

A Vocational Approach to Universal Design in Learning (UDL)

Russell Jay Hendel
Department of Mathematics
Room 316, 7800 York Road
Towson Maryland, 21252
RHendel@Towson.Edu

ABSTRACT

The Universal Design in Learning (UDL) approach advocates tailoring teaching individually for i) instruction, ii) assessment, and iii) motivation. The first contribution of this article is to advocate a fourth dimension of UDL, curriculum, that is, tailoring curriculum individually to a student's vocational needs. A second contribution of the article is to show that a vocational emphasis is not only about improving education but also about improving psychological well-being. We show that vocational placement as therapy is used to treat mental illness, substance abuse, and incarceration. We also show support for the vocational approach at the government, state, and religion level. Several countries are already using this approach. The paper notes the consistency of this approach with the Holland vocational psychological theory. The paper concludes with a call for educators to seriously consider adopting this approach.

Keywords: UDL, universal design in learning, recidivism, vocational therapy, employment counselors, Holland, mental illness, substance abuse, incarceration, sacrifices, charity

1. BACKGROUND ON UDL

1.1 UDL: Universal Design in Learning (UDL) [13] is a teaching philosophy which emphasizes that since successful i) instruction, ii) assessment and iii) motivation are unique to each student, therefore, these three teaching components should be tailored to each individual student. As a simple example, if a student learns well through oral versus visual instruction, then the instructor should provide sufficient oral resources for learning. Similarly, if a student does satisfactory in an oral assessment but unsatisfactory in a written assessment, then the instructor should provide opportunities for oral assessment.

1.2 UDL Literature: The literature on UDL is quite extensive. Even restricting the search to publications in the past few years shows books and articles: i) on the general theory and idea of UDL [33,40], ii) with specific hands-on operational techniques [32, 36], and iii) addressing specific curricula, student populations, and subjects [23, 28, 31].

1.3 The UDL Problem: The above sounds quite glamorous and it is quite glamorous. There have been many positive teaching and learning experiences; many students have had their lives turned around. The Congress of the United States has mentioned UDL in at least four public laws [47, 48, 49, 50]

However, UDL has a shortcoming. To illustrate the problem with UDL we consider a recent, short, detailed, comprehensive, article "UDL: A Blueprint for Success" [38]. Dylan, a hypothetical student is described as follows:

He receives instruction connected to his school's curriculum for all students, which is based on the Common Core State Standards [39]. But whereas the Common Core stipulates that 3rd graders should be able to represent and solve multistep word problems involving multiplication and division, Dylan is still working on one-step problems—a goal that appears in his IEP. The Common Core standards for speaking and listening require that students "engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts." Dylan's challenges related to paying attention and maintaining friendships affect his proficiency on this standard. His IEP contains goals for paying attention when others are speaking and developing friendships with peers. Because there are other students in his class who also struggle with attention, his teachers often focus on these goals when designing group work.

In other words, Dylan has problems *because* he cannot meet the common core state standards [39] for his grade level. This violates the underlying philosophy of UDL since although instruction, assessment, and motivation are tailored individually to Dylan, curriculum is not tailored to Dylan.

1.4 Goals: Currently, UDL requires attention to individual student approach in three areas i) instruction, ii) assessment, and iii) motivation. The purpose of this paper is to explore the idea of a vocational-emphasized curriculum in which UDL, besides addressing assessment, instruction, and motivation, also addresses curriculum.

At first blush this may sound absurd: The purpose of school is education. It is one thing to change delivery; but how can education be achieved without a curriculum? Surely, the curriculum must remain constant!

The fallacy in the above argument is that it ignores the purpose of education. A serious purpose of education is preparing students to be independent as adults. There are a variety of components and approaches to achieve this: i) encouraging critical thinking, ii) being made aware of the history and political structure of our country, iii) giving them the knowledge, skills, and ability to independently hold jobs and be a productive member of society, vocational training.

We can reformulate this in terms of proportionality. No one would dispute that *any* curriculum should encourage critical thinking, teach the history and political structure of our country, and enable them to hold productive jobs. However, the proportions of these goals in the curriculum are not predetermined.

