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Article

EARLY EXPOSURE TO PEOPLE WITH PHYSICAL AND SENSORY DISABILITIES AND LATER ATTITUDES TOWARD SOCIAL INTERACTIONS AND INCLUSION

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Abstract: This study assessed the relationship between exposure to classmates with visible impairments in primary and secondary schools with later attitudes toward people with disabilities. Fifty college students (mean age = 20.28 years; 76% female) completed measures assessing the extent and quality of recalled exposure to classmates with disabilities in elementary and secondary school. Attitudes toward social inclusion and toward a hypothetical social interaction were also measured. Participants reported generally high levels and quality of exposure, with significantly more exposure at the secondary level. Quality of exposure at both the elementary and secondary levels was significantly ($p < .01$) correlated with more positive cognitions (i.e., thoughts) during a hypothetical social interaction. Cognitions were not significantly correlated with emotions or behaviors, and amount of elementary exposure was negatively correlated with attitudes to social inclusion ($p < .05$). These results suggest a possible relation between positive early experiences and later friendship intentions that should be further explored.

Keywords: *physical impairments; sensory impairments; young adults; inclusion; peers*

Introduction

American special education laws (e.g., Individuals with Disabilities Education Improvement Act [IDEIA], 2004) have long mandated student placement in the least restrictive environment. This requirement is based on the philosophy that students with disabilities should be educated among their non-disabled peers to the greatest extent appropriate. In other words, each child with a disability should be placed in the most inclusive educational environment that can provide the child with a satisfactory and meaningful educational experience. Theoretically, placement in the least restrictive environment promotes integration of and interaction among students with and without disabilities and provides students with disabilities a greater breadth of academic and social opportunities (United States Department of Education, n.d.). However, relatively little research has been conducted on the long-term outcomes of such integration on students without disabilities and their later attitudes toward people with disabilities.

Social Exposure and Attitudes Toward Disability

Children

In previous research (Diamond & Hestenes, 1996), children as young as 3 and 4 years old have demonstrated the ability to identify the presence of physical or sensory impairments in photographs of other children. They were also able to discriminate among different categories of impairment but less able to detect less visible impairments, such as Down syndrome (Diamond & Hestenes, 1996). This suggests that physical or sensory impairments may form the cognitive representation of *disability* in young children. Additionally, the same study found that children did not rate children with physical or sensory impairments significantly lower on social desirability than children without obvious impairments. However, the children also tended to attribute the cause of the impairment to the environment, viewing it as the result of an external stimulus. For example, they may believe that a child with a walker is unable to walk *because* of a mobility aid, rather than realizing that the walker is used to ameliorate the effects of a disabling condition.

To control for this potential confound, Cameron, Rutland, and Brown (2007) created a study in which older children (ages 6 through 9) were given age-appropriate explanations of the nature of both physical and intellectual disabilities, including an emphasis on their usual permanency. The participants were placed in one of three groups: (a) an extended contact group in which they were read age-appropriate stories about children with disabilities, (b) a multiple classification group in which participants sorted pictures of children by both disability-related and non-disability-related characteristics, or (c) a control group that received no intervention. Participants in all three groups started with and maintained relatively positive attitudes toward children with both intellectual impairments and those with physical impairments. However, only the extended contact experimental condition showed significant post-intervention increases in positive attitudes toward disability and behavioral intentions toward people with impairments.

Adolescents

Fisher, Pumpian, and Sax (1998) assessed the attitudinal differences toward people with disabilities in a high school that included students with disabilities and a demographically similar high school that did not. Although the researchers found no significant differences between the students at the two schools in terms of behavioral and social intentions toward students with disabilities, they did find that students in the integrated high school had less negative attitudes regarding the inclusion of students with severe disabilities in general education classes. Qualitative comments regarding students' experiences in integrated classes were generally positive.

Wong (2008) examined the effects of inclusive classrooms and peer interaction programs on the attitudes of students aged 13 to 17 in Hong Kong. Although the structured peer interaction program did create a similar increase in positive attitudes, inclusive education at the classroom level alone did not produce significant changes in the students' attitudes toward people with disabilities. However, it should be noted that the low percentage of students with disabilities in the school (less than 2%) may have diluted the effects of the exposure.

In the realm of social exposure, Hastings, Sjöström, and Stevenage (1998) found a small but significant relationship between contact with people with disabilities in general and positive attitudes toward their inclusion in daily life and leisure activities. This held true for both inclusion of people with intellectual impairment and inclusion of people with speech impairment. However, when comparing scores of English and Swedish adolescents, Hastings and colleagues found a significant difference in attitudes between countries, suggesting that cultural factors may also play a role in shaping attitudes toward people with disabilities.

Attitudes and Behavioral Intentions

Despite the seemingly promising links between exposure and attitudes, there is some evidence that positive attitudes toward disability in general may not actually translate into positive, socially inclusive behavior toward children with disabilities. Laws and Kelly (2005) found that a significant number of children who were classified as having average to positive attitudes toward children with physical impairments nevertheless did *not* have inclusive behavioral intentions toward a hypothetical child with a physical impairment. This suggests that studies should measure specific behavioral intentions as well as general attitudes. Similarly, researchers have criticized traditional assessments of attitudes toward disability for being overly susceptible to social desirability bias (i.e., the perceived social pressure to report positive attitudes towards disability; Pruett & Chan, 2006) and have developed alternatives, such as implicit attitudes tests (Pruett & Chan, 2006) and measures of reactions to a hypothetical social situation (e.g., the Multidimensional Attitudes Scale [MAS]; Findler, Vilchinsky & Werner, 2007).

Long-Term Correlates of Exposure

There is a dearth of information on the lasting, non-immediate correlates or effects of exposure to people with disabilities. In one of the few studies on the topic, Kishi and Meyer (1994) examined the attitudes of students between the ages of 15 and 19 who had been in Hawaii public

schools when the state began mainstreaming students with disabilities in the late 1970s. They compared attitudes among students who were (a) enrolled in non-inclusive schools, (b) enrolled in non-inclusive schools (“exposure”), or (c) had participated in special programs designed to facilitate social interaction between students with and without disabilities (“contact”). Kishi and Meyer found that students who had been in inclusive schools or in special programs designed to facilitate interactions between students with and without disabilities generally reported more positive attitudes toward people with disabilities than those who were in non-inclusive schools. However, the students who went to inclusive (“exposure”) schools did not have students with disabilities in their actual classes and were, therefore, only exposed to students with disabilities incidentally. Additionally, only structured interactions with students with severe disabilities were considered as “contact.” Post-high school attitudes were not measured.

Aim of the Present Study

The aim of the present study was to examine the relationship between the attitudes of college students toward people with disabilities and their pre-college exposure to classmates with physical or sensory impairments during their elementary and secondary education. We chose to focus on physical and sensory impairments specifically because they can be easily recognized by even young children (Diamond & Hestenes, 1996) and are likely to be memorable due to their visibility and relatively low incidence. It is possible that many elementary school-age children may not be able to recognize learning disabilities, mild intellectual disabilities, or emotional disorders as disabilities and thus would not recall those students as being *disabled* in hindsight, even if they qualified as such under IDEIA (2004).

The research questions were as follows:

1. Among a sample of college students without disabilities, how much exposure to classmates with physical and sensory disabilities in elementary and secondary education was recalled? What was the recalled quality of interactions with classmates with disabilities?
2. How did recalled exposure and quality of interaction relate to current attitudes toward social inclusion and social interaction with people with physical and sensory disabilities?

Methods

Participants

The participants in this study were drawn from a pool of students enrolled in *Introduction to Psychology* at a public university in the northwestern United States during the fall semester of 2009. Students taking *Introduction to Psychology* were required to participate in or review research as a course requirement. Students choosing to participate in this study were awarded two of the required eight research credits for participation.

Participants who self-identified as having a disability were excluded from the sample, as the purpose of the study was to assess the effects of interaction with people with physical or sensory impairments on the attitudes of students without disabilities. Participants who attended an elementary or secondary school in a non-American school system were also excluded from the

study. Data from participants who answered one or both of these screening questions affirmatively were not included in the final analyses, but the students still received full credit for their participation.

A total of 51 participants initially volunteered to participate in the study. Complete MAS scores were missing for two participants, one of whom was also missing complete Social Inclusion Scale scores. The data from the participant who was missing both Social Inclusion Scale and MAS scores were excluded from data analyses resulting in a final sample size of 50 for analyses not involving the MAS. The second participant was missing complete MAS data; thus, the sample size for analyses involving the MAS was 49. The sample was majority female (76%), of traditional college age ($M = 20.28$ years, $SD = 3.74$, range = 18–38 years, 86% aged 18–22), and composed primarily of college freshmen (50%) and sophomores (32%). Although racial and ethnic data were not collected, the majority of students who attended the university were Caucasian.

Measures and Scoring

Recalled exposure. The Disability Exposure Scale was created by the authors for the purposes of this study. Four questions measured recalled frequency and perceived quality of classroom exposure to people with physical or sensory impairments across elementary school (grades K through 6) and junior high school and high school (“secondary school,” grades 7 through 12). Each question asked if the participant had any students with physical or sensory disabilities in his or her [grade-level] classes and used a response scale consisting of five possible answers. The possible answers and their values were “Yes, several” (4), “Yes, one or two” (3), “No, but there were students with other disabilities” (2), “No, to my knowledge, there were no students with disabilities” (0), and “Do not recall” (0). Because non-recalled experiences could not be quantitatively approximated, they were also coded as zero. However, there were no “Do not recall” responses in the present study. Examples of physical, sensory, and other impairments were provided on the questionnaire. Participants were then asked to rate the overall recalled quality of those interactions on a 7-point Likert-type scale, ranging from “extremely negative” (scored at -4) to “extremely positive” (scored at 4). Refer to Appendix A for the complete Disability Exposure Scale.

It should be noted that the item for elementary school exposure (1a) mistakenly read “junior high school classes (grades kindergarten through 6th)” rather than “elementary school classes (grades kindergarten through 6th).” However, the potential for this error to confuse participants was reduced by the labeling of the question as “elementary school” and the listing of the grade range of kindergarten through 6th grade. No participants reported confusion or asked for clarification on this item when completing the measure.

Attitudes toward social interactions. The MAS (Findler et al., 2007) is used to examine responses to a hypothetical person with a disability through the three domains of emotion, cognition, and behavior. Each domain is represented by a subscale and a total score is calculated through summing the average score on each subscale. The MAS is based on a short vignette in which a hypothetical person is placed in a situation in which the opportunity to interact socially with an unfamiliar person with a visible physical impairment is presented. The participant is

asked to rate the likelihood that the hypothetical person will experience certain emotions and cognitions (i.e., thoughts) and engage in certain behaviors during the situation. The possible options include both positive (e.g., relaxation, calmness, serenity) and negative (e.g., guilty, upset, nervousness) emotions. All cognitions (i.e., items related to thoughts) are positive (e.g., He/she seems friendly). Behaviors include explicit avoidance behaviors (e.g., Get up and leave), more subtle avoidance behaviors (e.g., Read a newspaper or talk on a cell phone), and social engagement behaviors (e.g., Start a conversation).

