

Post-secondary educational practices for individuals with mental retardation and other significant disabilities: A review of the literature

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Providing opportunities for individuals with mental retardation and other significant disabilities to participate in educational, vocational, and recreational activities on college campuses has been a topic of interest among educators and adult service providers for the past 30 years. We reviewed the literature on post-secondary programs and supports for these individuals to (a) identify a philosophical basis for providing such opportunities, (b) identify practices, and (c) summarize research on the efficacy of these efforts. The literature from the 1970's to 1990's provided descriptions of programs or advocated for the inclusion of adults with mental retardation on college campuses in position papers. Limited empirical data supported the efficacy of these programs. The literature during the 1990's shifted to providing post-secondary programs or individual supports to students with mental retardation and other significant disabilities, ages 18–22, who were still enrolled in public schools. Implications for emerging trends, research and program evaluation, and replication of practices are discussed.

Keywords: Transition, post-secondary education, people with significant disabilities

1. Introduction

The majority of literature on post-secondary education for young adults with disabilities has focused on individuals with learning disabilities, attention deficit disorders, and physical or sensory disabilities [40]. This literature describes model programs, accommodations for participation, and suggestions for assisting students with disabilities who are graduating with a traditional diploma to make the transition into college settings [3, 4,9]. Although less evident, there has been discussion of the need for programs or supports that provide individuals with mental retardation (MR) and other significant disabilities (SDs) with the opportunity to participate in classes and activities on post-secondary campuses (e.g. [6,25,32,33,41]).

Follow-up and follow-along studies of individuals with disabilities have documented that young adults with disabilities leaving high school are much less likely to be in post-secondary education than their non-disabled peers. Results from the National Longitudinal Transition Study [47] indicated that only 14 percent of students with disabilities who were out of school for less than two years attended post-secondary institutions. Individuals with MR (16%) and multiple disabilities (4%) had the lowest rates of participation. Peraino [36] confirmed that only 14% of individuals with MR participated in post-secondary programs, and individuals with moderate to severe MR had the lowest rate of participation at eight percent. For those individuals who did participate, programs and classes were often segregated from other college classes and focused on independent living, functional, and social/personal skills (e.g. [11,13,18,27,32]).

Despite the documented low rates of participation, there is a growing trend to provide experiences for public school students with MR and other SDs on two

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and four year college campuses. These students generally receive services through the local school system until age 22 and their instruction centers on functional, community-based skills [15,30]. Upon exiting the school system, these students often earn alternative diplomas or certificates and enter community employment, sheltered workshops, or adult day programs.

As early as 1995, the Board of Directors of the Division on MR and Developmental Disabilities of the Council for Exceptional Children put forth a position statement regarding educational practices for students with MR and developmental disabilities [41]. They recommended that students who required educational services beyond the age of 18 be allowed to graduate with their peers, and then continue their education until the age of 22 in age-appropriate settings such as college campuses. Others have echoed support for this growing philosophical shift to provide opportunities for age-appropriate interactions with same age peers; attend college classes and extra-curricular activities; and participate in flexible, functional, community-based training [14,15,30,34,43]. However, there is little in the literature that can guide school system personnel, college personnel, and families in the development of alternative programs or individual supports.

We reviewed the literature on post-secondary programs or supports for individuals with MR and other SDs to identify a philosophical basis for offering these programs, to identify practices or program components, and to summarize research on the efficacy of these efforts. This review serves as an historical perspective on efforts to serve individuals with SDs in post-secondary settings, and as a knowledge base for practitioners and researchers to develop current and future efforts. The literature is summarized in terms of trends and practices throughout the last three decades. Finally, a discussion of emerging trends is presented along with suggestions for research and replication efforts that will advance the field in providing age-appropriate, alternative opportunities for young adults with MR and other SDs.

2. Methodology for the literature review

We used the following databases to conduct the literature review: Educational Resources Information Center (ERIC) for the years 1966 to 2000, Exceptional Children Educational Resources (ECER), Education Abstracts, and Dissertation Abstracts for the years 1969 to 1999. A manual search of selected professional jour-

nals from 1989 to 1999 was also conducted. Only published articles from professional journals in the United States, were included in this review with the exception of four articles that detailed efforts to include students with SDs on college campuses in Canada. These articles were included because of the similarities between Canadian and American institutions in promoting inclusive practices for individuals with SDs on college campuses [16,34,46,48].

The following descriptors were used to identify articles: MR, developmental disabilities, post-secondary education, community colleges, and colleges. Some program descriptions included students with MR exclusively, whereas others also included students with other SDs. We chose the term individuals with SDs for this review based on the definition used by The Association for Persons with Severe Handicaps (2000). The term individuals with significant disabilities includes persons of all ages who require extensive ongoing support in more than one major life activity to participate in integrated community settings and who require support for life activities such as mobility, communication, self-care, and learning for independent living, employment, and self-sufficiency.

A post-secondary program was defined as a program that provided education or vocational training to individuals with MR or other SDs within two or four year colleges or universities, or adult education programs. Programs for adults who had exited the public schools were included, as well as for those students who were 18 to 22 years old, enrolled in the public schools, and receiving services or instruction within a post-secondary setting. Table 1 provides a summary of the 27 articles selected for this review and includes: date published, author, type of article (i.e., program description, position paper, research), setting (i.e., colleges, universities, or adult education programs), and a short summary.

