successfully doing productive things render recreational drugs unappealing. Members select their own physicians and dentists outside the community because it is not large enough to support those professional practices.

Our Walden Code requires an enlightened view of the last years and days of one's life. Each individual signs an agreement that the community is not responsible for health care. However, the network of personal living spaces provides an automatic social support network. Individuals are in close proximity to each other without "living in each other's pockets." When anyone needs special help, members are

glad to supply it. Electronic monitoring equipment allows members to live in their personal rooms as long as possible. Our shops are able to create all sorts of prosthetic devices not available in the culture at large. And for the final days, all members have clearly outlined advance-care directives, refusing heroic methods to keep them alive when death is eminent. Members are given end-of-life choices.

New members find moving to Walden Two to be a significant adjustment from living in the world at large. Living harmoniously requires rigorous self-management. Unfortunately, the world at large establishes and maintains behavior that is often self-defeating. The struggle for dominance in social relationships is not nurtured and enhanced in our Walden Two culture. Competition is not honored nor are awards given to those who "win." Instead, cooperation is encouraged. Thus, moving into our community requires a turnaround from the world at large, and prospective members have a long probationary period for adjustment.

I have much more to tell about living in my Walden Two, but I have been asked for a brief introduction. Stated in the vernacular, Walden Two is a state of mind, which can be defined as the strengthening effects of operant behavior when it is reinforced. *It is a way of living and the feelings that arise with it, not necessarily a place.* It is a life with the purpose of making one's world a better place—one in which humans can live sustainably. Anyone can live in a Walden Two because it is the *behavior* one engages in. But the place—the social and

physical environment—is important because it sustains the behavior of Walden Two. To produce and maintain "Walden Two" behavior, that environment must be designed and redesigned through time as a more sustainable and happier life evolves. Fortunately, one's Walden Two can begin where one finds oneself—immediately and in a piecemeal fashion. It can begin with one person just like Thoreau, and then two, and then three . . .

In summary, your environment controls you, and if you are to **direct** its control, you must in turn control it. That is how to maintain a designed life—a happier one. And by the way, here is a tutorial from the public relations area of my Walden Two about how to design a happier life: www.scienceofbehavior.com/enjoylife.php. ●

The Wright Stuff? Architectural Influences in *Walden Two*

history

Joseph Breshears and David Devonis

Possibly because not much is expected of the architecture of intentional communities beyond minimal utility, the purely architectural aspects of B. F. Skinner's *Walden Two* have received scant attention. Yet, *Walden Two's* laconic descriptions of place and physical structure reveal, in a more than merely atmospheric manner, a number of specific references to aspects of architectural design. At the beginning, we are introduced to the physical setting of Walden Two, "about thirty miles from the largest city in the state," reached by traveling a highway that "followed a river which has cut deeply into its northern bank," on a road that "wound precariously between a steep bluff on the left and the river on the right, sharing a narrow embankment with a railroad." After discovering Frazier lounging nearby and transferring to his station wagon with its "rather stiff seats," a vista of the buildings of Walden Two gradually unfolds:

"We then slowly climbed the east bank and emerged in the midst of some prosperous farm land, which could not have been seen from the river level. There were a few farmhouses and barns dotted about, and ahead and far up the sloping field to the right, a series of buildings of another sort. They were earth-colored and seemed to be built of stone or concrete, in a simple functional design. There were several wings and extensions which gave the impression of not having been built at the same time or according to a single plan. They were arranged in several levels or tiers, following the rise of the land."

These buildings, we soon learn, are constructed from the most easily available material there, the earth. Frazier, noting that there are earlier outbuildings still in use, describes the construction of living quarters:

"The main buildings, of course, we put up ourselves. The material, Burris, is rammed earth, although a few walls are made of stone from that old quarry you see above the buildings on Stone Hill. The cost was fantastically low when you consider either the cubic footage, as our architects do, or what seems to me to be more important, the amount of living that goes on inside. Our community now has nearly a thousand members. If we were not living in the buildings you see before you, we should be occupying some two hundred and fifty dwelling houses and working in a hundred offices, shops, and warehouses. It's an enormous simplification and a great saving of time and money."