Participants were asked to rate the likelihood of the hypothetical, able-bodied person engaging in each behavior, cognition, and emotion on a 5-point Likert-type scale, ranging from 1 (not at all) to 5 (very much). Positive emotions, positive cognitions, and social engagement behaviors were reverse-coded (i.e., high scores are reserved to represent low scores and vice versa). Both subscale scores (for the emotion, cognition, and behavior subscales) and total scores (summing the averages for each of the three subscale scores) can be calculated. Higher scores represent *less* positive attitudes toward people with disabilities.

The MAS questions and vignettes can be viewed in Findler et al. (2007). Only one change was made to the MAS for this study. Participants were not matched by gender to the character in the vignette; thus, both the male and female names were presented in the vignettes to both male and female participants.

MAS reading check. Four questions following the scale were used as a *reading check* to evaluate how much attention was paid to the vignette by the participant. The questions were on a different page from the vignette and the participant was instructed not to refer to the vignette when answering questions. For the 49 participants for whom reading check scores were available, six (12%) answered a question incorrectly, suggesting that participants did read and remember the MAS vignette. The reading check questions and correct answers are in Appendix B.

Attitudes toward social inclusion. The Social Inclusion Scale (Hastings et al., 1998) is meant to assess the respondent's attitudes regarding whether people with disabilities should participate in ordinary life and leisure activities using autonomy of choice. Twenty-one of 22 items in the original scale were used for this study. One item ("Should be encouraged to use speech rather than sign language") was removed because it would not apply to all people with physical or sensory impairments. In addition, some language (e.g., "holiday" for "vacation") was changed to reflect linguistic differences between European and American English, and one item regarding dating was modified to be sexual-orientation neutral. Total scores were calculated by summing all items. The original 22 item scale showed good test-retest reliability ($r = .71$) and high internal consistency (Cronbach's $\alpha = .87$; Hastings et al., 1998).

Hastings et al. (1998) initially tested the Social Inclusion Scale in two forms. It was piloted using the generic phrase, "People with [type of disability] disabilities..." to represent the subject. The revised version of the scale contained a short vignette about a person named Steven with a learning [intellectual] disability or speech impairment and used the phrase, "People like Steven..." (Hastings et al., 1998). For the sake of simplicity and to avoid participant fatigue caused by using two measures that required reading vignettes, the scale used in the present study had phrasing similar to that used in the Hastings et al. pilot study. The phrasing was modified to

target the disability populations of interest in this study and read, “People with physical (examples include but are not limited to people who frequently use wheelchairs, walkers, crutches, canes, or similar devices, who are missing one or more limbs, and/or who have difficulty moving) or sensory impairments (blindness, deafness, or visual or hearing impairments). . . .”

The version of the Social Inclusion Scale used in the present study consisted of 21 items. Each item began with either “Should . . .” (e.g., “Should go to night-clubs”) or “Should not . . .” (e.g., “Should not be told at what time to go”). Participants endorsed each item on a 5-point, Likert-type scale, with 1 representing “strongly disagree” and 5 representing “strongly agree” (Hastings et al., 1998). Possible scores ranged from 21–105, with higher scores representing a more positive attitude toward the community inclusion of people with disabilities. The original Social Inclusion Scale can be viewed in Hastings et al. (1998).

Administration of Measures

Upon arriving at the testing location, participants were given an informed consent form by a trained research assistant or the principal investigator and had the opportunity to ask questions about the consent form. After the participants gave informed consent, they were provided a packet consisting of the Disability Exposure Scale, MAS, and Social Inclusion Scale and asked to complete the measures in the packet to the best of their ability. If the participants responded yes to either of the exclusion questions (attended a non-American elementary or secondary school system or self-disclosed a disability), they were to speak to a research assistant who gave them the option to complete the packet or to leave at that time with full compensation.

Results

Amount and Quality of Exposure

All 50 participants had experienced some pre-college exposure to classmates with disabilities. Most students reported having at least one classmate with a physical or sensory impairment in their elementary school (76%) or secondary school (82%) classes. One-third (32%) of the participants recalled having “several” classmates with physical or sensory impairments in elementary school; comparatively, half of the sample reported having “several” classmates with impairments in secondary school. Twenty-two and eighteen percent of participants reported having only classmates with non-physical or non-sensory disabilities at the elementary and secondary levels, respectively. In order to see whether coding exposure to only students with other (i.e., neither physical nor sensory) disabilities as low or no exposure affected the results, correlations were run with options coded as both 0 (i.e., as no exposure) and 2 (i.e., as low exposure). Both coding methods produced roughly the same results, suggesting that the attitude measures were primarily related to exposure to classmates with physical or sensory impairments specifically. Because of this lack of significant difference, we elected to treat exposure to students with other disabilities as “low exposure” when reporting the results. A paired sample *t*-test showed a significant difference between mean exposure scores at the elementary ($M = 3.04$, $SD = .86$) and secondary school ($M = 3.32$; $SD = .87$) levels ($t(49) = -2.447$, $p = .018$).

Similarly, participants also recalled high quality of exposure to their classmates with disabilities. At the elementary school level, 64% of participants related having a “somewhat positive,” “quite positive,” or “extremely positive” experience with their classmates with disabilities, and 62% reported positive experiences at the secondary school level. Comparatively, only 4% of participants described having “somewhat negative” experiences with classmates with disabilities at either the elementary or secondary school levels and none recalled a “quite negative” or “extremely negative” experience. A paired samples *t*-test revealed a significant difference between elementary ($M = 2.02$; $SD = 1.06$) and secondary school ($M = 2.38$; $SD = 1.31$) quality of exposure scores ($t(49) = -2.391$, $p = .021$). Both scores were high, considering the possible range of -4 to 4.

A series of bivariate correlations were run to assess the relationships between amount of exposure and quality of exposure. Amount of exposure was significantly correlated between elementary school and secondary school levels ($r = .508$, $p < .001$). A similar relation was found for quality of exposure ($r = .613$, $p < .001$).

Psychometrics of Attitudes Measures

Because both attitude measures (i.e., MAS and Social Inclusion Scale) were originally normed on populations outside the United States and were altered slightly to fit the aim and administration procedures of the present study, preliminary psychometrics were run to assess internal consistency. For the Social Inclusion Scale, internal consistency was high ($\alpha = .870$), suggesting that the changes to wording made in the present study did not notably alter the items or the ways in which participants responded to them. The mean score on the Social Inclusion Scale was 91.5 ($SD = 9.40$, range = 62 – 105), suggesting generally positive attitudes toward social inclusion of individuals with physical or sensory impairments among participants.

For the MAS, internal consistency was calculated for all three subscales as well as for the total scale. The emotion ($\alpha = .876$), cognition ($\alpha = .892$), and behavior ($\alpha = .792$) subscales all demonstrated good to excellent internal consistency, as did the total scale ($\alpha = .879$). Mean MAS scores for each of the subscales were as follows: emotion ($M = 2.48$, $SD = .677$); cognition ($M = 2.38$, $SD = .718$), and behavior ($M = 2.32$, $SD = .657$). These means were similar to those found in other studies using the MAS (e.g., Findler et al., 2007; Hein, Grumm, & Fingerle, 2011). The MAS cognition subscale, while significantly correlated with the total MAS score ($r = .582$, $p < .001$), was not significantly correlated with either the emotion or behavior subscales. Conversely, the emotion and behavior subscales were significantly correlated with each other and with the total MAS score (see Table 1). When compared using a paired sample *t*-test, the mean scores for the emotion, behavior, and cognition subscales did not significantly differ from one another.

Attitudes

A negative correlation was found between amount of exposure at the elementary school level and Social Inclusion Scale scores ($r = -.312$, $p = .028$), but this relationship did not hold when amount of exposure at the secondary school level was correlated with Social Inclusion Scale scores ($r = .019$, $p = .897$).

Total MAS scores were not significantly correlated with any level or quality of exposure. However, when the MAS score was broken down by subscale, the cognition subscale was significantly correlated with the quality of exposure at the elementary level ($r = -.434, p = .002$) and secondary levels ($r = -.374, p = .008$). In contrast, neither the emotion nor behavior subscales were significantly correlated with amount or quality of exposure at any level. Because a lower score on the MAS represents a more positive attitude toward people with disabilities, a negative correlation involving MAS scores represents a positive relationship between the other variable in the correlation and attitude.

Table 1

Relations Between Amount and Quality of Exposure and Attitudinal Measures

	Amount- Elem	Quality- Elem	Amount- Second	Quality- Second	Total MAS	MAS- Cog	MAS- Emot	MAS- Behav
Quality- Elem	-.136	-	-	-	-	-	-	-
Amount- Second	.508**	.033	-	-	-	-	-	-
Quality- Second	.004	.613**	.039	-	-	-	-	-
Total MAS	.171	-.253	.166	-.145	-	-	-	-
MAS- Cog	.055	-.434**	-.036	-.374**	.582**	-	-	-
MAS- Emot	.182	-.057	.214	-.012	.712**	-.014	-	-
MAS- Behav	.123	-.079	.128	.085	.806**	.186	.533**	-
SIS	-.312*	.218	.019	.115	.037	-.096	.041	-.029

Note. Elem = elementary school; Second = secondary school; MAS = Multidimensional Attitudes Scale; MAS-Cog = MAS Cognition subscale; MAS-Emot = MAS Emotion subscale; MAS-Behav = MAS Behavior subscale; SIS = Social Inclusion Scale; * $p < .05$; ** $p < .01$.

Discussion

This study assessed the relationship between exposure to students with disabilities in primary and secondary school with later attitudes toward people with disabilities. Although many factors may influence the development of attitudes toward people with disabilities over time, exposure during school represents a significant amount of time in a critical developmental context. Quality of exposure at the elementary and secondary level was positively correlated with more positive cognitions in a hypothetical encounter with a person with a disability. Amount of exposure at the elementary school level was negatively correlated with attitudes toward social inclusion, indicating that greater exposure to classmates with physical and sensory impairments in elementary school was actually associated with less positive attitudes towards the social inclusion of people with disabilities.

Recalled Exposure

Respondents reported a significantly greater exposure to classmates with disabilities in secondary school as compared to elementary school. This may be due to the fact that junior and senior high schools are often composed of students from several different elementary schools. Thus, this would reasonably lead to both a larger student body and a greater number of students with disabilities in the school. This difference might also be explained by the fact that, in the United States, elementary school students tend to stay in a single classroom all day with the same classmates, whereas secondary school students tend to rotate to multiple classrooms and courses throughout the day, thereby being exposed to a greater number and variety of students. Alternatively, it is possible that the education system itself may have become more inclusive over the 12 year period in which the participants were in elementary and secondary school, thus leading to greater exposure in secondary school.