The literature is summarized by the following timeframes: the 1970's, the 1980's, and the 1990's. Descriptions of post-secondary programs for individuals with MR and other SDs, philosophies underlying the development of programs, and research efforts are summarized for each time period.

2.1. 1970's: Post-secondary programs, position papers, and research

Programs for adults with MR on college campuses during the 1970's were developed in response to various social movements. In some cases, programs provided opportunities for normalization and integration

Table 1
Articles on individuals with MR and significant disabilities in college settings

Date	Author	Article	College setting	Description
2000*	Hall, Kleinert, and Kearns	Program	Asbury College, KY ²	Local school & college provided program on campus to students with moderate and severe disabilities, ages 18–21.
1997	Doyle	Program	Trinity College, VT ²	ENHANCE provided adults with developmental disabilities with options to audit college courses and live in dormitories.
1996*	Patton et al.	Position		Recommendations for educational policy for students with mild MR; includes needs of 18–22 year old students.
1995*	Page and Chadsey-Rusch	Qualitative Study	Community College ¹	Case study describing experiences of two public school students with MR and two students without disabilities at community college in Midwest.
1995*	Smith and Puccini	Position		Needs in curricula and recommendations for policy; includes needs of students 18–22 in age-appropriate settings.
1994	Gugerty	Program	Community Colleges ¹	Profiles seven exemplary programs. Attitudinal and organizational barriers identified.
1993	Goldstein	Program	William Patterson College ² NJ	Project Link for non-college bound young adults with mild disabilities on campus.
1990	Noble	Position		Review of attitudinal / organizational barriers for adults with MR at community colleges. Brief review of programs.
1989	Williams	Position		A rationale for teaching philosophy to adults with MR in Canadian community colleges.
1988	Goldstein	Program	William Patterson College ² NJ	Project Link for non-college bound young adults with mild disabilities on campus.
1988	Frank and Uditsky	Program	University of Alberta ² Canada	On Campus provided adults with MR/significant disabilities with remedial tutoring, integrated classes, activities.
1988	Panitch	Program	Humber Community College ¹ Ontario, Canada	CICE provided adults with MR/significant disabilities with remedial tutoring, integrated classes, social activities.
1988	Uditsky and Kappel	Position		Advocates for inclusion of adults with MR/significant disabilities to enhance self-esteem, improve employment.
1987	McAfee and Sheeler	Survey		Survey of services available/attitudes towards students with MR in community colleges (136 respondents).
1986	Duran	Program	University of Texas, El Paso ²	All Day Autism for 15 adults with autism and limited English skills. Provided experiences for college students.
1985	Michael	Survey		Survey of community college coordinators for students with disabilities; of 67 respondents, 2 served individuals with MR.
1985	Caparosa	Program	Community Colleges ¹	Profiles 11 programs for adults with disabilities.
1982	Dailey	Program	Allegheny Community College, PA ¹	Offered food service and janitorial training courses (1975) in community and noncredit courses for adults with MR.
1980	Jones and Moe	Position		Advocates for individuals with MR in college programs and implied colleges lack ownership of special programs.
1979	Corcoran	Program	SUNY at Brockport ²	Recreational activities and special courses on campus for adults with MR.
1979	Snider and Roderfeld	Program	Colorado State University, Fort Collins ²	College for Living – noncredit continuing education courses for adults with MR.
1978	Kreps and Black	Position		Philosophy and benefits of College for Living Programs.
1977	Dahms, Ackler, and Aandahl	Program	Metropolitan State College, Denver, CO ²	College for Living offered noncredit continuing education courses for adults with MR.

Table 1. continued

Date	Author	Article	College setting	Description
1977	Wood, Meyer, and Grady	Program	Broward Co. Community College, FL ¹	Educational Programs for Exceptional Adults included special courses at the community college for adults with MR.
1975	Low	Program	Baltimore Community College ¹ Dundalk, MD	Single Step offered special courses to adults with disabilities linked to independent living job search, counseling.
1974	Bilovsky and Matson	Survey		Survey of 40 community colleges to determine services available to adults with MR.
1972	Baxter	Quantitative Study Program	Ferris State College ²	Adapted clerical training program for 20 female adults with MR matched with 21 females without disabilities. Classes were offered separately to each group.

Note: ¹ = 2-Year College; ² = 4-Year College or University. *Indicates article focused on programs or supports for public school students, ages 18–22.

to adults with disabilities who left institutions in the 1960's and 1970's [2,8,11,27]. In other cases, programs were created to provide "occupational skill training" to adults with MR to prepare them for employment opportunities [1,11,49]. A questionnaire sent to an unknown number of two-year colleges demonstrated that 40 had some type of program for adults with MR or paraprofessional training programs for students planning to work with adults with MR [2]. Indeed, several descriptions of these programs, which were located on community college campuses, were documented in the literature.