Burris and Castle move into Walden Two for their first night's stay. The descriptions of the interiors are no less detailed than those of the landscape:

"We carried our bags into a hallway and Frazier showed us to our rooms. They were all alike—rather small, but with large windows looking out over the very pleasant countryside across which we had just driven... Castle and I inspected our room. There was a double-decker bunk built into the left wall. Half of the right wall was recessed for shelves and cupboards which served as a book case and dresser. A hinged table could be dropped from the remaining wall space. A small closet was fitted into the corner at the foot of the bunk. There were



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Joseph Breshears's (right) interest in Walden Two started when he read it for a project in his undergraduate work at Graceland University. With 22 years of experience as a communitarian in The Brotherhood of Christ Community, his interests in that area run deep. He and Michael Wilson presented "The Evolution of Building Practices at the Brotherhood of Christ Community" at the 2015 Communal Studies Association National Conference at Shaker Village of Pleasant Hill, Kentucky. He is currently a graduate student in the Master's in Mental Health Counseling Program at Drake University, Des Moines, IA

two comfortable chairs made of heavy plywood, which appeared to be a local product. The total effect was pleasant. The beds were covered with printed spreads, which were quite handsome against the natural finish of the woodwork and the earth-colored walls."

The next day, Burris and Castle navigate the passageways that connect the buildings of Walden Two, and encounter its public spaces:

"From the bottom of the passageway called the Ladder, a solid bank of flowers seem to stretch above us until a slight turn in the passageway cut off the view. Actually, the flowers filled large boxes which separated the stages and could be seen just one above the other from where we stood. Short flights of stairs ran along the windowless north wall, which was covered with paintings."

"Our guest quarters were at the end of the main building farthest from the Ladder and on the lowest level... We filed up a narrow staircase and found ourselves at one end of a broad corridor called the "Walk". This ran the full length of the building, curving slightly as the building followed the contour of the hill... The Walk was dotted with strollers, who seemed to be there for the sake of greeting others like themselves or for settling in for dinner...as we joined in the procession Frazier called our attention to various common rooms, arranged on either side of the corridor. On our right were reading rooms, libraries, and small lounges with chairs and tables grouped for conversation or games. These room looked out upon the Walden Two landscape."

"The Dining rooms proved to be even smaller than Frazier's remarks had suggested. Each contained perhaps half a dozen tables of different sizes. The rooms were decorated in various styles. It was possible to dine briskly in a white-walled room bustling with speed and efficiency, or at leisure in a pine-paneled Early American dining room in beeswax candlelight, or in an English inn whose walls carried racing pictures, or in a colorful Swedish room. Two carefully designed modern rooms, one with booths along one wall came off well by comparison."

As these extended excerpts

show, description of the environment in Walden Two encapsulates and tabulates the relations of individuals to objects in the environment as well as to the space available for social interaction. The amount and quality of environmental description suggests that Skinner may have been expressly referencing particular architectural experiences or forms.

One of the immediately available sources for architectural models for a community planner and social utopian in the U.S. Midwest in the 1930s was Frank Lloyd Wright (1869-1959). By

scape features long, expansive views in a rural setting; the external architecture features multiple levels, curving covered walkways and much glass to take advantage of views, and low-pitched roofs with substantial eaves. The interiors are characterized by ingenious built-in cabinetry, individual smallish rooms often decorated in distinct styles, and provision for communal gatherings small and large.

Castle and Burris's first view of the landscape of Walden Two evokes comparison with a first encounter



An ink rendering of Taliesin, Spring Green, Wis. circa 1933 which was part of a brochure sent to prospective Fellowship applicants

the middle 1930s, Wright was well into his third major reinvention at nearly 70 years of age, well known both for his architecture and even more for the scandals that had regularly accompanied him. Earlier in that decade, Wright hit on a plan to keep active and prosperous during the Great Depression by opening Taliesin, his ancestral estate in the rolling farmland west of Madison, Wisconsin, where he had designed and built buildings for over 30 years. Apprentices would pay substantial fees to live and study with him there while living communally. Taliesin, rebuilt each time after two disastrous fires in 1914 and 1925, contained a mix of low buildings reflecting Wright's stylistic evolution, all of which were harmonized by a system of walks and terraces to appear emergent from the gently rolling terrain. The land-