Less time elapsed between the participants' experiences in secondary school and their participation in the study. Therefore, the greater recalled exposure during secondary school could be due, in part, to more accurate or more detailed recall for this time period, as compared to the elementary grades. This time difference could also affect recollections of quality of exposure in a similar manner.

The participants' generally positive recollections of their interactions with students with disabilities should also be noted. Only two participants referenced any type of negative recalled experience with classmates with disabilities, suggesting that a vast majority of the students did not feel negatively affected by the presence of students with disabilities, especially students with physical or sensory impairments, in their elementary and secondary school classes. Although it is possible that these responses were influenced by social desirability bias (i.e., the perceived social pressure to report positive attitudes toward individuals with disabilities), the anonymous nature of the questionnaire and the fact that the measure was asking specifically about interactions that occurred with anonymous people in the past may have decreased the impact of social desirability bias.

One of the strengths of this study was the fact that data on subjective quality of exposure, not solely exposure, were collected. Additionally, this study did not assume that being in an *inclusive*

school equaled exposure in and of itself, but asked participants to recall whether there were students with disabilities in their particular classes, not just in the school as a whole.

Attitudinal Measures

Social inclusion. Perhaps one of the most surprising results of this study was the negative correlation between amount of exposure to students with physical or sensory impairments at the elementary school level and later attitudes toward social inclusion. It is possible that participants with greater exposure to young children with disabilities may have been thinking of those encounters as a reference while completing the Social Inclusion Scale and thus may have been less likely to strongly endorse items related to independence and autonomy (i.e., “Should not be told when to go to bed”). This idea was further supported by the fact that some participants spontaneously wrote qualifying statements such as “It depends how old they are” next to some questions on the Social Inclusion Scale. In future studies, it may be beneficial to include a distinct stage of life or age range as a cognitive guide for participants or to query participants about different age ranges separately.

Social interactions. The use of the MAS, which uses a specific hypothetical encounter rather than general statements of opinion, may have helped to reduce the impact on social desirability bias on responses; this is notable as social desirability bias can be a barrier to accurately measuring attitudes toward disability (Pruett & Chan, 2006).

The subscale correlations in this study did not confirm those of the original MAS development study by Findler and colleagues (2007). Although both studies found that emotion and behavior were the two most highly correlated subscales, Findler et al. also found a significant positive correlation between the emotion and behavior subscales and the cognition subscale; the present study did not. This may point to possible cultural differences between the two samples, as Findler and colleagues’ study used an English-speaking Israeli population whereas the sample in this study consisted of English-speaking American students, such as different social norms for behavior.

The findings also suggest that exposure to and interaction with students with disabilities only correlated with participants’ thoughts during a hypothetical interaction with a person with disability, but not with their emotions or behaviors during that same encounter. Furthermore, cognitions were not shown to be related to either emotions or behaviors, suggesting that what people think when meeting a person with a physical impairment may not be representative of either how they feel or act toward that person in the same encounter. Future studies should examine the MAS subscales using vignettes involving hypothetical encounters with people with and without disabilities in order to better understand the impact of the hypothetical person’s impairment on participant responses.

The significant correlations between quality of exposure at both the elementary and secondary levels and more positive cognitions toward a hypothetical person with a disability suggested that having positive experiences with classmates with disabilities may have a significant impact on how students regard people with disabilities later in life. The items on the cognitive subscale of the MAS are not only positive (e.g., “He/she looks friendly”) but also emphasized viewing the

person with a disability in a way that implies that the person with a disability is a potential friend (e.g., “We may get along really well.”). Thus, having high quality experiences with people with physical and sensory disabilities in childhood and adolescence may make a young adult more likely to view people with physical disabilities, like the hypothetical acquaintance in the MAS vignette, as potential friends and companions.

Limitations and Future Research

The primary limitation of this study was its small sample size ($n = 49$). In addition to the lower overall power, the relatively high number of correlations and t -tests run increased the probability of a false positive (i.e., falsely significant) result due to chance (Thompson, 2006). Because of this, a Sidak or Bonferroni correction might be used to reduce the target p -value to $p = .000$ or less ($p = .000$ is the lowest p -value reported by SPSS) and thus reduce the probability of reporting a false positive result (Thompson, 2006). Due to this study’s status as a pilot study, all results that were significant at the $p < .05$ level were reported. However, results that are significant at a level above $p < .001$ should be interpreted with caution.

Secondly, this study required current college students to recall the presence of students with physical or sensory impairments in their classes from the age of five onward. This required recall from between 13 and 33 years in the past and it is possible that participants may have unintentionally misrepresented their levels of exposure. Memories tend to fade and become less reliable over time and thus participants may have over- or under-reported their actual exposure to classmates with physical or sensory impairments. Finally, it is possible that the typographical error in the exposure measure may have led to some confusion among participants; however, no participants indicated confusion verbally or on the questionnaire.

It is also possible that the broad response categories (e.g., “several,” “one or two”) may have unintentionally obscured some of the effects of different levels of exposure and that social desirability may have influenced responses, especially in cases where, due to unexpected scheduling conflicts, the principal investigator—who has a visible physical disability—had to administer the questionnaires. However, the standard deviations for MAS subscales were similar to those found in other studies of the MAS ($SD = .66 - .72$ compared to $.41 - .70$ in Hein et al., 2011 and $.62 - .70$ in Findler et al., 2007). Thus, it appears unlikely that a subset of participants in this sample gave markedly more positive responses due to who administered their questionnaire.

It is possible that the long-term effects of exposure may not be the same across disability types. This may be an effect of cognitive schemas regarding the definition of “disability;” people who have exposure to only classmates with invisible disabilities may not apply their past experiences to an encounter with a person in a wheelchair as readily as those people with past experience with classmates with more visually apparent disabilities, as in the MAS vignette. Future research should expand this research by examining other types of disability, both in terms of exposure and with different MAS vignettes.

An additional weakness of this study is that data regarding exposure to people with disabilities other than classmates were not collected. Although the effects of community-based exposure on

attitudes toward people with disabilities is somewhat unclear (see Finch, 1998; Laws & Kelly, 2005), it is possible that some of the participants may have had interactions with people with disabilities outside of their classes (e.g., family members, friends) that significantly influenced their attitudes. Future research, especially with resources to obtain a larger sample size, should examine these non-school-based interactions with people with disabilities as a potential mediating factor.

Conclusion

It is notable that all participants in this study reported having at least one classmate with a noticeable disability in their classes during elementary or secondary school. This suggests that the current generation of college students received some exposure to classmates with disabilities, likely as a result of inclusionary education practices under federal law (e.g., IDEA, 2004). It appears that the push for the integration of students with disabilities is being noticed by their general education classmates. Furthermore, the participants reported generally positive experiences with their classmates with disabilities, indicating that they did not see the effects of inclusion as detrimental. Although this is a small, preliminary study, the results do tentatively indicate that inclusion, including inclusion of children with sensory and physical impairments, has led to greater exposure to classmates with physical and sensory impairments among current young adults.

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Appendix A

Disability Exposure Scale

This instrument asks you to report on the level of exposure to students with disabilities and the quality of your interactions with them during your primary and secondary education. Please answer the questions below to the best of your ability.

Questions

1. a. **Elementary School Years** Were there any students with physical (examples include **but are not limited to** students who frequently used wheelchairs, walkers, crutches, canes, or similar devices, who were missing one or more limbs, and/or who had difficulty moving) or sensory impairments (blindness, deafness, or visual or hearing impairments) in your junior high school classes (grades kindergarten through 6th)?

- Yes, several
- Yes, one or two
- No, but there were students with other disabilities (i.e., mental illness, autism, emotional or behavioral difficulties, intellectual disabilities, dyslexia or other learning disabilities, etc.)
- No, to my knowledge, there were no students with disabilities
- Do not recall.

b. In general, do you remember your interactions with or exposure to students with disabilities to be (circle one):

Extremely positive	Quite positive	Somewhat positive	Neutral	Somewhat negative	Quite negative	Extremely negative	Not applicable
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2. a. **Junior High and High School Years** Were there any students with physical (examples include **but are not limited to** students who frequently used wheelchairs, walkers, crutches, canes, or similar devices, who were missing one or more limbs, and/or who had difficulty moving) or sensory impairments (blindness, deafness, or visual or hearing impairments) in your junior high or high school classes (grades 7th-12th)?

- Yes, several
- Yes, one or two
- No, but there were students with other disabilities (i.e., mental illness, autism, emotional or behavioral difficulties, intellectual disabilities, dyslexia or other learning disabilities, etc.)
- No, to my knowledge, there were no students with disabilities
- Do not recall

b. In general, do you remember your interactions with or exposure to students with disabilities to be ... (circle one):

Extremely positive	Quite positive	Somewhat positive	Neutral	Somewhat negative	Quite negative	Extremely negative	Not applicable
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Appendix B

MAS Reading Check Questions

The follow questions concern the vignette you just read about Joseph/Michelle. Please answer the following questions to the best of your ability. *Do not refer back to the vignette!*

1. Joseph/Michelle is:

- a. In a coffee shop
- b. In a hospital
- c. In a person's home

(Correct answer: a)

2. Based on the vignette, the person Joseph/Michelle meets:

- a. Is blind
- b. Is deaf
- c. Uses a wheelchair

(Correct answer: c)

3. Joseph/Michelle and the person with a disability are:

- a. Left alone at the table
- b. Always with other people
- c. Good friends

(Correct answer: a)

4. Joseph/Michelle and the person with a disability are together for

- a. 2 hours
- b. 15 minutes
- c. 45 minutes

(Correct answer: b)

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Article

ANOTHER TOOL IN THE BELT: SELF-DIRECTED PROFESSIONAL LEARNING FOR TEACHERS OF STUDENTS WITH MODERATE AND SEVERE DISABILITIES

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Abstract: Chronic shortages, high attrition rates, the unique demands of the job, and geographic isolation from colleagues have been identified as unique challenges within the profession for teachers of students with moderate and severe disabilities. Many different forms of professional development exist for educators; however, these experiences do not always adequately meet the specific needs of individual teachers. This article presents an additional tool for professional learning utilizing a framework for selecting, monitoring and assessing progress toward self-identified areas of professional growth. The proposed model considers teacher development in three dimensions including school-based, community-based, and universal growth.