The Common Core State Standards (CCSS) overemphasize critical thinking at the expense of specific vocational training. The CCSS literature does have a goal for students to be productive. In fact, an original motivation for the CCSS is to give students the ability to complete degree programs at community colleges and have the necessary abilities to enter the workforce. However, nowhere in the CCSS is a vocational orientation and tailoring to individual needs mentioned; we consider this a lack of proportionality.

The interesting story of a particular vocational school described in the next Section 2 is illustrative of the increased success that can be obtained by such an emphasis. The following Sections 3-4 will explore vocational training as a means to successfully combat mental illness, substance abuse, and rehabilitation problems for prison inmates.

Sections 3 and 4 will examine government support. Many states and other governing entities support these vocational efforts. Section 5 adds to this the support of religion. Section 5 also explores the psychology of vocations; it examines lack of vocational harmony as a sort of psychological disease and reviews the beautiful Holland vocational theory which advocates congruence between the personalities of people and professions. In Section 6 we conclude the paper by recapping its conclusions and urging educators to apply them.

2. THE AMIT TECHNOLOGICAL SCHOOL

2.1 The Organization: AMIT, Americans for Israel and Torah, is a charity that focuses on education, particularly for disadvantaged children [1, 2]. It is one of the educational networks in Israel. It currently runs about 110 schools in about 30 cities for about 35,000 students. It has over 100,000 alumni.

2.2 The Vocational School: In this section we focus on the AMIT state technological high school in Jerusalem [3]. This school focuses on poor and vulnerable children, who have not met traditional academic requirements, have behavioral problems, undiagnosed learning disabilities, and are known to welfare authorities. Many students have failed other programs and this school is their last chance.

2.3 School Philosophy: The philosophy of the school is to focus on vocational skills while still meeting basic curriculum requirements for high-school students, albeit at a minimal level. The school uses professional development and social and psychological workers. It seeks to foster trust and responsibility.

2.4 Curriculum: Students entering the school can choose between several vocational tracks including electronics, hair-styling, woodcutting and tourism. The school provides a flagship track in automotive repair.

2.5 Results: The results are highly positive. Over 95% of graduates serve in either the army or for national service. Furthermore, the school has been successful partnering with the army Technological and Logistic corporation responsible for advanced weaponry for the nation.

These students, many of whom have been on drugs with behavior problems and have had run-ins with the authorities, graduate as leaders with responsibility for the nation's defense.

2.6 A Citation: The following citation [3] summarizes the

preceding:

Many of the 160 students at the AMIT State Technical High School have not met the academic requirements of traditional schools; they are among the capital's poorest and most vulnerable children. They often arrive at the school with previously undiagnosed learning disabilities or behavioral problems, and many are known to the welfare authorities. The school offers them a second chance for success, with a range of vocational topics including auto mechanics, electronics, graphic design and hair styling. The school boasts a very low dropout rate and over half of the students achieve a technological diploma or a *bagrut* certificate upon graduating.

"We aim to provide each student with a profession and the skills necessary to turn their lives around," says assistant principal Bat Sheva Segavi. "Our students have no other options left. Succeeding here is vital for them to live good, productive lives." The school provides each student with regular meetings with a social worker and psychologist. Personal development is a focus of the educational program, with an emphasis on fostering mutual trust between the students and teachers. Mutual responsibility is also stressed. 96% of the male graduates serve in the IDF (55% in combat units), and 93% of the females serve in either the IDF or national service.

The school's flagship is the "Autotech Tools for Success" program, a state-of-the-art program that places its students at the forefront of advanced automotive diagnostic and technological studies. The program offers a three-year course in theoretical studies along with practical, hands-on learning in the growing and in-demand vocation of servicing the high-tech cars of today and tomorrow.

The AMIT State Technical High School recently formed a partnership with the IDF. Students entering 10th grade can join a unique cadet program with a focus on auto-tech studies. The cadets come to school in uniform and are supervised by army personnel. After graduating, they will serve in the IDF's prestigious Technological and Logistics Corps, where they will be responsible for the development of the most advanced weaponry.