with Taliesin. In her meticulous diary, published for the first time in 2012 as *Taliesin Diary: A Year With Frank Lloyd Wright*, Priscilla Henken, the wife of one of Wright's apprentices, wrote of her first day there, October 1, 1942: "Our first view of Taliesin in daylight after a 6:50 rising. Beautiful view of sloping hills from our guest room. A carved wooden figure in the attitude of prayer outside our bathroom window. Fluffy white feathers on the stairs as we went up to breakfast...feathers are peacocks'--white, gray, iridescent."

Like Burris and Castle at Walden Two, apprentices at Taliesin were assigned their own rooms in the rambling buildings. Henken's entry continues and succinctly sketches the combination of environment and culture at Taliesin:

"Visited Hillside (one of the

earlier-constructed buildings in the Taliesin complex) after tea to see the drafting and weaving rooms and the Theatre—just like the pictures with the reflex seating, big stone fireplaces, with Welsh motto, one with quotation from Gray's Elegy, two giant Shivas, two grand pianos, a Scott radio, a Capehart phonograph. Unpacking after dinner difficult til we get our own room. There are T'ang dynasty statues, Ming vases, carved teakwood, lacquered screens, Buddhas, and Shivas---just like it says!"

The public spaces of Taliesin, like those of Walden Two, were intended as settings for regular cultural exchanges of all sorts. In them, Wright and his apprentices listened to radio broadcasts and recordings and watched domestic and imported feature films. In a spirit of agricultural as well as cultural self-sufficiency, apprentices grew and canned their own produce, sheared and wove their own wool, and in the evenings and on holidays and other special occasions, planned and gave theatrical and musical performances.

Alongside developing Taliesin and designing the iconic Kaufman House, "Fallingwater", in Pennsylvania in 1935 and the office and laboratory buildings of the S. C. Johnson Company in Racine, Wisconsin in 1939, Wright drafted projects for planned communities of affordable simple housing as well as a utopian "city of the future," Broadacre City.

In Broadacre City, each member would be deeded, as the name indicates, an acre of ground, interconnected by a grid of roads linking small farms, light industry, and other community amenities in a widely distributed network. While this project resulted in a large model that Wright displayed publicly for several years, it had few realizations in reality (although some have said that it was the blueprint for suburban

sprawl.) One actual instance of physical realization of the Broadacre concept was Wright's design and construction of an agriculturally-based community, Cooperative Homesteads, in Michigan in 1941 to 1942. Approached by a group of teachers, autoworkers, and others desirous of living in a planned community, Wright designed a series of interconnected rammed earth buildings that would form the core of an interactive small community. On November

weekly meetings they gathered \$12,000 for 120 acres. A Ph.D. in the group asked Wright to be the architect, to which he replied with the story of the Chinese Ambassador in Washington, an eligible bachelor much sought after by the dowagers. Whenever one of them seemed imminently successful, he'd ward her off by 3 questions: How old are you? How much money do you have? How did you get it? The coop representative answered '3 years' to the first question, & "no money" to the second. Nevertheless for a nominal fee, Wright took on the job--and the plans for the houses are fascinating. The earth is rammed in wood blocks which are then removed, & the finished wall has the appearance of concrete."

Wright was also a proselytizer for his own brand of American individualism. At Taliesin, he and his apprentices published occasional "Square Papers", so called because of their shape. They contained Wright's pronouncements not only on architecture, but also on the politics and social mores of the time. Some of the sentiments he expressed in a talk at Princeton in 1947, later reprinted in a Square Paper, captured the same postwar uncertainty about the purposes of living that challenged Burris and Castle to explore Walden Two. Wrote Wright:

"And what are our buildings? Education and two wars have all but killed the germ of creative thinking. And so, creative work for us—especially in building—is all but destroyed. This amazing avalanche of material, which we call

Production, seems to have shut its eyes to all but destruction. The standardizations it wants to practice are the death of the soul, just as habituation kills imaginative spirit. So within this welter of misapplied wealth and technical knowledge with so little humane realization—wherein consideration and kindness are so rare—why not develop a little integral know-how? Only Spirit affords that.