Keywords: *professional development; multiple disabilities; teacher preparation*

Jennifer is a special education teacher for students with moderate and severe disabilities. Jennifer comes to school early and leaves late working to provide what she sees as the best opportunities for her students. Her closest teaching colleague in moderate and severe disabilities is based at a school 10 miles away. More and more throughout the year, Jennifer begins to feel that she is alone in her efforts for her students. The teachers and administrators in her building, while very kind and encouraging, do not seem to fully understand what she does on a daily basis. Her special education administrator is spread so thin with many pressing issues that she is not able to provide much individualized support absent a crisis. Just last week, Jennifer participated in the third all school required professional development session. While the topic was valid for the majority of teachers in her school, it failed to address the specific needs of her population. The last time Jennifer remembers connecting and collaborating with another teacher in her discipline was during student teaching and prior to that during her teacher preparation program at the university. The fact is, Jennifer feels that she is operating alone. There is no program that can schedule her day, no one manual that can appropriately train her paraprofessionals, and no day planner that can effectively manage her multiple collaborations with teachers and therapists in order to meet her students' individual needs. At the end of the first three years, Jennifer considers her options. She can (1) pack up and leave, hoping to find employment in a more supportive work environment, (2) resign herself to the fact that she may never have the time to do more than survive the profession, or (3) decide that she needs to develop a plan of action to support her professional learning, despite how daunting a task this seems.

Introduction

Jennifer's problem is not uncommon for teachers of students with moderate and severe disabilities (MSD). While these teachers typically work in general education schools side by side with general education teachers, therapists, and teachers of special content areas (e.g., art, physical education), teachers of students with MSD often experience unique issues and challenges. These frequently include geographic isolation from colleagues in their field (Lang & Fox, 2003; Ludlow, Conner, & Schechter, 2005), a lack of sufficient professional support (Ayres, Meyer, Erevelles, & Park-Lee, 1994; McLeskey & Billingsley, 2008), and difficulty accessing necessary materials and information for the job (Rude et al., 2005). Additionally, these teachers often struggle in bridging research to practice through implementing research-based practices with fidelity (e.g., Greenway, McCollow, Hudson, Peck, & Davis, 2013; Snell, 2003). These issues and others faced by teachers of students with MSD can pose significant challenges to an already complex job. Additionally, such struggles can lead to challenges in the development of self-efficacy for these teachers. Self-efficacy, the belief in one's abilities to be successful, has been identified as critical to teacher effectiveness and professional competence (Greenwood, Olejnik, & Parkay, 1990; Thoonen, Slegers, Oort, Peetsma, & Geijsel, 2011) as well as an important factor in predicting student achievement (Anderson, Greene, & Loewen, 1988). In a review of research pertaining to what keeps special education teachers in the field, Billingsley (2004) identified access to relevant professional development as one of the key components to increase teacher support and retention.

Professional Development and Learning

Professional development has been described by the American Federation of Teachers (AFT, 2008) as “a continuous process of individual and collective examination of practice. It should empower individual educators and communities of educators to make complex decisions; identify and solve problems; and connect theory, practice, and student outcomes” (p. 9). An equal emphasis is evident in both the individual areas of improved practice for the teacher as well as the collective opportunities to share and develop professional skills and characteristics in unison. The Council for Exceptional Children (CEC, 2009) defines professional development in three distinct segments. The first describes professional development as a deliberate process of improvement in knowledge and skills of special education teachers. Second, professional development includes active participation in self, peer, and program evaluation for continuous improvement. Finally, special education leaders are charged with promoting a climate of professional development among their colleagues.

In both the AFT (2008) and CEC (2009) descriptions, professional development is portrayed as both an individual and collective effort. Teachers are expected to work toward their own improvement as well as to support the growth of their colleagues. The final component of professional development from CEC describes a role tied to administrative responsibilities, but given the many administrative duties of teachers (e.g., supervision of paraprofessionals, management of paperwork), this component could be expanded upon for teacher use as well. Professional development is active and focused on self-improvement as well as supporting and encouraging others to engage in the process. Professional development includes the development of professional judgment skills, that is, knowing what to do, when to do it, how to do it, and what to do next (Coles, 2002; Dottin, 2009). In the current climate of accountability (Brownell, Sindelar, Kiely, & Danielson, 2010) and mandates for the use of evidence-based practices in the classroom (No Child Left Behind [NCLB], 2001), teachers must continuously work to improve their own professional judgement in order to enhance their decision-making skills (e.g., Cook, Tankersley, Cook, & Landrum, 2008).

The process of learning for practicing teachers is complex and entails multiple factors (e.g., prior knowledge, learning content, and context) (Avalos, 2011). Measuring this professional growth and determining why and how it occurs continues to be a challenge within educational research (Opfer & Pedder, 2011). While the terms *professional development* and *professional learning* have been used to identify the same general concept of teacher growth, the authors concur with Opfer and Pedder, in using the term *professional learning* to highlight the multifaceted nature and continual process of growth and development in the profession.

Though there is a desire for and commitment to providing professional development for teachers, traditional professional development has been criticized as being ineffective in providing teachers with sufficient time, activities, and content necessary for increasing teachers’ knowledge and fostering meaningful changes in their classroom practice (Loucks-Horsley, Hewson, Love, & Stiles, 1998; Odom, 2008). Typical professional development or learning activities take on many different forms, from workshops (e.g., Courtade, Browder, Spooner, & DiBiase, 2010) to online modules and courses (e.g., Hanline, Hatoum, & Riggie, 2013) to coaching (e.g., Bethune & Wood, 2013). In today’s era of educational reform (e.g., increased

emphasis on teacher evaluations; Sledge & Pazey, 2013), professional learning should also include occasions for teachers to reflect critically on their practice and to fashion new knowledge and beliefs about content, pedagogy, and learners (Avalos, 2011; Prawat, 1992). Self-reflection is a prominent feature of social cognitive theory as it relates to how individuals make sense of their experiences, explore their own cognitions and self-beliefs, engage in self-evaluation, and alter their thinking and behavior accordingly (Pajares, 1997). For this reason, the authors drew on social cognitive theory to develop a professional development model that promotes self-reflection and self-regulation to provide teachers with a framework for individualizing professional learning.

Self-Directed Professional Learning

Professional learning is self-directed when the learner takes the lead role in facilitating her own professional growth. Self-directed professional learning (SDPL) includes such components as planning what is to be learned (Nunan & Lamb, 1996; Slavit, & McDuffie, 2013), practicing the skills in everyday settings, self-monitoring and assessment to track skill development (Nunan & Lamb, 1996), and lifelong learning (Brown, Ferrill, Hinton, & Shek, 2001). In SDPL, teachers provide the momentum and direction of professional learning through their use of self-management, monitoring, and motivation (Garrison, 1997).

While not explicitly a part of the teacher research base in the field of moderate and severe disabilities, SDPL is not a new concept. It has origins in the field of adult learning (see Garrison, 1997) and is evident both within and outside of educational disciplines. In the field of pharmacy, SDPL has been utilized to foster professional socialization of pharmacists (Brown et al., 2001) as well as to encourage a tradition of life-long learning through self-directed reflection, improvement plans, and assessment (Rouse, 2004). Within the nursing profession, due to the personalized nature of SDPL for determining professional growth needs, structured SDPL has been identified as an important addition to traditional professional development (DiMauro, 2000; Williams, 2001). Additionally, SDPL has been encouraged for use within human resource professions in order to create a workplace focus on continual learning and development (Ellinger, 2004).

Within education, SDPL has been identified as a tool to encourage professional growth for teachers in the areas of mathematics (Slavit & McDuffie, 2013), science (Capps, Crawford, & Constas, 2012), elementary education (Wagner, 2011), and to support the integration of educational technology (Kirk, 2012). While not specifically directed toward teachers of students with moderate and severe disabilities, SDPL concepts are also evident in self-determination for students with special education needs through instruction in setting and monitoring student goals toward personal development (e.g., Shogren, Palmer, Wehmeyer, Williams-Diehm, & Little, 2012). Evidence has emerged that, while not always formalized, SDPL is often naturally occurring within the teaching profession (e.g., Avalos, 2011; Mushayikwa & Lubben, 2009; Wagner, 2011). Mushayikwa and Lubben described educators as intrinsically motivated to learn. Many teachers engage in classroom research to investigate the effect of their instructional methods. This teacher-led inquiry has been identified as an important tool in professional growth. Additionally, teacher-led inquiry has been found to have a duplicative effect within the school and professional community at large (Zeichner, 2003). In other words, when individual teachers

make intentional efforts to improve upon their practice, colleagues often follow suit. Teachers also naturally tend to seek out advice and collaboration from their peers in an effort to improve their own knowledge and skills (Avalos, 2011; Coggshall, Rasmussen, Colton, Milton, & Jacques, 2012). While much of this development occurs naturally within the profession, Slavit and McDuffie (2013) found that teachers are more likely to initiate and complete activities related to professional learning when provided with an explicit framework for such activities.

SDPL can offer many benefits for the individual teacher as well as the classroom, school community, and beyond. For the individual teacher, SDPL has been found to sustain and enhance learning acquired from typical professional development activities (Mushayikwa & Lubben, 2009). SDPL has also been reported to increase motivation, job satisfaction, and perceived control and confidence of teachers in their professional learning (Beatty, 2000; Slavit & McDuffie, 2013). Additional benefits of SDPL include the potential creation of a collaborative professional learning environment within the school (Coggshall et al., 2012; Zeichner, 2003; Nir & Bogler, 2008). Zeichner, along with Nir and Bogler contend that teacher self-reflection and subsequent development of their professional practice can result in student academic and behavioral improvements. As for an extended effect of SDPL, Slavit and McDuffie describe the potential of teachers to extend beyond their own classroom and school to impact the profession on a larger scale (e.g., influencing state-wide educational policies).

Considering the self-directed emphasis within common professional development definitions (i.e., AFT, CEC), examples within and outside of education, as well as the significant needs in the field, the authors suggest consideration of a self-directed model for professional learning as an additional tool to increase teacher knowledge, skills, and self-efficacy. The model includes a step-wise process to improve professional practice in three distinct areas: (1) the school or classroom—as in personal knowledge and capabilities in the field; (2) the community—as in local actions to improve community inclusion and support for this population of students; and, (3) universal—as participation in the movements of the field as a whole (refer to Figure 1). Systematic self-reflection and action in these three areas is intended to help teachers develop the knowledge and skills necessary to improve their practice (school), develop healthy partnerships to create and maintain opportunities for their students within the community at large (community), and engage in meaningful efforts of professional service promoting beneficial legislation, public policy, and social justice for individuals with disabilities in the U. S. and beyond (universal).

Professionalism in Three Dimensions

School-Based Professionalism

School-based professionalism is professional learning driven by the teacher. School-based professionalism begins with the teacher recognizing an area in need of improvement and deciding to find a means to address this need. This may include a need for increased foundational knowledge (e.g., procedures, policies, historical perspectives), further development of skills (e.g., data collection methods, collaborating with parents, training paraprofessionals), or improvement in specific practices (e.g., implementing social narratives, using visual supports, planning functional behavior assessments). While training programs for teachers of students with

disabilities provide a foundation for knowledge and skills, research points to the need for continued growth and development once teachers are in the field (Brownell et al., 2010).