3. VOCATIONAL TRAINING AS THERAPY

3.1. Vocational Training as Both Educational and Rehabilitative: Section 1 presented the philosophy of UDL. This section emphasized educational success: Just as instruction fitting student's particular needs, say oral, visual, or tactical, improves learning, just as assessment fitting a student's particular needs, say oral, visual, or tactical, improves learning, and just as motivation fitting a student's particular needs, improve educational outcome, that is, students who used to fail now succeed, so too, changing the curriculum from an emphasis on theoretical knowledge, be it history, political structure, mathematics, or writing, to an emphasis on practical application, targeted vocational training, also improves educational outcomes.

But there is more to vocational training than educational outcomes. Already in the AMIT Technological School example of Section 2 we saw that vocational training has a strong *rehabilitative* component. Students with behavioral problems, run-ins with the authorities, and mingling with their peers who use drugs, were rehabilitated into responsible adults, who help

form the backbone for their country's defense.

Certainly, a major purpose of education going back to Aristotle and Plato is making one a better person, and what stronger measurement of this betterness could there be than complete freedom from crime, mental illness, substance abuse, and social misbehavior. Such a perspective more strongly motivates a switch to a vocational-oriented education. The purpose of this section is to examine the psychological underpinnings of vocational training as rehabilitative.

2.2 Vocational Therapy for the Mentally Ill: We begin our review with vocational training as a rehabilitative therapy for the mentally ill. In the late eighties (of the twentieth century) the idea emerged that successful vocational placement is one approach to therapy [41]. The Individual Placement and Support (IPS) model of supported employment for mentally ill people, the most effective method for creating employment, was formulated around then. Although relatively young, it has grown rapidly and produced a good literature justifying it [16].

The idea of vocational placement as therapy is not immediately intuitive for two reasons: First, traditional therapy either focuses on unconscious drives and needs [18], on higher needs such as integration and belonging to a community [26], or on perceptions of self-efficacy [5-8]. Except for the Holland psychological theory [19,21,34,42] which we will explore below, vocational placement is seen as a secondary issue against these other primary approaches.

A second reason for the lack of intuitiveness in this approach are the following contrastive forces:

- Unemployment is higher in the mentally ill [4]
- Furthermore, mental illness interferes with work productivity [27]
- However, the mentally ill do desire to work and succeed [29].

To address these contradictory forces, several models of vocational training have emerged including the IPS, the supported employment model, and the PSR (Psychosocial rehabilitation program). Metastudies show that the IPS is the most successful. In passing, throughout this article vocational success is measured in terms of some combination of i) retaining one's job in a competitive environment, ii) not relapsing into mental illness, iii) an alleviation of mental-illness symptoms and iv) self-reported life satisfaction [22].

The IPS itself is one form of the supported employment model. The Supported employment model is characterized by i) vocational placement in integrated settings with nondisabled workers, ii) ongoing vocational support, iii) vocational placement based on the patient's current skills (in contrast to an approach that teaches new skills) [11].

The IPS model adds to this a client team consisting of employment specialists, case managers, and psychiatrists and emphasizes assertive outreach to place clients in normal settings (with other non-disabled workers) outside of a mental health or rehabilitation center [9].

One should note the similarities with the AMIT Technological school approach that emphasizes work in prestigious settings (security and defense) with trust and responsibility in the client.

As a further example of the IPS approach, the *place first, then*

train model wherein clients are first placed in a vocational setting and then trained as needed, in contrast to the old medical model of *train-first, then place*, is successful in helping clients attain many of their work and housing goals without increasing the frequency of relapse and also increasing life satisfaction [15]. Other articles have similarly advocated an accelerated approach, that is, the client is, as soon as possible, placed in a real-world setting with other non-disabled workers rather than in a "rehabilitation program" [12].

The articles cited above focused on U.S. locations. Similar studies have confirmed the usefulness of vocational programs in other countries for the mentally ill [24].