2.1.1. Program descriptions at community colleges

Low [27] detailed the Single Step program at Dundalk Community College in Maryland. Initiated in part by a \$50,000 grant from the Maryland State Department of Education (Vocational Education Division) in 1973, Single Step was designed to serve adults with disabilities such as MR, physical disabilities, and emotional disabilities. Participants spent 15 weeks, one day a week, engaged in group and individual counseling activities, self-paced reading and math modules, job search assistance, and recreational activities (e.g., yoga, bowling, table games). Participants also had the option of attending an additional seven-week component, which focused on labor market information and job search strategies.

Low [27] reported that 77 students had enrolled in Single Step and that 64% had completed the program. Of the program completers, 17 had paid or volunteer jobs, 11 were in training programs, 13 attended area colleges, and four had combined education and jobs. Students and counselors reported that the most significant part of the program was the hourly individual counseling sessions. It was not clear from the article how the program was funded after the initial state grant,

how long students were followed-up after leaving the program, or who had responsibility for the program at the college. Low stated that the goals of the program grew more flexible over the years to assist students in realizing their potential, facilitating goal discovery, and enrolling in academic programs.

Wood et al. [49] described the Educational Programs for Exceptional Adults (EPEA) at Broward Community College in Florida. This program offered non-credit continuing education courses to adults with MR or orthopedic disabilities. Starting in 1974, EPEA offered segregated evening courses (i.e., vocational adjustment, leisure, home management), integrated courses (i.e., physical education and elective courses), vocational training (i.e., food service and cosmetology) and a summer camp on the college campus. Eventually, a course, Basic Survival Skills for Everyday Living, was added for students with severe MR. Wood et al. described admission procedures as similar to those for all students attending the college. Participants were required to fill out an application, participate in an interview, and register for classes. After attending the program for two years, participants were able to register for a credit class at the college through individual planning with their teacher-counselor. Students could arrange for financial aid through vocational rehabilitation. Transportation was arranged for students through the support of community agencies such as Goodwill Industries. Although no outcome data were reported, Wood et al. indicated that the program had grown from four classes with 50 students to 17 classes with 135 students. It was not clear who taught the courses, but there was an advisory committee (comprised of parents, community agencies, and college personnel) that guided the development and implementation of the program. Wood et al. and Low [27] featured photographs of the partici-

pants and quotes from graduates to support the benefits of their programs.

Dailey [11] also described a program of non-credit continuing education courses for adults with MR at Allegheny Community College in Pennsylvania. This program began in 1975 and offered two vocational training courses through a grant from the Pennsylvania State Bureau of Vocational Education. Similar to Wood et al. [49], this program had an advisory committee and financial aid was available to participants through vocational rehabilitation. Eligibility criteria were specified for this program and included an adult with MR who was "18 years of age and had physical, emotional, and psychological qualities necessary to complete the curriculum and secure competitive employment" (p. 10). Staff were recruited from the community and functioned as administrators, teachers, and counselors. It was not clear whether staff received pay or who provided training. Dailey reported that staff were trained in Marc Gold's approach of "Try Another Way" for teaching vocational skills. It was interesting to note that the vocational training programs were not located on the community college campus. Rather, participants were trained in food service at the Allegheny County Police and Fire Training Academy and in janitorial services at a hospital and apartment complex. They also engaged in a four-week employment practicum in the community. Dailey reported that 90% of food service and janitorial participants completed the programs and obtained employment; the actual number of participants in the programs was not given.

2.1.2. Program descriptions at state colleges

There were also a number of programs at state colleges in the 1970's. Baxter [1] described an experimental clerical training program at Ferris State College that provided instruction in typing, filing, and duplicator machine operation for 20 young women with MR, ages 17–26. A Ferris State College staff member and a special educator provided training. The young women with MR were matched with 21 females without disabilities who were entering a one-year clerical training program. This study demonstrated that women with MR learned clerical skills similar to the control group with the exception of filing. Although it provided support for vocational training for students who were then deemed "educable", this article provided no information about recruitment procedures, whether campus personnel supported the program, or if it was continued after the study.

Three articles provided information about the College for Living program [10,26,42]. This program was initiated in 1974 at Metro State College in Colorado with a \$600 budget and five volunteers whose goal was to "make available to their students a wide range of social interaction possibilities in a normal environment" [10, p. 11]. The volunteers tutored 16 adults with MR from the Colorado State Home and Training School once a week. Eventually, the college began to offer credit to student volunteers. The initial focus of this program was very student-directed, providing instruction in travel training, money management, and personal hygiene. Subsequently, course offerings were expanded to include diverse interests, such as human sexuality and Japanese cooking. Dahms et al. reported that the program grew to serve 200 adults with MR each semester, had a waiting list of 200, used 40 volunteers from the college, offered 20 courses, and had a summer recreational and cultural enrichment program. Although no outcome data were reported, Dahms et al. stated that the program had proven "so cost-effective and so humanly meaningful" (p. 12) that it had been replicated by four other Colorado institutions. Eventually, the program received financial support from the US Office of Education and served 1,350 students, and had 419 volunteers at 10 locations in the United States.