Figure 1. Three dimensional model for self-directed professional learning.

For self-directed efforts in school-based professional learning to be effective, the teacher must determine a few specific areas to focus on and then choose a course of action (as discussed in the following section). The self-directed nature of this dimension of professionalism has been supported in research on the use of self-management strategies to increase teachers' use of evidence-based practices (e.g., Belifore, Fritts, & Herman, 2008; Browder, Trela, & Jimenez, 2007). Once focus areas are chosen, the teacher selects a professional learning activity that would best meet her professional needs and particular context. For example, a teacher focusing on improving implementation of social narratives might locate and engage in an online module on social narratives. Likewise, a teacher focusing on increasing foundational knowledge of special education policies might locate and engage in a web-based seminar (i.e., webinar) on special education policies.

School-based professionalism is intended to increase teachers' personal awareness of skills, practices, and procedures within the field. Research indicates that professional development/learning is correlated with increased teacher retention rates (Reynolds & Wang, 2005). It is also expected that engaging in activities related to school-based professionalism would have the effect of improving instructional practice and the subsequent outcomes for students, which is the ultimate goal of professional learning activities (Odom, 2008).

Community-Based Professionalism

Community-based professionalism refers to the integration of the teacher with families, within the school, and within the local community, as both a professional and an advocate for students with MSD. The school-family-community partnership model has been suggested as a framework for school counselors in increasing local involvement (Bryan & Henry, 2012) and as a means to address the needs of culturally and linguistically diverse student populations (Adym, Bryan, & Duys, 2012). This framework can be extended to teachers who work with students with MSD in an effort to improve opportunities for students. For special educators, involvement with school-family-community partnerships would extend the education and support of students with MSD beyond the special education classroom and encourage involvement at a community-wide level.

Community-based professionalism that increases partnerships with families, schools, and the community may take multiple forms. For example, a special educator may act as an advocate to families by providing information on accessing resources, supporting families as they make decisions, and empowering families to implement practices at home (Murray, Handyside, Straka, & Arton-Titus, 2013). Within schools, teachers may act as a behavioral and/or content adaptation consultant to teachers within their own school. At the local level, educators may build partnerships within the community by presenting information on disabilities to local organizations that want to improve their understanding and capabilities for access (e.g., religious group, library, dental school). Teachers may also engage in advocating locally for the inclusion of students with MSD in community events and organizations.

Community-based professionalism is intended to increase teachers' partnerships with families, the school within which they work, and the local community. Research on collaboration between parents and special educators indicates that collaborative teachers communicate openly and frequently, are committed to developing the partnership, demonstrate equality in decision-making and implementation of services, show competence in skills, and respect each member of the partnership (Blue-Banning, Summers, Frankland, Nelson, & Beegle, 2004). These same characteristics (e.g., communication, commitment) can be used to develop partnerships in the school and in the community. Community-based professionalism may result in increased parent involvement, increased community opportunities for students, increased community understanding, and increased access to services within the community for students with MSD.

Universal Professionalism

Universal professionalism refers to the connection of the teacher to broad efforts related to the field on a national and international level. This connectedness is achieved through engaging in professional learning activities with other professionals in the field. In a field where teachers report feeling isolated (Lang & Fox, 2003; Ludlow et al., 2005), connectedness is essential to retention. Universal professionalism efforts are aimed at the specific issues of educating students with MSD, beyond a teacher's individual classroom or local community. These broad efforts may include recruitment of teachers to the field, national and international advocacy on behalf of individuals with MSD, and participation in professional organizations to promote the causes of the field.

Universal professionalism efforts that teachers may engage in to improve the field on a national and international level might take on many different forms. For example, a teacher may become involved in special education advocacy groups such as CEC, Consortium for Citizens with Disabilities, or TASH (formerly The Association for Severe Handicaps) as a means to inform policy (Whitby & Wienke, 2012). At the national level, special education teachers may collaborate with other school professionals (e.g., professional school counselor, university professors) to participate in professional conferences in which they can present information about their practice to a wide venue of professionals including administrators, professors, students, as well as other teachers (Harwell, 2003). Similarly, at the international level, teachers may provide in-service trainings abroad to teachers in countries who need help developing and/or expanding their special education programs for students with MSD (Jones, 1993).

Universal professionalism is intended to increase teachers' ability to improve the field of special education nationally and internationally – moving beyond their classroom or local community. Special educators play an important role in policy advocacy for students with MSD and have an ethical obligation to advocate for policy that supports this population of students (Whitby & Wienke, 2012). Participation in universal professionalism efforts such as professional advocacy are essential to the development of the field of special education and their activities may lead to improved policy and improved national and international student outcomes.

Steps for Self-Directed Professional Learning

This section describes a seven-step process teachers can follow to consider, select, and assess specific elements in each of the three professionalism areas. Included in the process is a strategy familiar to most teachers of students with MSD, which is a systematic, task analytic approach to professional learning. Table 1 provides a simplified description of each step.

Step One: Conduct a Self-Assessment

Figure 2 provides a self-assessment based on best practice in the field as indicated by textbooks typically used for teacher preparation in the field of MSD. This self-assessment is the basis for a SDPL plan. In an effort to achieve professional growth, it is important for teachers to critically consider their current skills and abilities in each of the areas. Prior to the start of the academic year, teachers are encouraged to read through each of the items on the self-assessment and reflect on their personal performance and activity in each area from the previous year. After some consideration, teachers should rate themselves in each of the areas. For additional support and encouragement, a trusted peer can be solicited to give a perspective on the teacher's current performance and skills. Self-assessment such as this has been found to be a beneficial initial step in the professional learning process for teachers (Coggshall et al., 2012)

Next, teachers should look over their ratings in the self-assessment and select one or two topics in each of the three professionalism areas as a focus for the year. The remaining areas of need are not the priority at this point and should be tabled for consideration the following year.

Table 1

Seven-Step Model of Self-Directed Professional Learning

Step	Implementation
1. Conduct a self-assessment	<ul style="list-style-type: none"> • Figure 2 should be used to guide this process • Skills and abilities should be rated honestly for maximum effectiveness.
2. Evaluate the completed self-assessment	<ul style="list-style-type: none"> • Self-ratings should be reviewed to determine the most relevant 1-2 topics from each of the three areas (e.g., school-based) to focus on for the year
3. Determine goals and objectives	<ul style="list-style-type: none"> • Write 2-3 specific short-term and measurable benchmarked objectives for each topic.
4. Secure the support of a trusted colleague	<ul style="list-style-type: none"> • Find a trustworthy individual (i.e., support person) to establish accountability for the objectives developed. • Share objectives with that individual.
5. Collect data on progress	<ul style="list-style-type: none"> • Progress toward objectives should be monitored monthly or quarterly by collecting regular data using Figure 3.
6. Monitor growth	<ul style="list-style-type: none"> • Objectives should be reviewed regularly individually and with a trusted peer. • Any necessary adjustments should be made to enable successful outcomes toward personal improvement objectives
7. Celebrate success	<ul style="list-style-type: none"> • At the end of the year, objectives and progress should be reviewed and successes celebrated with a trusted peer.

Steps Two and Three: Evaluate Self-Assessment and Determine Objectives

Steps Two and Three involve making plans for addressing the specifically identified professional learning needs. Two or three specific, measurable short-term objectives should be made for each improvement goal. Congruent to the research in developing objectives for students with disabilities, each objective should contain a statement explicitly describing the learner, behavior, condition, and criteria (Alberto & Troutman, 2013). Each objective should be accompanied by additional information including: a projected completion date, necessary resources and materials, and any additional steps needed to achieve these objectives. Figure 3 provides a template to record this information and Figures 4, 5, and 6 provide examples of completed forms.

Some teachers may have a difficult time considering the tasks in steps 1 and 3. Educating students with MSD can be a complex job and deciding what to focus on and where to go for support can be daunting. Helpful resources for best practice and critical topics in MSD include professional organizations, content specific websites, or course textbooks (e.g., Snell & Brown, 2011; Westling, Fox, & Carter, 2015). In some cases reviewing such resources before or after self-assessment could help teachers better understand their areas of strength and challenge, and select purposeful objectives and resources. See Table 2 for a list of web-based resources.

Professional Learning Self-Assessment

Year -

Rate your personal effectiveness in each of the categories by checking the level that best fits your current skills and knowledge in the particular area.

H-Highly Effective = high level of understanding and independent performance
E-Effective = medium level of understanding and some independent performance
M-Minimally Effective = lower levels of understanding and minimal independent performance

School-based: *Growth in personal content knowledge & empirically based practices*

H	E	M	Communication/Language	H	E	M	Disability characteristics
H	E	M	Curriculum	H	E	M	Assessment
H	E	M	Behavior	H	E	M	Paraprofessional Supervision
H	E	M	Sensory/ Motor	H	E	M	Cultural Issues
H	E	M	Health and Safety	H	E	M	Data Collection
H	E	M	Functional Life Skills	H	E	M	Systematic Instruction
H	E	M	Assistive Tech/ AAC	H	E	M	Community-Based Instruction
H	E	M	Transition	H	E	M	Program Planning
H	E	M	Collaboration	H	E	M	Working with Families

Community-based: *Advocacy for increased student opportunities, community understanding, access to services*

H	E	M	School Resource	H	E	M	State Resource
H	E	M	School District Resource	H	E	M	Student Advocacy
H	E	M	Parent Resource	H	E	M	Parent Advocacy
H	E	M	Community Resource	H	E	M	

Universal: *Involvement in efforts to advance the field as a whole*

H	E	M	Professional Organization Activity	H	E	M	Collaboration in Research
H	E	M	Knowledge of current issues in the field	H	E	M	Conference Presentation
H	E	M	Legislative Action				

Figure 2. Professional Learning Self-Assessment

Objectives and Support Plan

Support Person: _____

Year -

Progress Review Dates:

Topic	Objective	Resources needed	Target	Progress notes	Completed
		•		<input type="text"/>	
		•		<input type="text"/>	
		•		<input type="text"/>	
		•		<input type="text"/>	

Figure 3. Objectives and Support Plan

Support Person: Jill Durbee

Year 2013 - 2014

Progress Review Dates:	10/26/13	1/18/14	3/28/14	6/6/14
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Topic	Objective	Resources needed	Target	Progress notes	Completed	
Assistive Technology	By the end of the 1 st semester, I will identify and describe the four components of the SETT assistive technology decision framework.	<ul style="list-style-type: none"> • SETT Framework website: http://www.jayzabala.com/Documents.html 	1/18/14	10/26	Met with Jill- haven't read through SETT components yet	1/18
				1/18	Met with Jill- was able to identify each of the components and give examples for each of my students ☺	
				2/28		
				6/6		
Assistive Technology	By the end of the 2 nd semester, I will conduct assistive technology assessments and write a summary report for two of my students .	<ul style="list-style-type: none"> • AT assessment instructions • AT assessment materials • model AT assessment report 	6/6/14	10/26	Identified 2 students who could use an AT assessment	6/6
				1/18	Brainstormed issues in each of the SETT 4 areas	
				2/28	Located and compared AT assessments (WATI, SETT) and picked forms to use	
				6/6	Conducted assessment for Jack and Rosa and wrote report	

