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WILLINGNESS TO PROVIDE ACCOMMODATIONS TO STUDENTS WITH DISABILITIES: PREDICTORS AND CORRELATES AMONG AUB FACULTY

by
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The number of students presenting with various types of disabilities in higher education settings has been increasing. These students are typically afforded with reasonable educational accommodations, in order to have a fair advantage to access education. However, the provision of accommodations is hindered by a number of variables that are characteristic of the faculty members, and the students with disability. In Lebanon, and specifically at the American University of Beirut where accessible education is mandated, there is a lack of research regarding willingness to provide accommodations. The current study examined factors that explain willingness of faculty members to provide reasonable accommodations to students with physical, psychological and neurodevelopmental disabilities in a higher educational institution in Lebanon. Results indicated that among all variables, only faculty personal beliefs and attitudes significantly predicted reported willingness. This willingness was also contingent upon the type of disability of the student, whereby mental illnesses were the least favored. Faculty also reported limited in their knowledge about disabilities and legislation, and how to create accessible courses. Findings will be discussed vis-à-vis practical implementations to improve faculty attitudes and accessible education.

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WILLINGNESS TO PROVIDE ACCOMMODATIONS TO STUDENTS WITH DISABILITIES: PREDICTORS AND CORRELATES AMONG AUB FACULTY

Individuals with disabilities have limited capacity that hinders them from performing their daily activities and routine, in various contexts including work, school, college and social relationships. However, the limitation is not only due to their inherent disability, but rather to the complex interaction between the disability and the environment in which the person functions (Shakespeare, 2006). For example, a student with a physical disability may not face limitations in an environment that provides accessible mobility that accommodates his/her physical disabilities but will struggle if he/she cannot access buildings and facilities. Therefore, one of the complex factors that can facilitate or impede the abilities of a person with a disability is the extent to which those in positions of authority are willing to provide reasonable accommodations for the disability. In the context of higher-education, this paper examines the extent to which university-level faculty members are willing to accommodate the needs of individuals with physical, psychological, and neurodevelopmental disabilities, and the individual psychological factors that predict this willingness.

Disabilities: Definitions and Prevalence

An individual with a disability is someone who has, "long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder his/her full and effective participation in society on an equal basis with others" (Convention of the Rights of Persons with Disabilities (CRPD), 2008). Although this definition appears comprehensive, many other organizations have produced varying and narrower definitions of

disability (e.g., World Health Organization, Americans with Disabilities Act, etc). For instance, referring to specific limitations that define a disability such as ("loss of function in more than two limbs" or "less than 10% of normal vision despite wearing glasses" (Sida, 2014). The variability in definitions has produced discrepant data in the prevalence of disability.

In the below section, we discuss prevalence rates internationally, in Arab countries, in Lebanon, and amongst college students.

International and Local Prevalence Rates

Individuals with disabilities comprise a significant portion of the world population. The World Health Organization estimates that over one billion people around the world are living with disabilities, and of these, around 110 (2.2%) to 190 (3.8%) million individuals worldwide experience significant difficulties in functioning (WHO, 2011; World Bank, 2018).

There are few reliable up-to-date statistics on disability in the Middle East and North Africa (MENA) region. According to the most recent available statistics, the prevalence of disability in the MENA region ranges from 1-12% of the population (Metts, 2004). However, based on projections from WHO's average prevalence rates of 15 %, approximately 30 million people in the MENA region have disabilities out of who many experience discrimination and social exclusion (World Bank, 2009). Additionally, a 59-country study estimated disability prevalence rates of 15.6% for adults ages 18 and over (WHO, 2011). The prevalence estimates of disabilities in Jordan and Lebanon appear to be consistent with the median percentage reported for 18 Arab countries, which ranges from 0.5% in Qatar to 4.9% in the West Bank and Gaza of the total population (ESCWA; League of Arab States, 2014), but they are lower than international prevalence rates which are estimated at one billion or 15% of the world's population (World Bank, 2018).

In Lebanon, specifically, the Ministry of Social Affairs (2014) reported that 95,618 persons are living with disabilities. This corresponds to about 1.56% of the total population, which is consistent with other studies that estimate an approximate of 2% of the Lebanese population with any identified disability (Lakkis, Nash, El-Sibai, & Thomas, 2015). This includes 55.1 % with "kinesthetic" disabilities, 28.4% with mental disabilities, 8.7% with hearing and speech disabilities, and 7.8% with visual disabilities (Lakkis et al., 2015; Moussa, 2008).