In 1979, Snider and Roderfeld described a replication of the College for Living program at Colorado State University. Adults with disabilities enrolled in evening non-credit classes (adult education) ranging from science and math to occupational skills training in "production arts" and "office practice skills" and received continuing education units. This program also used volunteers for teaching/supervisory duties, and although it was stated that volunteers had to participate in training activities, it was not clear who did the training. In addition to utilizing an advisory committee, a curriculum development coordinator was provided through a Comprehensive Employment Training Act (CETA) program. Program evaluation efforts, which included questionnaires to 225 students, parents, and volunteers, found that most were satisfied with the philosophy, methods, and structure of the program. However, one area of noted dissatisfaction was "the lack of encouragement given to students to participate in programs for the non-disabled" (p. 18). Kreps and Black [26] summed up the benefits of the College for Living Programs. They maintained that the program worked because it respected the principles of human dignity, offered nontraditional teaching methods that emphasized experiential learning, and stressed individualization of interests and skills.

Finally, Corcoran [8] described a program for adults with MR located at State University of New York at Brockport. This program grew from 12 to 200 students in four years and offered non-credit continuing education courses. Undergraduate students from the adapted physical education program volunteered to assist adults with MR in the use of campus facilities and in participating in recreational activities. Students with MR attended segregated and integrated classes (e.g., swimming, judo, gymnastics) depending on their needs. College instructors and volunteers were encouraged to propose mini-courses which varied the curriculum (e.g., human sexuality, pizza making). No outcome data were reported.

2.1.3. Summary of the 1970's literature

The literature pertaining to post-secondary education opportunities in the 1970's demonstrated little opportunity for individuals with MR and other SDs to have experiences on college campuses without a specialized program. The premise for offering these programs on a college campus was to integrate adults with MR into the community, although instruction was generally provided in segregated programs or classrooms. Programs incorporated basic remedial education, personal and social skill development, recreational opportunities, employment readiness skills, and vocational training. Opportunities for integration were most apparent only in physical education courses and recreational activities. Few of the articles provided specific ages of participants, instead the generic term adults (usually with MR) was used to describe all participants.

There was little information on how programs were sustained. Two programs charged individuals a nominal fee for the purposes of "normalization" [8,49]. Several programs used volunteer college students or volunteers from the community. Some programs used vocational rehabilitation monies to assist students in accessing the program and monies from community agencies to pay for transportation. Interestingly, two of the programs used vocational education monies (from state departments of education) for start-up costs [11, 27]. Support from the colleges was generally limited to personnel in adult education divisions, access to space and recreational resources, and non-disabled students who received credit for serving as volunteers.

Only Snider and Roderfeld [42] reported program evaluation efforts and how this information was used to make changes to the program. Others provided minimal information related to student outcomes and program completers [11,27]. With the exception of Bax-

ter [1], no empirical studies were found related to the effectiveness of post-secondary services for individuals with MR and other SDs.

2.2. 1980's: Post-secondary programs, position papers, and research

Although the emphasis on transition planning and integrated experiences for individuals with disabilities became more prominent in the 1980's [31,39], there was little in the literature regarding opportunities on post-secondary campuses for individuals with MR and other SDs. Two articles detailed programs in the United States (US) [6,13] and two articles described efforts in Canada [16,34]. We located one position paper [25] and two surveys [28,29] from the United States (US) and two position papers from Canada [46,48].

2.2.1. Program descriptions in the US

Duran [13] described a segregated program, All Day Autism, for 15 adults with autism and other SDs who had limited English speaking skills. Located at a university in Texas, this program used native language instruction and actively involved families. The goals of the program were not related to integrated instruction, but rather segregated instruction in independent skill training, leisure and recreation, and social skills in a college setting. Outcome data were not reported and it appeared that the program was funded in part by a grant from the Texas Planning Council of Developmental Disabilities, Office of Rehabilitation Commission.

Caparosa [6] profiled 11 programs at community colleges. Although these programs provided services to adults with disabilities, it appeared that few served individuals with MR. Caparosa added to Dailey's [11] account of the Allegheny program by discussing a third specialized vocational program. The Human Service Aide program was also located in the community, and participants could access continuing education courses at the college. Caparosa contended that community colleges had characteristics that were attractive in terms of developing transition and post-secondary programs for individuals with disabilities. These included open door policies, small student:teacher ratios, a commitment to lifelong learning, low-cost tuition, and vocational training programs linked to local employment needs.

2.2.2. Program descriptions in Canada

The Community Integration through Cooperative Education (CICE) program was initiated by a parent and a community service provider who coordinated an advisory board and piloted a program in 1984 at Humber College [34]. A two-year program, CICE served 18 students a year and used an application process and graduation ceremony identical to those for other college students. The pilot program started with one staff member, and Panitch stated that annual funding from the Provincial Ministry of Colleges in 1986 and ongoing negotiations with the Ministry of Community and Social Services attested to the importance of the project. As CICE students entered the program, staff members worked to identify personal interests and then linked students to courses and activities that matched their interests. CICE students were also tutored in literacy and math. The second year of the program focused on integrated work experiences. Peer tutors from the college played a strong role in providing not only academic support, but also a social network for the CICE students. Panitch reported that 32 students completed CICE and that 76% were working full or part-time after graduating from the program. "It is a personal willingness on the part of teachers, support staff and students to become involved, rather than an organized attempt on the part of the institution to legislate acceptance. . . ." (p. 28).