Figure 4. Sample School-based Objectives and Support Plan

Support Person: Jill Durbee

Year 2013 - 2014

Progress Review Dates:	10/26/13	1/18/14	3/28/14	6/6/14
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Topic	Objective	Resources needed	Target	Progress notes	Completed	
School Resource	By the end of the 1 st semester, I will identify two special education related topics that teachers within my school would like to know more about	<ul style="list-style-type: none"> survey form with possible topics 	1/18/14	10/26	Sent email out to department to get ideas about frequently asked sped questions that teachers ask	1/18
				1/18	Made list of 10 possible topics and emailed survey to whole school to see top topics- most popular were behavior management and autism characteristics	
				3/28		
				6/6		
School Resource	By the end of the 2 nd semester, I will present research-based information on the two topics	<ul style="list-style-type: none"> ask principal about presenting at spring in-school in-service web/ book resources on the selected topics 	6/6/14	10/26	Asked principal about presenting- he (excitedly) said yes!	6/6
				1/18		
				3/28	Started gathering resources; contacted sped teacher at Mill Middle School to help with presentation	
				6/6	Presented on 4/15 (great feedback and interest in continuing yearly presentations)	

Figure 5. Sample Community-Based Objectives and Support Plan

Support Person: Jill Durbee

Year 2013 - 2014

Progress Review Dates:

10/26/13	1/18/14	3/28/14	6/6/14
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Topic	Objective	Resources needed	Target	Progress notes	Completed
Legislative Advocacy	By the end of the 1 st semester, I will send one letter to a state legislator about my support or lack of support of legislation affecting individuals with moderate and severe disabilities	<ul style="list-style-type: none"> Get name and contact of my state reps Find out positions on current issues 	1/18/14	10/26 Found name and contact of reps	1/18
				1/18 Wrote email about decrease in funding to local transition programs and likely negative affect on my students	
				2/28 Received a letter back☺ wrote a thank you and follow-up with invitation to share more info on the topic	
				6/6	
Legislative Advocacy	By the end of the 3 rd semester, I will send one letter to a federal political representative about my support or lack of support of legislation affecting individuals with moderate and severe disabilities	<ul style="list-style-type: none"> CEC Smart brief Get name and contact of my US reps Find out positions on current issues 	6/6/14	10/26	6/6
				1/18 Subscribed to CEC smart brief	
				2/28 Located contact info for US senator	
				6/6 Wrote email of support for her stance on increasing IDEA funding	

Figure 6. Sample Universal-Based Objectives and Support Plan

Table 2

Web-based Training and Informational Resources

Name	Web Address
DPHMD (The Division for Physical, Health and Multiple Disabilities)	http://community.cec.sped.org/DPHMD/home
DADD (the Division on Autism and Developmental Disabilities)	http://daddcec.org/Home.aspx
AAIDD (American Association for Intellectual and Developmental Disabilities)	http://aaidd.org/education#.U693-Y1dVTc
TASH (formerly The Association for Severe Handicaps)	http://tash.org/conferences-events/
Center for Parent Information and Resources	http://www.parentcenterhub.org/nichcy-resources/
MAST (Modules Addressing Special Education and Teacher Education)	http://mast.ecu.edu/
The IRIS Center	http://iris.peabody.vanderbilt.edu/iris-resource-locator/
Beach Center on Disability	http://www.beachcenter.org/resource_library/default.aspx
YAACK Augmentative and Alternative Communication Connecting Young Kids	http://aac.unl.edu/yaack/toc.html

Step Four: Recruit Support

Once objectives are identified, the next step involves the teacher garnering the support of a trusted peer. The accountability of a support peer has been shown to increase an individual's success in achieving goals (Evenbeck & Kahn, 2001). While teaming up with a fellow teacher in MSD may be the most helpful, any person that is willing and able to provide encouragement, support, and accountability for improvement on goals may serve this purpose. This could include a spouse, friend, colleague, parent, administrator, or even a former classmate. It is essential to select an individual that will provide encouragement during the process and participate in celebration upon successful completion. Coggshall et al. (2012) pointed to peer support as an important factor in professional learning.

Steps Five and Six: Collect Data and Monitor Progress

Throughout the year (e.g., monthly or quarterly) the teacher should regularly review objectives to monitor progress and make any adjustments and additional plans as needed. Depending upon the objectives, progress can be documented using the notes column (see Figure 3) to indicate tasks completed or, perhaps, tally marks to document efforts toward growth. Many objectives may require pre-planning as well as reminders in order to come to fruition. Regular review will help to inspire success. Throughout the year, the teacher should continue to meet with his support peer to discuss progress and strategies for achieving objectives.

Step Seven: Celebrate Success

The end of the school year should bring reason to celebrate. Teachers are encouraged to reunite with their support peer to review and acknowledge success achieved throughout the year. Discussion with the support peer as well as self-reflection may include questions such as: What have you learned? How has your instruction improved? What changes have you noticed over the past year? These and other questions can help the teacher to recognize the progress and growth experienced over the year. Success deserves celebration. Recognizing and celebrating achievements can be a beneficial and inspiring way to end the year-long process of intentional SDPL. A teacher may decide to go out for dinner, take a night off, show off her progress to an administrator or peer, or hang the completed objectives on the fridge.

Final Thoughts

The authors recognize that teachers in the field of MSD are extremely busy and often make personal sacrifices of their time and energy on behalf of their students (Billingsley, 2004). Efforts to increase professionalism, however, should not be thought of as an extra burden, but instead as an essential investment in the future of a teacher's career and profession (Desimone, 2009). It will inevitably lead to more efficiency as one utilizes the experience of others in the field, more fluidity as one's work garners more understanding within the school and community, and more continuity as one taps into the larger context of the field as a whole (Thoonen et al., 2011).

Teacher retention and teacher support are both significant needs within the field of special education (Billingsley, 2004). While there are significant benefits available from traditional modes of professional development (e.g., Courtade et al., 2010), these do not always sufficiently address the needs of teachers of students with MSD (Lang & Fox, 2003). With the many different aspects of the job, it is critical to have a structure for development that involves self-assessment and a plan for improvement (Nir & Bolger, 2008; Thoonen et al., 2011), such as SDPL in order to continue to serve our students and our profession well. While not the end all be all in professional learning for teachers of students with MSD, the SDPL model can work to help teachers to hone in that which is motivating, attainable, and currently pressing within their own classrooms to enhance knowledge, teaching effectiveness, and ultimately student outcomes.

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Authors Note: For more information including examples, downloadable forms, and a related discussion board, please visit: <http://www.jordanshurr.com/self-directed-professional-development.html#/news/> . Address correspondence concerning this article to Jordan Shurr at shurr1jc@cmich.edu

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Article

DEVELOPING TRAINING PROGRAMS TO SAVE LIVES: SERVING STUDENTS WITH COMPLEX OR EMERGENCY HEALTHCARE NEEDS

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Abstract: The number of students with special health care needs (SHCN; McPherson, Arango & Fox, 1998) and the frequency of life-threatening health emergencies in schools (e.g., asthma, diabetes, severe allergic reactions, cardiac arrest, seizure disorders), continues to increase. It has become increasingly important for teachers to be trained in cardiopulmonary resuscitation (CPR) and use of automated external defibrillators (AED) in response to the growing number of students with SHCN in school settings and to assist life-threatening emergencies as they arise on school campuses. The purpose of this article is to describe a collaborative project that trained 38 preservice teachers to use CPR and AED in emergency situations. An established long-term goal of the project was to create a sustainable delivery model of three faculty members certified to train all preservice teacher candidates to competently provide first aid, perform CPR, and use an AED, while taking coursework and learning about support services for students with SHCN.

Keywords: *medically fragile; CPR; AED*

Introduction

Since the Individuals with Disabilities Education Act (IDEA; Public Law 101-476) was reauthorized in 1990, special education decision-making teams have been required to discuss the least restrictive environment in a different way. Since the inclusion of students in general education environments has become the clear preference for the first time, the practice of inclusion has increased. As a result, the number of students with disabilities served in community schools across the nation, including those who have complex health care needs, has increased. Prior to IDEA 1990, students who had serious or potential life-threatening health conditions were most often cared for in hospitals or in specialized schools designed to handle both their educational and complex medical needs (McPherson et al., 1998; van Dyck, Kogan, McPherson, Weissman, & Newacheck, 2004). The trend toward deinstitutionalization, in combination with advances in medical technology and the call for inclusion by IDEA in 1990 (and subsequent reauthorizations in 1997 and 2004), has resulted in more students with special health care needs (SHCN) being educated in their home school districts (American Federation of Teachers [AFT], 2009), despite the expenses (Buescher, Whitmire, Brunssen, & Kluttz-Hile, 2006). The increase in the numbers of students with SHCN in public school settings, as well as the increase in emergency situations that lead to sudden cardiac arrest (SCA) of otherwise healthy individuals on school campuses, has led to specific legislation in 17 states to re-examine the role of school professionals in providing emergency care, and their obligation, both legal and ethical, to be trained to administer CPR and use an AED (National Conference of State Legislatures, 2013).

According to the American Heart Association (AHA), SCA is the leading cause of death in young athletes and Americans (2010a). SCA is caused by abnormal heart rhythm, or arrhythmias, which may result in the heart no longer pumping blood to the body. If this happens, for example during vigorous exercise, the child or young adult may experience ventricular fibrillation and subsequent cardiac arrest. There are several etiologies which could result in SCA including disease (e.g., cardiomyopathy), an inherited or congenital heart defect (that may or may not have been corrected by surgery), a cardiac condition that leads to inflammation of the heart, or a sharp blow to the chest that causes the heart to go into an irregular heart rhythm (Hazinski et al., 2004; National Institute of Health, 2011b). SCA differs from a heart attack, which occurs when the flow of oxygenated blood becomes blocked in a section of the heart (e.g., as a result of years of plaque build-up in someone with coronary heart disease; NIH, 2011a).

The American Association of School Administrators indicated that 7,000 to 10,000 young people die from SCA each year (Bingham, 2009; Sudden Cardiac Arrest Foundation, 2009). The results of a study on SCA in high school and college athletic programs from 2000-2006 found that students who experienced SCA had an 11% chance of survival (Sudden Cardiac Arrest Foundation, 2009). However, young athletes are not the only population at risk for SCA in the school setting.