The articles cited above focus on support of the U.S. Congress through Public-Laws. However, there are also a variety of state programs such as the Five Keys Schools and Programs [17]. This program operates schools for juveniles and adults both in California prisons and outside them. It works with, and is sponsored by, numerous community-based centers and organizations. Similar programs exist in other states such as the very well-developed vocational program in Maryland [14]. This article however, decided to focus on results in refereed journals and evidenced based reports without however meaning to detract from a large number of other reported accomplishments.

Finally, we mention that active vocational programs (not necessary for the mentally ill but as part of general education) exist in other countries besides the U.S. and Israel [35].

4: SUBSTANCE ABUSE and INCARCERATION

Section 3 focused on the success of vocational training for mental illness. Vocational training is, as mentioned above, also successful for treating substance abuse and incarceration. Important for the success of such programs is the need for governing bodies to create an atmosphere encouraging such rehabilitation. We explore vocational therapy for substance abuse and incarceration, and government support of such vocational therapies in this section.

4.1 Incarceration: There is evidence, albeit limited, that vocational training for inmates reduces recidivism.

The attorney general acting with the National Institute of Justice recently released a report [30] documenting: i) the extent of incarceration, ii) a literature review of prison education efficacy, and iii) descriptions of best practices. This report was a mandate required by Congress by the First Step Act and included in the Second Chance Reauthorization Act of 2018, which similar to the Second Chance Act of 2007, reauthorized aims to improve opportunities for offenders returning to their communities by authorizing the Attorney General to support the provision of funding for adult and juvenile offender demonstration projects at the state, local, and tribal levels.

The conclusions of this report include the following findings:

- **Vocational Approach Benefits:** Correctional education has the potential to yield benefits such as greater societal productivity for returning citizens, increased tax revenue, and decreased reliance on governmental support.
- **Best Practices:** Continuing the momentum towards understanding "what works" will assist corrections administrators in making informed decisions about the types

of programs they can and should implement inside their facilities and improve the successful return of adult and juvenile Americans.

- **Funding:** The true potential of correctional education and vocational programs can be fully realized if policymakers provide resources and funding to expand programs, such that additional rigorous scientific evaluations can be conducted. The report cited a variety of studies and indicated the issuance of several million dollars in grants.

4.2 Substance Abuse: Similar to the concern for the incarcerated, the Substance Abuse and Mental Health Services Administration (SAMHSA) has published a book "Treatment Improvement Protocols" [37]. This comprehensive book addresses both substance abuse disorders and substance dependence disorders. Its recommendation section emphasizes:

- Vocational placement as therapy
- The existence and need for public laws
- The need for funding
- That employment is a major area of concern for clients,
- That employment should be an integral component of all substance abuse treatment programs
- The need for an interdisciplinary team combining employment counselors and social workers,
- The broader need for collaboration within communities especially for funding and placement
- The need for involvement by Congress including half a dozen public laws passed by Congress and dealing with substance abuse and disability in general [43-47,51].

This book contains a wealth of information including clinical guidelines and best practices.

5. PERSPECTIVE OF RELIGION

Sections 3 and 4 dealt with support for the vocational approach at the country and state levels. But states and the government are not the only entities that can have such influence. In this section we cite certain laws present in one religion, Judaism, which emphasizes a vocational approach.

5.1 Charity: It is well known that there is a biblical commandment to give to the poor [10]. This giving can take the form of monetary gifts, non-monetary gifts, loans, or provision of jobs. The legal codes list hierarchies of charity: That is, it gives guidance on which forms of charity are most desirable. The Jewish legal codes emphasize that providing a poor person with a job, for example entering into partnership with the poor or providing interest free loans as small business associations do, is the highest form of fulfillment of the charity laws [25].

The legal commenters explain that giving a job permanently remedies the poverty of the recipient without creating dependence or a sense of obligation to the giver such as would happen if a monetary gift was given.