Frank and Uditsky [16] also credited parents and advocates with the creation of the On-Campus program at the University of Alberta. Eleven students exiting high school were the first participants in this program which "was committed to accepting a heterogeneous group of students including those who were labeled as having multiple and profound developmental disabilities" (p. 35). The program was established through a community association with funding from Alberta Social Services and in affiliation with the University of Alberta Developmental Disabilities Center. Frank and Uditsky [16, p. 34] stressed that "many traditional service delivery patterns had to be put aside to establish On-Campus".

Staff members consisted of a half-time coordinator, three to four personal care attendants, and volunteers from the college. The goals of the program were to promote friendships, provide normative and enriching experiences, and promote employment. Similar to the program described by Panitch [34], students received some instruction from staff and peers (e.g., computers, conversation skills), participated in some integrated classes (e.g., drama, music, English literature), and en-

gaged in recreational activities on campus. Students spent four to six years in the program and were expected to work four months of the year on and off campus. Work experiences paralleled what their peers without disabilities often did during the summer months. Frank and Uditsky [16] cautioned that it took time to overcome attitudinal barriers of some faculty and that employment was only one component of what should be offered to adults with disabilities in post-secondary settings.

2.2.3. Position papers and surveys of service provision

Uditsky and Kappel [46] argued that integrated post-secondary education should enhance self-esteem and improve employment opportunities for individuals with SDs. They warned against repeating errors of the past, by avoiding the creation of artificial environments and by providing options that served only individuals with disabilities. In a different approach, Williams [48] advocated for teaching philosophy to individuals with MR on community college campuses in Canada. He contended that individuals with cognitive disabilities were only provided with opportunities to pursue classes related to vocational outcomes while their peers without disabilities had opportunities to pursue topics such as history, art, literature, and philosophy. Williams suggested that "each member in a community ought to have the choice to pursue education in thinking about thinking—no matter what thinking ability they have to begin with" (p. 257).

Advocates in the US also argued for integrated experiences. Jones and Moe [25] stated that mainstreaming, normalization, and the least restricted environment were practices that had been applied at the elementary and secondary levels, and that the next step was "to provide mentally retarded individuals education where other adults get it, in college" (p. 59). They discussed how Section 504 of the Rehabilitation Act of 1973 supported people with MR on college campuses, but then contended that colleges had not made provisions for including these students. They also identified barriers that impacted access to post-secondary opportunities for adults with MR, such as eligibility criteria for admission, lack of funding, and lack of staff willingness to include students in classes "who are not the most efficient use of our limited money" (p. 62). These authors suggested that colleges often lacked "ownership" of programs since personnel from sheltered workshops or adult developmental centers staffed them. Finally, they pointed out that many community colleges in the 1980's

faced shrinking enrollments and were under pressure to serve "new groups of students" which should include all persons with MR.

Several years later, McAfee and Sheeler [28] conducted a national survey to determine the status of services to adults with MR. Chief officers of 200 community colleges (a minimum of two per state) were surveyed about the type of services, training of faculty, plans to develop or expand services, and attitudinal and policy barriers related to serving individuals with MR. Of the 136 respondents, 51 stated that they served students who had MR, but 35 responded that students with MR comprised less than 1% of the student population. Although 100 respondents indicated that community colleges should have a role in delivering services to people who had MR, 50% had no plans for expansion of service. Services varied and included adult basic education, General Educational Development (GED) programs, and/or preparation of students to go on to universities. The most commonly provided service was identified as counseling and the least common service was participation in regular, credit-bearing courses. Respondents indicated that efforts to expand services were generally made in response to requests from outside agencies rather than from within the college. Some respondents indicated that other agencies were better equipped to provide these services, and that they did not feel responsible for providing services to individuals who were not capable of learning at the college level [28]. In a smaller survey, Michael [29] found similar results when surveying community college coordinators of services for students with disabilities. Of the 67 respondents, only 2 (3%) served students with developmental disabilities.

2.2.4. Summary of the 1980's literature

The literature from the 1980's emphasized the role of colleges and universities in complying with Section 504 of the Rehabilitation Act of 1973, P.L. 93-112, and the need to provide opportunities for adults with MR to participate in regular courses on college campuses. Advocates cautioned against the development of specialized programs serving only adults with MR or other SDs [25,46]. The programs in Canada had moved to a more individualized and integrated approach to planning classes and employment experiences for adults with disabilities [16,34]. These programs appeared to have funding and support from community agencies and the colleges. Surveys conducted in the US indicated that community colleges provided little service to students with MR and that college administrators

and staff members were often not supportive of their inclusion on campuses [28,29].

There were fewer program descriptions in the 1980's than in the 1970's. However, it was evident that more programs existed than were documented in the literature [6,28]. This resulted in little information about program development, outcomes, funding or other information that could prove useful to those trying to replicate post-secondary efforts.