Now come our G. I.'s devastated by war



The only really visible part of the Willey house designed by Wright, viewed from Bedford Ave SE. Thick vegetation plus a security warning sign preclude any good photos of the rest of the structure--lots has grown up around it in 80 years.

6, 1942, Priscilla Henken described the project, which, partially built, was being abandoned to the elements due to its potential residents being called into military service:

"Connected with the Homestead rammed earth houses, interesting to note how FLW came to design them. The Central State Cooperatives owned the Circle Pines Camp, & then wanted to build homes. By scraping pockets at

to be further devastated by four more years of this futile training in the name of education. Why, by way of government-money they themselves must repay (or their children will repay) send G. I.'s to school? Why not subsidize land and transportation for them to relieve intolerable immediate pressures instead of sending them back on hard pavements to further trample or be trampled upon by the herd? Why not get the boys out where they can get in touch with and be touched by their own birth-right: the good Ground? Give each man an open chance to make his own environment beautiful if possible. Restore him to what he needs: the right to be himself."

The combination of physical and philosophical aspects of Wright's productivity during the period suggests a more than chance resemblance between Skinner's and Wright's plans for intentional communities. Add in the required residency of all community members in Walden Two's central living spaces, their shared responsibility for building and grounds upkeep, and their expected participation in community cultural events, including musical and theatrical performances, and the impression of influence is even stronger. There is even a tantalizing hint in Henken's *Taliesin Diary* for October 18, 1942 that Skinner might have had more than an incidental acquaintance with Taliesin:

"Guided tours to two teachers from the University of Minnesota, a curator of a museum, and Miss Vogel, a weaver from Cranbrook. They annoyed me by trying to find out everything about me, and by calling Eleanor (a fellow apprentice) a duck and a dear child..."

As it turns out, however, the evidence for Skinner's architectural influences is more indirect though not the less interesting for the light it sheds on his own creativity.

THE MINNESOTA MILIEU

When Skinner arrived in Minnesota to take up his duties as an assistant professor at the University of Minnesota in 1936, the Twin Cities had come of age, architecturally speaking, and were developing into a regional nexus of architectural modernism. Uni-

versity professors always lived close to their work, and by this time, the University of Minnesota had two enclaves populated by professional staff. The older of the two was Prospect Park in Minneapolis, situated on a hill about a half mile southeast of the campus on the east bank of the Mississippi River. Prospect Park was gradually built up since the turn of the 20th century into a pleasant urban neighborhood of winding streets and shade trees. The newer grouping, University Grove, was in Falcon Heights, St. Paul, about three quarters of a mile northeast of the campus across the railroad tracks leading to the massive grain elevators that were, for a long time, the defining skyline of that part of the city. Beginning in 1928, the University partnered with developers to offer building lots at favorable rates to University personnel. For the first few years, the homes

away stood the recently (1934) completed home, designed by Frank Lloyd Wright, of Dean Malcolm Willey and his wife Nancy. Known as the "garden wall" house, it features—it is still there today—Wright's low eaves, idiosyncratic clerestory lighting, and ingeniously efficient interior design. At the time it was built, it also had a "forever" vista view of the Mississippi River valley to the south and southwest, which was blocked entirely by the construction of concrete walls alongside I-94 as it cut through the area during the early 1960s.

The Willeys were more than clients for Wright: correspondence between them, Wright, Wright's family, and the Taliesin staff continued for over 20 years. They were close enough to the Taliesin fellowship to be invited to the Halloween soiree at Taliesin in October 1942, in which the apprentices under-



B. F. Skinner's house from 1939–1945 in University Grove, St. Paul.

in University Grove were typical 1920s American Foursquare, Tudor, and Colonial Revival styles. From the mid-1930s onward, it evolved into a showcase for the creations of many modernist architects that came to define "midcentury modern."