In a 16-year study, Lotfi et al. (2007) classified by setting all incidents of SCA in King County and the city of Seattle in Washington state. During that time period, 3,773 cardiac arrests occurred in public locations and 97 (2.6% of all public cardiac arrests) took place in schools. Of those 97, twelve were among students, 33 among faculty and staff, and 45 among adults not employed in the school (Lotfi et al., 2007). Upon examining the identified cause of cardiac arrest

in eight students aged 3 to 18 years, Lotfi et al. found that four had a prior history of developmental disability or clinical cardiopulmonary disease and that the greatest population of pediatric cardiac arrests occurred in the school setting versus in hospitals or at home.

Immediate bystander CPR and early defibrillation are needed to treat SCAs that occur in public locations (Hazinski et al., 2004; Kamarainen, 2010, Lotfi et al., 2007). In places where an AED is present along with trained users, survival rates increase, and when CPR is performed immediately with effective delivery of chest compressions, CPR can double or triple a victim's chance for survival (AHA, 2010a). A recent study by the AHA (2010a) on SCA demonstrated that approximately two-thirds of the annual 300,000 fatalities resulting from SCA in the United States did not involve early CPR. However, the use of CPR and AED can improve outcomes for persons who experience SCA. An example to illustrate the positive impact of CPR/AED use occurred in 2010 at a school district near the college where this training program was implemented; in this case two staff members used early CPR and an AED to save a 14-year old girl who had a heart attack at an indoor track practice (Wordingham, 2010). Similar stories of student-athletes who had SCA and were saved by CPR/AED have also been documented (The Sudden Cardiac Arrest Foundation, 2009). The AHA and the National Association of Emergency Medical Service Physicians stated that AEDs may be used in combination with CPR in children as young as 12 months (AHA, 2010b; Hazinski et al., 2004). Additionally, other medical professionals substantiate the need for AEDs in school settings based on the high percentage of cardiac arrests that occur in students with SHCN in the school setting (Lotfi et al., 2007).

The integral role of teachers and paraprofessionals, who often find themselves responding to, and caring for, students with complex or emergency health care needs, led to the development of a self-sustaining training program for preservice teacher candidates at the State University of New York College at Geneseo. The training included first aid, CPR and AED use, and awareness of specific issues students with SHCN may present. The following information describes the development of the project and suggested sources of funding and collaborations.

Program Development

Project development took more than three years from conception to implementation. Development began with a thorough assessment of needs for school nurses and preservice teachers (including a literature review), creation of partnerships and grant funding, and training or re-training of key project personnel. A pilot course with CPR and AED training only was offered and then redesigned into a full course that also addressed service provision for students with SHCN.

Assessment of Needs

To determine the need for the project, we surveyed both local school nurses and candidates in a preservice teacher preparation program and completed a thorough review of the literature. Each step of the process is briefly described in this section.

Survey of school nurses. To assess the need for this project, we selected and interviewed a convenience sample of six school nurses from local school districts that frequently hosted the

preservice teacher candidates for practicum and student teaching placements. The questions were in a yes/no format that invited follow-up questioning by the interviewer as well as opportunity for additional explanatory comments by the nurses. Each semi-formal interview included the following questions and responses to each question (see Table 1).

Table 1

Number of Nurses Responding to Each Yes/No Question

Question	Yes	No
1. Have you had an occasion to use CPR or an AED on a student in your school?	1	5
2. Do you know if anyone else has used CPR or AED on a student?	1	5
3. Does your school have any students that require an AED be present and teachers and/or service providers who work specifically with these students be trained in CPR and AED use?	6	0
4. Has CPR or an AED been used on school property to respond to a medical emergency for a community member or school personnel?	2	4
5. Since New York State only requires school health personnel and athletic coaches to have CPR and AED training, in your professional opinion, would it be helpful to have more school personnel trained in CPR and AED use?	6	0

All six school nurses reported that during the past 10 years there was an increase in the number of students with SHCN who's Individualized Health Plans (IHPs) required teachers and other school personnel to be able to administer CPR and use AEDs. They also noted, as research suggests (Cave et al., 2011; Drezner et al., 2007; Lotfi et al., 2007), training teachers in CPR and AED use benefits entire communities since as many as 20% of a community's population are on school grounds daily for athletic and other extracurricular events. As two school nurses noted, *"As school nurses, we plan for emergencies, but they don't always tend to happen when we are on site,"* (R. Kwiecien, RN, personal communication, May 20, 2010) and *"It would be good to know that student teachers are trained in CPR/AED use...knowing we can count on that additional person would be valuable to our emergency management plan"* (C. Snider, RN, personal communication, May 20, 2010).

As a result of the increasing numbers of students in public schools with SHCN and those who have serious health issues that are potentially life threatening, there is an expectation, or in some states or situations a requirement, for educators, paraprofessionals, and support staff to perform skills and duties that in the past have been reserved solely for the school nurse and other health care professionals (AFT, 2009; National Conference of State Legislatures, 2013).

Survey of preservice teacher candidates. In March 2010, we surveyed 50 preservice teacher candidates in three different teacher preparation programs: special education (1-6th grade), early childhood education (P-2nd grade), and childhood education (1-6th grade). Candidates were asked five questions: (a) have you ever taken a CPR/AED or first aid course; (b) are you currently certified in either CPR/AED or use of first aid; (c) would you be willing to take a course on CPR/AED, first aid and students with SHCN offered by our School of Education; (d) would you be willing to pay under \$50 for course materials for that course; and (e) why might persons (students, staff, community members) in school settings need to be prepared to administer CPR/AED, first aid, or be aware of the specific needs of students with SHCN? After reviewing the data collected from the surveys, we discovered five of the surveyed candidates were already certified in CPR/AED and all five were employed during the summer as lifeguards. To fulfill summer job requirements, five other preservice teacher candidates had already signed up for an off-campus CPR/AED course; none of these five had been previously trained. The remaining 40 preservice teacher candidates indicated that they would be willing to attend CPR/AED and first aid training offered by School of Education faculty members, as long as it did not interfere with their class/work schedules and did not cost more than \$50 for the course materials. We also determined from the candidate surveys that preservice teachers lacked training in, and understanding of, complex health conditions experienced by students with IHPs. Based on this information from the surveys and additional conversations with the school nurses, we decided to include this topic in our literature review for the purposes of course development.

Review of literature. Using Science Direct, ERIC, Scopus, and Academic Search Premier, a literature review of students with complex or emergency medical needs (e.g., special medical needs, medically fragile students, medical emergencies in schools), SCA, and the use of CPR/AEDs in schools was conducted to determine the incidence of SCA and the impact of CPR/AED use on survival rates. Additionally, a review of literature on recommendations and requirements by state departments of education and professional member organizations for teachers and school nurses was conducted to determine legal and ethical responsibilities of teachers and other school staff. The review of literature was completed because both teachers and other school staff routinely work with students with SHCN and may respond to medical emergencies involving SCA in school settings.

Developing Partnerships and Funding Sources

The major funding for the purchase of the training equipment for this project came from the National Education Association Foundation (NEAF) and included:

- Two AHA instructor manuals and training DVDs;
- Fifty student manuals;
- Six infant and 12 child/adult CPR manikins with replaceable airway lungs;
- One hundred masks with one-way valves and 400 face shields;
- Twelve AED trainers, batteries, and 10 replacement pads;
- 24 first aid training supply kits (e.g., epi-pen trainer, bandages); and
- Miscellaneous equipment (e.g., stop watches, disinfectant for manikins).

At a cost of approximately \$1,200 each, functioning AEDs are expensive. Many school districts report that the AEDs in their schools were either funded by or donated by local civic groups and recent legislation supports the costs of funding in several states (National Conference of State

Legislatures, 2013; The Sudden Cardiac Arrest Foundation, 2009). Local sources worth investigating for both start up and sustainable funding include: (a) community health organizations; (b) community services boards; (c) local, county, regional, and state-wide nonprofit foundations and community focused organizations (e.g., private foundations, hospital auxiliaries, faith-based groups); (d) community-minded businesses that provide grants for local service projects (e.g., Albertsons, Wegmans – both regional/national grocery store chains); (e) state-wide and local chapters of professional service organizations (e.g., Rotary, Lions Club, Kiwanis); and (f) clearinghouses for grant and fundraising sources for nonprofit organizations and schools.

Training Faculty

Two of the participating faculty members had previously been certified in New York as Emergency Medical Technicians. With the assistance of the local Emergency Medical Training Center, these two faculty members and an additional faculty member became certified instructors for the American Heart Association in the use of CPR and AEDs. The training of three faculty members enabled our program to provide training in first aid, CPR and AED use, and in supporting students with SHCN (e.g., students whose medical conditions require them to carry AEDs for cardiac emergencies or epinephrine pens for allergies, students who are oxygen or ventilator dependent). We also developed a more comprehensive curriculum for working with students with SHCN, which was subsequently offered as an experimental course. The long-term goal of this project was to develop the knowledge and skills necessary to develop a comprehensive curriculum to prepare other faculty members and preservice teacher candidates to support students with SHCN in inclusive public school settings.

Pilot CPR/AED Course

With the very generous assistance and equipment loans from the local Emergency Medical Services agency and the local fire department, we conducted a pilot training program on campus during the spring of 2010, acknowledging the pilot program as a one-time, unsustainable opportunity. Without our own dedicated training equipment, School of Education and college approved course content, and a secured course rotation schedule led by trained School of Education faculty, we could not offer the course with any consistency. We could offer the course to only 24 preservice teacher candidates during the pilot because of limited equipment and trainer availability (two manikins, two AED trainers and an instructor are needed for every six candidates seeking CPR/AED certification). Twenty-eight of the 40 preservice teacher candidates signed up; the remaining 12 indicated that they were still interested but could not attend the day/time scheduled. At the conclusion of the pilot program, we anonymously surveyed participants. On a scale of 1-4, 4 being strongly agree, all participants indicated that they strongly agreed that the course met their expectations (average 4.0) and they would recommend the course to others (average 4.0). The pilot program, only possible with the generous support from Livingston County and the Geneseo Fire Department, was well received by the students as indicated by their high rate of satisfaction with the course.

Developing the Full Course

Although three faculty members had already received formal training in first aid and CPR/AED, further work with faculty from the School of Education, personnel from the local emergency medical services agency, and personnel from a local school were needed to develop a comprehensive curriculum on supporting students with specific medical conditions. To create a replicable experience for our preservice teacher education candidates, however, we understood that the curriculum needed to be formalized as a 3-credit course. This required the development of course objects to meet the needs of preservice teacher candidates in the introduction to teaching and supporting students with SHCN in the classroom.