2.3. 1990's: Post-secondary programs, position papers, and research

In the 1990's, it can be assumed that public schools were in the process of complying with the transition service mandates in the Individuals with Disabilities Education Act (IDEA) of 1990 (P.L. 101-336) and the IDEA Amendments of 1997 (P.L. 105-17). Some of the articles and position papers reflected the emphasis on transition and multiple outcomes for students with MR and other SDs during their final years of school. Therefore, descriptions of programs in this section are divided into programs for adults and programs for public school students. Four articles portrayed program descriptions [12,18,20,21], three were position papers [32,35,41].

2.3.1. Program descriptions for adults

Goldstein [17,18] described Project LINK, a transition program for young adults who were not college-bound who had left the school system and who needed instruction in social learning and personal skills, work experience, and recreational activities. Located at William Patterson College in New Jersey, LINK served young adults with MR, emotional disabilities, and neurological disabilities (mean age 20 years, mean IQ 72). Goldstein contended that a college environment reflected the larger society in microcosm and that it provided a sheltered environment for non-college bound students with disabilities to learn and practice appropriate behaviors. It appeared that LINK was initially funded in part with federal monies from the Office of Special Education and Rehabilitative Services (OSERS). Cooperative links were established with local school systems, vocational rehabilitation personnel, and private industry councils. In 1993, Goldstein reported that the project had served 22 individuals with a staff consisting of a director, transition specialist, secretary, and undergraduate students who acted as mentors. Noncredit (segregated) classes were taught during the day, and students engaged in employment opportu-

nities on and off campus. There was no information on Project LINK students participating in regular college classes. Participants did receive college identification cards, which allowed them to participate in social and recreational activities. No outcome data were reported.

As part of another federally funded OSERS project, Gugerty [20] summarized exemplary programs in two-year colleges serving individuals with disabilities. It appeared that several of the programs, two vocational training and one transition program, served individuals with significant needs (specific disabilities were not reported). Although seven programs were chosen as exemplary, 69 post-secondary programs were nominated and received a project questionnaire (Gugerty). This indicated, much like the article by Caparosa [6], that there were more post-secondary programs serving individuals with disabilities than were reflected in the literature. Along with the program profiles, this article included a discussion of barriers that continued to limit access to post-secondary education for individuals with disabilities. Attitudinal barriers included services were that were add-on/after-thought and instructors who saw individuals as "my student/your student". Organizational barriers included: poorly trained staff, unclear goals for programs or services, outdated curricula, and weak leadership. Factors characteristic of exemplary programs included: strong administrative support; organizational structure that reflected extensive planning; flexibility in staffing and the organization; team effort; and staff who demanded high performance of themselves, their peers, and students.

Only the Enhance Program at Trinity College, a four-year liberal arts institution in Vermont, offered young adults with developmental disabilities the option of living in a dorm [12]. This was also the only example of a program that was sponsored by the college. Enhance was offered to adults with developmental disabilities to promote lifelong learning and Dole emphasized that it was "not a 'special' education program" (p. 16). Rather, participants were admitted to regular classes through an audit option, were able to earn 72 college credits, and graduated with a certificate. In addition, most participants maintained part-time employment or volunteer work. They received support in classes from peer tutors, and if they resided on campus, they received support in their daily living activities from a roommate who received a stipend for his or her services. Doyle noted that the development of reciprocal friendships between adults with and without disabilities on the campus was an ongoing issue, and that most participants with disabilities chose to commute to the program.

2.3.2. *Program descriptions for public school students*

Hall et al. [21] detailed a program at Asbury College (a liberal arts college) in Kentucky that served students with moderate and severe disabilities on campus during their final four years of public schooling. This distinction is important because all the previous program descriptions included only adults who had already graduated from or left high school. This program was planned by a group of parents, students, teachers, and administrators in a school system to provide students with disabilities (ages 18–22) access to an alternative, age-appropriate environment. The school system had strong ties with Asbury College (because student teachers were often placed in the schools) and approached the college with its idea. It was noted that the program was supported in part with federal funds from OSERS.

The school system supplied the staff, materials, transportation, and liability insurance. Staff members included two full-time teachers, three instructional assistants, and vocational trainers as needed. The college provided opportunities for students to audit college classes and to obtain a college student identification card, which allowed access to social and recreational activities. The college did not charge for the courses, provided a small office for the local school staff, and designated a person to act as a liaison between the college faculty and school system.

The program initially served seven students who had participated in a personal futures planning process. After an orientation at the college, students chose classes (e.g., family studies, radio production, ecology, and physical education) to match their interests. College students from an adaptive physical education course were given the opportunity to work with program participants as part of their coursework. Employment and community-based activities were also part of the program. Hall et al. [21] reported that natural supports emerged for participants in many classes and activities. Related services, such as physical and occupational therapy, could be embedded in some of the college courses. Although outcome data were not reported, multiple benefits of the program were identified. These included: (a) students improved their skills in a natural environment with their same-age peers; (b) college students had opportunities in their classes to work with individuals with SDs; (c) collaborative efforts between school, college, and community personnel were strengthened; and (d) students with disabilities were able to expand their interests through courses on campus that differed from those at the high school.