Skinner first rented a duplex, long since demolished, on Oak Street in Prospect Park, where only a few blocks

took to dramatize, in costume, famous paintings (there is no record of whether the Willeys attended.) There were others on the Minnesota campus who had firsthand knowledge of Taliesin as well. Clifton Gayne, Jr., a member of the Art Faculty at the University who became the chair of the Art Department in 1947, visited Taliesin in August 1942 and wrote back to Wright thanking him

for the “generous hospitality” on his visit, which apparently realized a long standing dream of seeing Wright’s realized architectural vision. Said Gayne:

“Learning about the fellowship provided a significant educational experience in addition to the aesthetic experiences which we found at every step. Art, education, work, and life appeared to be inseparable. A deeper understanding of your accomplishments and ideals has already grown out of the direct contact with their source.”

In a way reminiscent of both Wright’s and Skinner’s ideas about community life, Gayne continued:

“It appears to me that the duty of education today is to point out the alternatives with which we are faced: the realization of real Usonian democracy to be achieved in Broadacre City—or frustration, misery, and human degradation resulting from chaotic speculative profiteering. If enough citizens were made aware of the contrast in alternatives, they should be impatient to take action which would secure these benefits for themselves and their country. Our visit to Taliesin has made me eager to return to the task of explaining these possibilities to students who will in turn pass them on to others.”

After their marriage in 1937, the Skinners were looking for a larger and more permanent abode. Lots were scarce by this time in Prospect Park, and so, they turned to the other faculty option, University Grove. Sometime during next two years, Skinner connected with MIT graduates Winston Close, the primary consulting architect for the University of Minnesota, and his wife, Elisabeth Scheu (Lisl) Close, regarding appraisals of homes

in University Grove. Moving to the Grove put Skinner in direct contact with the emergence of modern residential architecture not only in the Twin Cities but within his immediate work

his wife, patron of the arts. Skinner’s own choice was a nearly-new (built 1936) traditional gabled Colonial with a tuckunder garage at 2297 Folwell Avenue.



Lippincott House

environment: one of the first flat-roofed modernist houses in the Twin Cities was commissioned in University Grove

a titan founder of modernist architecture, Adolf Loos, remembered today for his dictum “ornament is a crime.”



Starke Hathaway's house, built 1941, in Prospect Park, a couple of blocks away from the Willey and Lippincott houses.

at 1564 Vincent Street in 1935 by Richard M. Elliott, chair of the Minnesota Psychology Department, editor of the Century Psychology Series, and with

From the Closes, he undoubtedly got sound advice, but there is reason to think that this was laced with more than a little additional architectural lore. For Lisl Close was, before she married Winston over a lunch break in Minneapolis in 1938, Elisabeth Scheu, born in Vienna in 1912, and her father, Gustav Scheu, had just moved into the house he had commissioned from a titan founder of modernist architecture, Adolf Loos, remembered today for his dictum “ornament is a crime.” The Gustav Scheu house with its many levels and terraces (and its fairly traditional interiors and smallish rooms) is not only an icon of architectural history, but was also the daily living environment of his daughter Lisl and undoubtedly influential in her choice of profession. By 1938, the Closes had completed their first modernist house commission in the area, the Faulkner/Ziegfeld/Hill House (later and currently known as the Lippincott House), constructed in Prospect Park directly across Bedford Street from the Willey House, sharing its same expan-

sive southwestern view. Between that time and the time *Walden Two* was drafted in 1945, Twin Cities modernism gained a foothold, including the Closes' first of several contributions to University Grove in 1939 and in 1941 in Prospect Park, another modernist house commissioned by a fellow psychology faculty member, Starke Hathaway.

By the time the gestation of *Walden Two* was underway, Skinner was surrounded by both the physical presence as well as social knowledge of a modernist architectural aesthetic redolent of Wright. Unfortunately, for any simple account of direct influence, no evidence of communication of any sort between Skinner and Wright exists in the extensive record of Wright's correspondence nor are there specific references to Wright in Skinner's many autobiographical works. Wright and Skinner met once but only after he had left Minnesota at a party hosted by Harry and Sally Hope, prominent figures in the arts at the University of Indiana. The "two teachers from Minnesota" who visited Taliesin in October 1942 were most likely students or colleagues of Clifton Gayne.