However, these numbers have been contested as an underestimation of the true rates of disabilities in Lebanon. According to more recent data, an estimated 10-15% of the Lebanese population have physical, sensory, intellectual, or mental disabilities (Combaz, 2018). This rate is closer to those reported worldwide. The discrepancy in prevalence estimates between Lebanon and other nations, as well as between studies conducted by the Lebanese state and independent researchers, may be due to a number of reasons, including but not limited to, how disability is defined in each study and country. The prevalence and definition of disability in higher education settings is explored in the following section.

Prevalence in Higher Education

Over the past three decades, the number of students in the United States identifying with disabilities has almost quadrupled from 2.3% to 9% of the total university population (Henderson, 2001; Skinner, 2007; Vogel, Holt, Silgar, & Leake, 2008; National Centre for Education Statistics, 2002). For instance, from 1995 to 1996, only 6% of university students reported having a disability (Henderson, 1995), while in the academic year of 2003-2004, up to 11% of undergraduates identified themselves as having a disability (U.S Department of education, National Centre for Education Statistics, 2007). This trend is also seen in other

nations such as Australia (Ryan, 2007), Canada (Laucius, 2008) and the UK (Pumfrey, 2008).

In US college campuses, the most prevalent disability appears to be Major Depressive Disorder ranging approximately between 15% (Raue & Lewis, 2011) and 21.9% (Horn & Nevill, 2006), followed by specific learning disabilities ranging between 7.5% and 31%, while physical disabilities such as visual/speech impairments, and traumatic brain injuries make up less than 5% of disabilities (Horn & Nevill, 2006; Raue & Lewis, 2011).

In the Arab region, data is more limited in the sector of higher education and numbers appear to be lower than those reported internationally. Only one study in Jordan documented that about 1% of students with disabilities attend higher education (The Higher Council for the Affairs of Persons with Disabilities, 2007). In Lebanon, no studies have specifically looked at prevalence of disabilities among college students.

At the American University of Beirut, where this study is conducted, there are no published data about the number of Students with Disabilities (SWD). However, to gauge an estimate of disabilities reported at AUB, we conducted two interviews with relevant personnel at AUB – Dr. Talal Nizameddine, Dean of Student Affairs, and Ms. Remy Elias, Wellness Outreach Officer. Based on information obtained, approximately 2.2% of students at AUB apply for disability status every year, with more students requesting accommodations each year (*Personal Communication, 2018*).

Given the presence of individuals with disabilities across the globe and in Lebanon, the past decades have seen serious efforts towards providing these individuals with fair and equal access to education, employment and other life opportunities. In the following section we focus on efforts made to provide equal access to education for college students with disabilities.

Equal Accessibility for College Students with Disabilities

Equal accessibility to education means that SWD have equal chances and opportunities as students with no disabilities in accessing academic, social, and recreational activities and programs at educational institutions (UNICEF, 2012). At the practical level, accessibility to education is often provided in the form of *reasonable educational accommodations* (Hines & Johnson, 2005). According to the CRPD (2008), reasonable accommodations are "necessary and appropriate modification and adjustments not imposing a disproportionate or undue burden, when needed in a particular case, to ensure to persons with disabilities the enjoyment or exercise on an equal basis with others of all human rights and fundamental freedoms". This encompasses all aspects of life including education. Thus, reasonable accommodations in the context of education include modifications implemented, in response to the specific need of the student with disability to reduce the impact of the student's impairment on their performance (Busch, 2015).

These include but are not limited to, modifications to the method of instructions (e.g., help with note-taking, use of a recorder), the method of assessment (e.g., enlarged font on exams, extended time for project completion), the method of demonstrating mastery (e.g., use of speech-to-text technology), and other aspects of college life such as facilitating access for students with mobility disabilities. The end-goal of these accommodations is to "level the field" between all students, without impacting the quality or standards of education. It is important to note that accommodations should be customized to the disability of the individual, as there is no evidence that one type of accommodation (e.g., extra time) would work for all SWD (Fuchs, Fuchs, & Capizzi, 2005). Additionally, the purpose of accommodations is to yield *valid* test results that truly reflect the student's performance, and *not* optimal results. Following this rationale, it is

important that reasonable accommodations show differential impact – they produce a performance boost for the SWD but they do not really affect the performance of nondisabled students.

Providing accommodations to SWD has shown positive outcomes, for most but not all accommodations. For instance, providing a larger font of an exam to a student with a visual impairment allows the student with a disability to access the exam just like a student without a visual impairment. Such an accommodation would not increase the score of a student without the disability in the same manner (Fuchs et al., 2005). However, not all testing accommodations show such differential boost. For example, providing extra time may benefit both SWD and nondisabled students, alike (Fuchs, Fuchs, Eaton, Hamlett, Binkley, et al., 2000).