2.3.3. *Position papers*

Noble [32] argued that little, if any progress had been made in serving adults with MR at community colleges. In a brief review of the literature and position paper, Noble pointed to numerous references in the literature that suggested community colleges were in a unique role to offer transitional and continuing education services to individuals with MR. He contended that access and support issues were at the time being compounded as community colleges began changing their mission of open-door policies to one that focused more on preparing individuals for careers or for entrance into four year institutions. This shift had resulted in increased standards and prerequisites, not only for classes but also for admission, both of which impeded access for individuals with MR. Addressing the issue of integrated instruction, Noble stated that “. . . few colleges, including those which offer special classes, had considered how mentally retarded students could be accommodated in the regular curriculum to meet their individual learning goals” (p. 163).

Smith and Puccini [41] and Patton et al. [35] advocated that transitional programming be provided to students with MR and developmental disabilities in age-appropriate settings, such as community colleges and vocational-technical centers. Smith and Puccini [41] stated that “most schools do not offer programs for 18–22 year-olds that differ from those offered to younger high school students” (p. 280). Therefore, these students typically repeat the same educational experiences (e.g., elective classes, resource classes) during their last four years of high school. They maintained that “. . . exposing students to longer periods of time to inappropriate curricula or teaching efforts does not result in improved educational performance or an improved likelihood as adults” (p. 279).

Smith and Puccini [41] contended that not only should students be provided public education in age-appropriate settings but that their public school funding should follow them to these settings. Patton et al. [35] reiterated this call for changing policies and funding patterns, but specifically for students with mild MR. Both groups of authors advocated for curricula and programming for students with MR throughout their school years that were relevant to their future needs as adults.

2.3.4. *Research*

Page and Chadsey-Rusch [33] conducted a qualitative study which described the experiences of four young men (ages 19–22) attending a community col-

lege. This study described the experiences of two young men with MR who still received special education services from a local school system with the experiences of two young men who were not disabled and who had graduated from high school. The community college site was picked due to a “state-funded grant designed to demonstrate programs where people with multiple and severe disabilities were included in community college settings” (p. 87).

The students with MR in this study were encouraged to use supports that were already in place at the college (e.g., free tutorial classes, orientation classes, requesting assistance from the instructor or peers) and received support from school system personnel. Page and Chadsey-Rusch [33] found that the expectation to go to college was impacted by others’ perceptions and the availability of supports. Only the students without MR expressed a belief that a college education could expand their employment opportunities. All four students reported that attending the community college had a positive effect on their social and interpersonal relationships. The authors pointed out that attending a community college did not necessarily lead to a career, but they recognized other potential benefits. They called for additional research to document the outcomes of students with SDs who attend post-secondary programs.

2.3.5. *Summary of the 1990’s literature*

Several themes during the 1990’s were similar to earlier decades. These included the need for adults with MR and SDs to have the right to access opportunities on college campuses and to participate in regular college courses. There was continued discussion of the attitudinal and organization barriers that limited these adults’ access to college campuses [20,32]. Once again, there was little documentation of outcomes for adults who participated in the programs. There was additional information on program components, such as how to conduct assessments and how to adapt curricula [18], and on the provision of a residential component in the Enhance program [12]. The addition of a residential component is important because it allowed individuals with disabilities and their families to address the realities of independent living. A number of the programs appeared to be federally funded with monies from OS-ERS [18,21], although it was unclear whether these efforts were continued once the federal funds were exhausted. The program described by Doyle [12] was unique in detailing the philosophy behind the college’s initiation of Enhance for adults with developmental dis-

abilities and in allowing participants to audit regular classes.

An emerging trend in the 1990's centered on the age at which individuals with MR and SDs accessed post-secondary opportunities. There was a philosophical shift to provide students with disabilities who were still enrolled in public schools access to post-secondary programs or supports during their final school years [35, 41]. Hall et al. [21] and Page and Chadsey-Rusch [33] documented this trend in the literature. In addition, Page and Chadsey-Rusch provided one of the first studies that documented how individual supports were provided to public school students on a college campus along with the benefits of providing such opportunities.

3. Discussion

Our literature review revealed 27 published articles that highlighted educational, vocational, and transitional programs at the college level for individuals with MR and other SDs. The literature from the 1970's and 1980's focused on post-secondary opportunities to adults with MR and other SDs. Although located on college campuses, the programs were segregated from other college classes and often focused on vocational training, functional skill development, and work adjustment skills. These classes were generally non-credit and offered through continuing education divisions on campus. Opportunities for integration were most often accomplished when non-disabled peers volunteered in the programs. In addition, adults with disabilities often enrolled in campus recreational classes (both segregated and integrated). Post-secondary programs were often initiated through the efforts of parents [16,21,34] and staffed with volunteers from the community [10] or student interns from the campus [8,12,13,34].

Although there appeared to be more programs than reported in the literature (e.g. [2,6,20,42]), there was limited information on how others could replicate such efforts. There was also little evidence concerning how program participants obtained paid employment or accessed more inclusive social or recreational activities as a result of attending a post-secondary program. In fact, only Snider and Roderfeld [42] included information on program evaluation efforts; additional information on participants' outcomes was very limited. Perhaps the past literature is best summarized in a monograph written by The Roeher Institute (1996) which stated:

There are significant gaps in the research literature particularly in the areas of program planning and adaptation for student with an intellectual disability. Some model programs are described in the literature, anecdotal evidence suggests that the integration of students with intellectual disabilities in college and vocational programs may be occurring (albeit still in a limited way) and not being documented in the research literature. There is therefore a clear need to conduct further research on best practices that may not be reflected in the academic or research literature (p. 30).