Skinner's definite architectural influences are more local and home-spun. Like the artists Grant Wood, Norman Rockwell, and Andrew Wyeth, Skinner inserted characters into his work that depicted important personal relationships. Toward the end of *Walden Two*, members of a new offshoot, *Walden Six*, visit *Walden Two* to describe the new community. Architects bear in a model of it, and as Burriss reports:

"They [the architects] were describing the progress they had made since their last visit. One of them, an attractive young woman with a slight accent I took to be Viennese, was reporting on a new method of construction."

In *The Shaping of a Behaviorist*, Skinner acknowledged drawing his characters from life and named Winston Close and Lisl Scheu, "two young friends who had appraised the house we almost bought in St. Paul and with whom we had discussed building a house before we found one we liked," as the architects. According to Min-

neapolis architectural historian Jane Hession, expert on Lisl Close's career as a pioneering woman architect, the Closes' children remember that Skinner had modeled the architects in *Walden Two* on their parents.

According to biographer Daniel Bjork, Skinner consulted with the Closes regarding details of building construction while writing *Walden Two*. Might the "new method of construction" alluded to in the previous excerpt reflect the most striking and original detail of Skinner's description of the buildings of *Walden Two*, rammed earth? Neither Wright nor the Closes employed this material in residential construction, favoring mostly wood and stone. The Willey house is mainly brick and wood, while the Lippincott House is an assemblage of modular panels. It is possible that Skinner could have learned, from either the Willeys or the Closes, of Wright's involvement with the Cooperative Homesteads, but there is very little evidence of correspondence or communication between Willey and Skinner or between the Closes and Wright, nor was the Michigan project publicly well known before its early abandonment in the winter of 1942. Rammed earth might have been suggested as a feasible building material by Lisl Close due to her acquaintance with Loos who was well-known for his advocacy of masonry, having trained as a mason before embarking on his design career. In his book *Earth Architecture*, architectural historian and expert on earth construction Ronald Rael maintains that Loos employed rammed earth in constructing one of the demonstration projects he designed for low-cost workers' housing in Vienna after the First World War. However, it seems unlikely that it was actually rammed earth but more probably concrete or brick that Loos employed in his novel "one-wall" construction. Beyond this, there are many other possibilities for Skinner's encountering rammed earth as an architectural element as well. Rammed earth is one of the oldest and most common building materials: The Great Wall of China, the pueblos of the American Southwest, churches in the antebellum American South, and residences of all sorts have been built

for centuries with this readily-available material. Closer in time and place, Karl Ellington's *Modern Pise-Building*, published in Lindsborg, Kansas in 1924, evangelized for rammed earth, and during the 1930s public-works housing projects employing forms of rammed-earth construction could also have been models for the construction described in *Walden Two*. The same complexity of influences arises when other architectural aspects of *Walden Two* are considered. Curving walkways and specialized rooms on multiple levels with built-in cabinetry recall Taliesin, but they could equally be ascribed to many contemporary architects, including the Closes, whose signature style featured clean-lined redwood and ingenious use of interior space. But efficient use of materials and space also recalls the early pioneers of design in American communal societies, the Shakers, Oneida Community, and others, which were a long-standing interest of Skinner's well before *Walden Two* was written.

INFLUENCE OR INNOVATION?

Attempting to trace *Walden Two*'s architecture to specific sources not only leads to multiple ambiguities, but it also implies that a psychologist's use of architecture must be reactive to the history and practices of another discipline. Rather than searching for external influences, it may be better in light of Skinner's own predilection for idiosyncratic originality to consider the architectural aspects of *Walden Two* as integral to Skinner's personal project to reshape community through interaction with the built environment. There is evidence that Skinner may have considered *Walden Two* to be, at some level, an actual physical blueprint.