Course objectives. As a registered teacher preparation program leading to initial *generalist special education certification* in the state of New York, we are mandated to provide training that meets the competencies – both state and professional association – for the type of certification our students earn. Our program has no state-mandated certification requirements in regards to specialty competencies for the preparation of teachers of students with physical and health disabilities. While the Council for Exceptional Children (CEC) does have professional standards for the preparation of teachers of students with physical and health disabilities, this course was not designed to meet the depth or breadth of the CECs initial standards specialty set for teachers of students with physical and health disabilities. The CEC initial standards do not require training in the use of CPR and AED. Our course was designed to address the needs of generalist special education teacher preparation programs in regards to students with SHCN in the classroom that may require CPR/AED.

Based on the first author's experience as a teacher of students with SHCN, the interviews with school nurses, and lessons learned from the literature, learner outcomes were developed for the course. Table 2 contains the outcomes, rationales, and examples of activities used to meet the outcomes.

CPR/AED and first aid coursework. In many ways, we did not recreate the wheel. The AHA has excellent training programs for first aid and CPR/AED and we purchased and used that curriculum (i.e., Heartsaver) and the related supplies (e.g., the CPR manikins and AED trainers). As trainers, the authors and other trained faculty members were able to effectively and efficiently train and certify all preservice teacher candidates during the course. We built in the required time to follow the AHA curriculum into the course and received a grant from the NEAF to purchase the CPR manikins, AED trainers, and related supplies (e.g., epinephrine pen trainers, personal protective gear).

Table 2

Learning Outcomes

Upon successful completion of the course, the preservice teacher candidates will:	Rationale	Sample Activities
1. Define students with complex and emergency health care needs.	Identify common ailments, conditions and diseases that require significant medical support (AFT, 2009). Identify sudden cardiac arrest (SCA) and common signs.	Review and discuss print material, websites (e.g., CDC, NIH) and videos. Present specific issues per Learning Outcome #12.
2. Demonstrate knowledge of life systems impacted in students with complex health care needs.	Recognize the potential impact of complex health care needs on students' bodies (AFT, 2009; Delgado, 1999; Drezner et al., 2007).	Review and discuss basic body systems. Present specific issues per Learning Outcome #12.
3. Discuss how the Centers for Disease Control (CDC) recommendations for working with students with complex health care needs can be implemented in classrooms and schools.	Recognize that external supports are available to support successful integration efforts (AFT, 2009; CDC, 2009).	Review and discuss CDC website and print material.
4. Identify special issues encountered by students with complex health care needs, their families, friends, care providers and schools.	Recognize the potential impact of complex health care needs on students' families and support systems (AFT, 2009; Buescher et al., 2006).	Presentation and discussion of movies and documentaries (e.g., <i>Lorenzo's Oil</i> , <i>Life According to Sam</i>) and readings. Present specific issues per Learning Outcome #12.
5. Identify and understand the function of basic life support equipment that may be used with students with complex health care needs.	Develop an appreciation for the complexity of the support equipment that students may require in schools (AFT, 2009; Hazinski et al., 2004).	Presentation of equipment (e.g., suction). Present specific issues per Learning Outcome #12.

6. Understand the responsibilities of teachers in the development and execution of the Individualized Health Care Plan.	Appreciate the role which teachers can play when supporting students (Cave et al., 2011; Hazinski et al., 2004).	Develop and present sample IHP based on specific issues per Learning Outcome #12.
7. Articulate the importance of being prepared for potential school emergencies.	Identify why and how to prepare for common school emergencies (Delgado, 1999; Hazinski et al., 2004).	Review, develop and present sample emergency response plans. Conduct "reviews" of possible hot spots (e.g., safety audits of school labs and on playgrounds).
8. Identify scene and personal safety issues that may prevent teachers or staff from responding safely.	Ensure that preservice teacher candidates do not become part of the need for emergency services (Drezner et al., 2007).	Completed practical tests that required identification of issues related to scene safety.
9. Demonstrate knowledge of appropriate emergency response skills.	Ensure that preservice teacher candidates have practiced skills from notification of emergency responders to first aid (Drezner et al, 2007; Hazinski et al., 2004).	Completed written and practical tests that required application of basic first aid skills.
10. Demonstrate CPR, AED, and basic first aid skills, including response to choking.	Practice CPR/AED application and typical first responder activities, including assisting an infant, child or adult who is choking (AHA, 2010a; Cave et al., 2011; Delgado, 1999; Sudden Cardiac Arrest Foundation, 2009).	Completed AHA's Heartsaver CPR/AED training for Adults/Children and Infants (with mask and choking) and First Aid training.
11. Respond effectively to emergency scenarios and role-plays.	Ensure that preservice teacher candidates have exposure to a variety of potential real-life situations (Drezner et al., 2007; Hazinski et al., 2004).	Using video vignettes of emergency situations, students discussed and acted out how to respond.
12. Develop professional development activities for other school professionals.	Research and share resources about specific medical conditions (Urso & Rozalski, 2011).	Developed in-class presentation and handouts about specific medical conditions that students with complex health care needs encounter.

First Year Impact

During this project, three faculty members were trained/re-certified and 38 preservice teacher candidates were trained in AHA CPR/AED and first aid. In terms of P-12 students, the 38 preservice teacher candidates were in classrooms a total of 150 hours prior to their student teaching placements. Once student teaching, the preservice teacher candidates complete 12 weeks of daily contact with students in P-12 school buildings of varying sizes. We estimated in year one, based on average class sizes, 770 P-12 students were being served by our preservice teacher candidates certified in CPR, AED usage, and first aid.

Value Added to Candidates Trained

As a result of the program described in this paper, CPR/AED training was offered as part of a comprehensive, 3-credit course developed on teaching students with SHCN. The course provided AHA certification in HeartSaver CPR/AED. Additionally, coursework focused on individualized health plans (IHP), commonly used medical equipment, a survey of physical, medical and emergency conditions that lead to a student experiencing complex health or emergency care "status," and the roles of the educator in collaborating with families and medical professionals in regards to the education, health, and safety of students with complex health care needs.

This is an excerpt from a letter sent to the first author by a student who completed the course in 2011:

I was hired on the spot to be a teacher's aide this July for their summer program. The reason they [United Cerebral Palsy program] decided to hire me so quickly was because of the CPR/AED training, my knowledge of an IHP, and the fact that I took the medically fragile class. (K.M. Haig, personal communication, May 30, 2012)

Implications for the Future

Developing and offering this course had both local and more widespread implications. In this section, we discuss the implications for the course offering, a connection to the big picture of teacher preparation, and limitations.

The Course

By designing and offering the first course at SUNY Geneseo, we have made many adjustments to activities and readings to better meet preservice teacher candidates' needs and possible future experiences. The authors continue to develop a sustainable framework so that a future course offering for candidates is consistently available at Binghamton University. The need for replicating the course and continuing to improve the candidate experience is necessary. To this end, we are developing a course review and evaluation process that will allow us to revise the course to reflect the most update curriculum and information available and will create a common evaluation survey for participants so that we can share lessons learned across our campuses.

Big Picture

Increases in students with SHCN being included in schools and well-publicized cases of SCA in young people have led to increased awareness for training in CPR/AED. With the advent of hands only CPR, and a variety of options for taking classes in CPR/AED, the AHA is reporting more individuals are being trained in CPR than ever before – over 12 million people are trained annually (American Heart Association, http://www.heart.org/HEARTORG/CPRAndECC/WhatIsCPR/CPRFactsandStats/CPR-Statistics_UCM_307542_Article.jsp, Cardiac Statistics, para 4).

To improve outcomes for SCA, training in CPR/AED is needed. There has been an increase in national legislative attention for training in CPR/AED to improve SCA outcomes with the introduction of the Josh Miller Helping Everyone Access Responsive Treatment in Schools (HEARTS) Act (H.R. 1311/S. 2106). Miller, an otherwise healthy 15 year-old, died of SCA during a football game. This bill would authorize the U.S. Secretary of Education to award grants to local educational agencies to buy AEDs and provide funds to train teachers and staff in using AEDs and CPR. The program's goal would be to treat heart-attack victims while waiting for emergency personnel to arrive. The legislation would require schools to provide \$1 of private funding for every \$3 of federal funding received through the program. The National Education Association (2012) and the American Heart Association/American Stroke Association (2012) strongly support the Josh Miller HEARTS Act, which, as of March 11, 2014, moved to the U. S. Senate Committee for consideration. This important piece of legislation would (a) authorize funding through the reauthorization of the Elementary and Secondary Act for schools to purchase AEDs, (b) require adequate training of teachers and staff in CPR/AED, and (c) encourage schools to create medical emergency response plans. Other key features of this legislation include:

- **Purchase of AEDs:** Local education agencies may apply for the purchase of AEDs for any public or private school in their jurisdiction. Priority is given to schools without access to an AED, schools with a large student and staff population, and schools without timely access to emergency care.
- **Training:** The bill requires that at least five adults in each school should be trained and certified in CPR and the use of an AED. Funding provided by the Josh Miller HEARTS Act may be used for training in addition to the purchase of an AED.
- **Medical Emergency Response Plans:** The legislation encourages schools to create medical emergency response plans and integrate the use of an AED into such plans. The bill also requires schools to notify local emergency services personnel of the placement of the AED in their school.
- **Funding:** The bill authorizes funding through 2017. The bill requires that the applicant provide \$1 of matching funding for every \$3 of federal funding (American Heart Association, 2010c)

Limitations

The project described here could not initially have been possible without tremendous support. The second author is a volunteer member of the local emergency medical services agency.

Without this connection to the training supplies, resources, and the AHA curriculum, this program would not have been possible. Although we eventually procured grant support from the NEAF to purchase the resources needed, it is likely that replication for the reader would require a similar connection to either access these resources or procure grant support. Additionally, initially training allowed only a small cohort to receive the training. In the future, we would need to make this a required course for all preservice teacher candidates. A required course would significantly impact the number of teacher candidates who would have the specific knowledge of CPR/AED, first aid and serving students with SHCN.

Conclusions

Efforts to offer CPR/AED certification to preservice teacher candidates progresses toward sustainability, which means that no additional resources are required to offer the training. The at-capacity registrations of both the stand alone certification course and the general course with CPR/AED, first aid and issues related to students with SHCN embedded in the content, provided the preservice teacher candidate support needed to seek the placement of the general course in the rotation of elective courses offered at our university. The course has been and will continue to be offered once a year. The last few classes have operated at capacity.

It is our belief that training preservice teachers to respond to the cardiac needs of students with SHCN and students who experience SCA should be mandated by state licensing boards. States have very different requirements for health care professionals and athletic coaches than they do for teachers and staff; even among the regulations for health care professionals and athletic coaches there is great variation (c.f., National Association of State School Nurse Consultants, 2003; National Conference of State Legislatures, 2013). The provision of federal funding from proposed legislation, access to more flexible training programs, and access to funding sources to defray the cost of AEDs, is encouraging: schools will now have the opportunity to be prepared to assist students with SHCN, as well as students, staff, and community members who experience SCA on school campuses.

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