The philosophical shift evident in the 1990's to provide programs or individual supports to public school students, ages 18–22, on college campuses [21,33,41] is most likely due to a variety of factors. As students with SDs continue to be included in regular secondary education classes with their nondisabled peers, it is logical that families, teachers and researchers desire to extend these inclusive experiences into post-secondary settings. The focus on transition planning due to the IDEA of 1990 and the IDEA Amendments of 1997 has also increased awareness of the need to plan for multiple outcomes, including post-secondary education, for students with disabilities. The move to differentiate exit documents for students leaving public schools, such as an alternative diploma or certificate rather than a diploma, has also influenced how schools and families may view the need for alternative, age-appropriate programming for students with SDs beyond the age of 18.

Currently, there are few guidelines for school systems interested in developing age-appropriate alternatives for students ages 18–22 in post-secondary settings with the exceptions of Hall et al. [21] and Grigal et al. [19]. Grigal et al., describe 14 programs that serve students, ages 18–21, in age-appropriate settings in Maryland. Interestingly, 11 programs are located on community or four-year college campuses whereas the other three programs are located in the community. Expanding age-appropriate alternatives to community settings that include but are not limited to college may result in providing greater numbers of students and their families with alternatives that differ from traditional high school courses. Although these descriptions provide examples of programs in post-secondary settings, we could find no research to justify which programs or individual supports maybe more effective in improving outcomes for students with MR and other SDs. In other words, we do not know which, if any, post-secondary efforts for transition-age students are more effective

than continued attendance in traditional high school programs in terms of obtaining jobs, using community resources, or making friends. Documented outcomes and program evaluation efforts were clearly lacking in early programs for individuals, regardless of age, with MR and other SDs. We need to ensure that this omission is not repeated when providing opportunities for students with MR and other SDs on college campuses and in the community.

A second trend for offering post-secondary opportunities to students with SDs can be seen in the individual support (IS) model. Similar to what Page and Chadsey-Rusch [33] described in their study, the IS model is based on providing students inclusive, community-based services in age-appropriate settings after they turn 18 years of age. Although our search revealed few published articles that used the IS model, we know of such efforts throughout the US based on personal communication, conference presentations, and case studies detailed in book chapters (e.g. [5,37,43, 50]).

Using the IS model, supports are “individually based on an analysis of the interests and needs of the person and the ability of his/her natural environment to make appropriate accommodations” [37, p. 1]. Therefore, students are not limited to what is available in a “program” and may have greater access to courses, job opportunities, and recreational activities of their choice. Using individual supports for students with SDs requires the transition planning team to identify (through a personal futures planning process) where support will come from. Supports may be provided by family members, school personnel, adult service personnel, services on campuses, or outside agencies such as vocational rehabilitation [33,37,43]. Research and replication issues that must be addressed for this model include: the hours students attend campus classes or activities; how the students enroll in classes; the ways in which individual supports can be provided; and the changing role of the teacher. School administrators will have to be flexible and creative in terms of policy and practice as staff and monies follow students to age-appropriate settings [7,35,41].

4. Conclusion

As we continue to explore and expand alternative programs and supports in post-secondary settings for students with MR and other SDs, practitioners and researchers must take into account the issues, challenges,

and gaps that have been noted in previous literature. It will be important too, for school systems to work with colleges to develop programs that do not isolate students with MR and other SDs, ages 18–22, from their peers. The past teaches us that colleges may not be invested in efforts initiated by outside agencies [25], that specialized programs often do not promote integration of students in regular classes [32], and that extensive planning and flexibility in staffing are necessary in exemplary programs [20]. We know little about the role of colleges in designing and sustaining programs, with the exception of Hall et al. [21] and Doyle [12]. Many programs were started through the efforts of parents, community service providers, or select special education personnel in the school system. Without further descriptions of policies, cooperative agreements, staffing patterns, and funding sources, replication by others may prove difficult and time-consuming.

The location of post-secondary programs or supports for students ages 18–22 also deserves exploration and documentation. In the past, it was argued that a college campus would offer individuals with integrated and age-appropriate experiences. Historically, this has not always been the case. Providing post-secondary experiences in business and industry settings, especially if the interests and goals of students relate to paid employment, may be a viable alternative. Finally, documentation of student outcomes, stakeholders’ satisfaction with age-appropriate alternatives, and cost-benefit analysis of post-secondary programs or individual supports must be addressed. Although several program descriptions included information on participants’ employment outcomes, it will also be necessary to evaluate the effectiveness of post-secondary efforts in terms of other quality of life indicators, similar to what has been suggested by Halpern [22]. Research is crucial in advancing post-secondary practices and in justifying alternative, age-appropriate programs and individual supports for students with MR and other SDs during their final public school years and into adulthood.

Acknowledgment

The preparation of this document was supported, in part, by the US Department of Education, Office of Special Education Programs (Grant Number H324R990032). The views expressed here do not necessarily reflect the position or policy of the US Department of Education.

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