Again according to Bjork, Skinner had a map of *Walden Two* in his office and a papier-mache model of its layout that he would display as he read successive chapters to interested colleagues at the University of Minnesota while the book was being drafted though this has not yet surfaced. Another way of estimating Skinner's own contribution to the architectural elements of *Walden Two* is to examine Skinner's choices when he finally had

the opportunity to participate in the design process for his own home after he moved back to Cambridge in 1948. For this, he engaged a young Harvard-trained architect, Arthur Brooks Jr. (1916-2001). Brooks designed both residential and commercial structures, including some of the earliest office buildings along Route 128 and also the 1965 Parish House of the Harvard Swedenborgian Chapel, a building that the Cambridge Historical Commission considers “of no historical significance.” Examination of Brooks’s work in and around Cambridge supports the view that he was a faithful translator of his clients’ desires. If they wanted a peaked roof, a bulky brick Colonial, or a boxy apartment building, he rendered them simply and directly. Brooks’s best advice to Skinner reportedly was to advise him to keep both lots that he bought, rather than selling one and building on the other! The final design of the house reflects somewhat the extent to which modernism may have stuck with Skinner: the style is certainly less like Wright than it is like the Closes’ simple and modular Lippincott House.

In 1955, Skinner took a sabbatical in Putney, Vermont to relax, to work on his book *Verbal Behavior*, and to write notes and make practical drawings of ideas necessary to carry out a real Walden Two experiment. A hands-on inventor, Skinner visualized its real physical setting. In *A Matter of Consequences* he wrote that, while at Putney, “I drew building plans and worked out a way of manufacturing thermally efficient, double-walled concrete blocks which could be locked together to form walls.”

In his Putney notes, there are drawings of at least a few aspects of

the actual architecture of Walden Two as Skinner envisioned it: sketches of an amateur architect concerned with the practicalities of plumbing and privacy. The generic quality of the sketches both at Putney and throughout *Walden Two* provides few clues to influence or to a personal conception of architecture. It may be the case, as Travis Thompson recalls that Paul Meehl said, that “no one influenced Skinner, though Skinner influenced others.” He resisted theory in psychology, and the understated nature of the architecture in Walden Two argues for a view of Skinner as a naïve constructor rather than an adherent of



Skinner in his house in Cambridge, MA

any architectural school. However, it also appears that *Walden Two* is a creature of its times: its detailed descriptions easily lead to comparisons with contemporary forms of architecture. The psychologically astute architect Raymond Studer, in a talk on the architecture of experimental communities presented at a 1966 conference at Wingspread, a Wright-designed building on the Johnson Co. campus in Racine, Wisconsin, attributed the idea that “architecture is prosthetic” to Skinner. Extrapolating from this attribution, Skinner saw architecture not as a makeshift, but as a necessary and yet temporary and malleable frame-

work supporting a particular system of social relations. *Walden Two* can be understood as a utilitarian articulation of architecture and psychology focused on the physical design of a socially just and responsible community. But there may also be another social level of design influence in *Walden Two*. The palpable presence of art, music, and intellectual conversation in *Walden Two* may reflect the influence of another culture similar to Taliesin, that of academic culture at the University of Minnesota in the 1940s. Castle is, of course, Alburey Castell (1904-1987), logician and philosopher, founder of the Humanities program at the University of Minnesota, inspiration to the teenaged Paul Meehl, and Skinner’s foil in philosophical discussions in the early 1940s. It may be that Walden Two, a place where social and economic stability provides the leisure for a variety of intense intellectual experiences, ultimately reflects something of the social milieu at Minnesota, where Herbert Feigl improvised on the piano and where Skinner and Castell matched wits in Castell’s apartment in the architecturally unprepossessing

environments of Minneapolis’s Dinkytown. We conclude that, as the superficial physical architectural features of Walden Two recall Taliesin, so the similar provisions for social interactions in the terraces of Scheu House and the niches of Walden Two’s walkways indicate another aspect of solving the problem of designing an environment for interactive intellectual life.

That both Wright’s and Skinner’s intentional communities were designed to accommodate intellectual broadening and artistic creativity is, perhaps, an example of felicitous parallel evolution. ●

During this holiday season, the B. F. Skinner Foundation would like to thank all of you who donated their time and money to help us make our projects in 2015 a reality. With your support, we have converted more Skinner's works into e-books, and made them available online for \$0.99. *Operants* is now a magazine and starting in 2016 it will be published six times a year. We have expanded our digital archives by adding more articles, photographs, audio- and video files. In 2016 we plan to embark on new endeavors. Thank you for your continuous support.

WE WISH YOU A SAFE AND PROSPEROUS 2016!



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