5.2 The Sacrificial Code: Another charming example of religious support for the vocational approach comes from the biblical sacrificial code. This is rather unexpected. A recent paper [20] suggests that the sacrificial code had as its goal, rehabilitation of the sacrifice bringer through symbolic suggestions of vocational placement.

To better understand this, we review the Holland Vocational

psychological theory. Its strength is precisely that it studies the optimum interaction between personalities and environments in terms of preferences and (dis)likes. Although initially conceived as a theory of vocational types, it applies more broadly to personality types and environments. The Holland theory has "contributed profoundly to psychology's conceptualization of people and work environments," "has generated international interest," is considered one of the foremost theories on people and environments, and correlates well with other personality theories [19,21,34,42].

RIASEC Code	Holland Personality Category	Brief Description
R (Plant offering)	Real (plant/grain offerings)	The Real personality type is interested in working with inanimate things. For example, people who like to spend time fixing cars and other mechanical devices.
I	Investigative (bird offerings)	The Investigative personality type is interested in experimenting with innovative ideas. The emphasis is on innovation whether socially acceptable or not. Examples of investigative personalities include scientific researchers, political dissidents, philosophers, rebellious teenagers.
A	Artistic (incense offerings)	The Artistic personality type is interested in working with emotions. For example, people who like to create poetry, musical compositions, and other forms of art
S	Social (sheep offerings)	The Social personality type is interested in working with other people (vs. say an emphasis on working with objects or ideas)
E	Enterprising (ram offerings)	The Enterprising personality type is interested in working as a leader of other people. Managers are good examples.
C	Conventional (oxen offerings)	The Conventional personality type is interested in productivity based on routine activities. A call worker feels satisfied if a large number of calls per day with satisfactory answers are completed.

Table 1: The 6 Holland Categories and their sacrifice counterparts.

This Holland theory categorizes each person, each vocation, and each environment as primarily belonging to one of six types labeled Realistic, Investigative, Artistic, Social, Enterprising, and Conventional (collectively labeled RIASEC.). During diagnostic vocational counseling, people are normally assigned primary, secondary and tertiary Holland codes [21].

With this brief introduction, Table 1 lists RIASEC, the six Holland personality types, and brief descriptions. Although in this description we focus on people, the theory is equally applicable to vocations and environments. [19]. We parenthetically insert next to each Holland Personality category the associated sacrifice type corresponding to it.

We can illustrate this correspondence with several examples:

- i. The Social personality clearly corresponds to the *sheep* offering since sheep are by nature social creatures.
- ii. The Enterprising personality, that is a person who enjoys leading other people, corresponds to the *ram* offering since rams lead sheep.
- iii. Incense with its fragrant 11-ingredient aroma corresponds to the artistic personality.
- iv. As a final example, the idea behind corresponding plants and the real-world personality is not so much that plants symbolize the real world but rather that plants (grains) are contrastive to animals (sheep and rams) and therefore since the sheep offering corresponds to dealing with people ("social") the plant offering corresponds to real-world personalities. For more complete details as well as details on how the Holland theory is implemented see [20, 21].

Hendel suggests that the sacrifices were psycho-moral in nature. They sought to remedy the soul by emphasizing a vocational stance congruent with the offerors' particular lifestyle situation. For example, a mother who just gave birth to a child, can deal with the new stress of raising children, by adopting a social-network attitude, sharing the upbringing of her child with her network of friends; hence, the mother brings a sheep offering emphasizing this needed additional perspective since *sheep=social*.

6. CONCLUSION

This article focused on changing the curriculum to adapt to vocational needs of students. Such an approach is consistent with the UDL approach and adds a fourth prong (curriculum) to its already three existing prongs of addressing instruction, assessment, and motivation.

We showed the importance of the vocational approach not only for educational success but also for moral success. The vocational approach is a key component of any effort to avoid student involvements with drugs, crime, and other substance abuse.

We showed that this approach has already achieved some remarkable successes, is fully supported in over a dozen Congressional Public-Laws, is advocated by organized religion, and is consistent with the psychological literature.

We urge all readers involved in education to apply the results presented in this article to their educational situation.

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