Expectedly, not providing accommodations to SWD has been linked to adverse outcomes in higher education settings. This includes poor class participation (Cowen, 1993), low academic achievement (Baggett, 1994; Dowrick, Anderson, Heyer, & Acosta, 2006; Janiga & Costenbader, 2002), high drop-out and low success rates in higher education settings (Murray, Goldstein, Nourse, & Edgar, 2000), and reduced self-advocacy skills (Dowrick et al., 2006). These consequences lead to adverse experiences and result in negative social reactions from peers and faculty (Marshak, Van Wieran, Ferrel, Swiss, & Dugan, 2010), which reduces the likelihood that SWD would request accommodations (Johnson, 2006).

Most of the above accommodations are implemented inside the classroom by the class instructor/professor. Hence, a key factor in the actual application of accommodations is the motivation and willingness of the faculty member to do the necessary course changes. Many studies have shown that faculty members differ in the extent to which they are willing to make adjustments to their methods of instruction and assessment. For instance, faculty members are

less comfortable in providing accommodations that they perceive will lower course standards (Rao & Gartin, 2003), or give an unfair advantage to other students (Lombardi, 2010). Yet, they are willing to implement accommodations that are easy to provide, require little time investment, and which facilitate the integration of students into the planned course activities (Burgstahler, 2005a; Bigaj, Shaw, & McGuire 1999; Leyser, Greenberger, Sharoni, & Vogel, 2011). Therefore, surveying which accommodations faculty is willing to provide, can help us find alternatives that satisfy both the faculty and the student's needs.

In this study, we examine not only the extent to which AUB faculty members are willing to provide various accommodations, but also examine the individual differences that facilitate or impede this willingness. Prior to discussing these individual level variables, we first examine the legal and institutional context that mandates accommodations, internationally and locally.

United States and International Context

In the United States, legislations widely recognized in facilitating equal access to education to individuals with disabilities include the *Americans with Disabilities Act* (ADA), *Section 504 of the 1973 Rehabilitation Act* (Konur, 2006; O'Day & Goldstein, 2005; Rocco, 2002; Wolf, 2001) *and Individuals with Disabilities Education Improvement Act* (IDEA, 2004). These legislations apply to students including intellectual disabilities, hearing impairments (including deafness), speech or language impairments, visual impairments (including blindness), serious emotional disturbance, specific learning disabilities, orthopedic impairments, autism, traumatic brain injury, and other health impairments. Depending on the disability of the student, legislations mandate that educational institutions provide individuals with disabilities equal access to educational opportunities, as provided to those without. At the practical level, this means that students ought to have an assessment of their diagnosis and abilities, upon which an

individualized education plan (IEP) is developed, that outlines how they should be taught and evaluated. Using the principle of least restrictive environment of education, the IEP may range from requiring a self-contained classroom (e.g., for severe cases of Autism Spectrum Disorder), to formal and informal accommodations in a regular inclusive classroom. While explaining the various tiers of accommodations is beyond the scope of this paper, the most relevant point to be stressed is that legislations emphasize that students who attend regular classrooms and curricula, ought to be provided with *reasonable* accommodations for their disabilities.

Other countries that implemented laws to facilitate equal educational access to SWD include the United Kingdom (Disability Discrimination Act, 1995), Canada (The Ontario Human Rights Code, 1990), Australia (Australian Human Rights Commission Act, 1986), and some Arab countries such as Jordan (Law on the Rights for Persons with Disabilities, 2007).

Lebanese Context and AUB

In May 2000, Lebanon adopted the disability definition of the World Health Organization and established one of the most progressive laws in the Middle East - Law 220/2000 on the Rights of Disabled Persons (Appendix B: Lebanese law). The law mandates that individuals with disabilities be given their rights within economic and social domains, through access to employment, medical and rehabilitation services, education, transportation, sports, and housing (Lakkis et al., 2015; Moussa, 2008). Specifically, part VII of the law ensures the rights of all individuals with disabilities to education by mandating educational institutions to provide examination in accessible formats (Lakkis et al., 2015; Moussa, 2008), and providing integrative educational services (UNESCO, 2013).

Although this seems to comply with the notion of providing equal accessibility to education for SWD, its application has been poor (Combaz, 2018; Lakkis et al., 2015). For

example, children and youth with disabilities have limited access to learning and educational opportunities in public, private, mainstream, specialized, formal and non-formal educational institutions (Combaz, 2018). In fact, only five schools in Lebanon provide accessibility services for children with "physical" disability, and only 1% of school-age children with disabilities are enrolled in mainstream public schools (Lakkis et al., 2015; Moussa, 2008). Thus, individuals with disabilities are denied their rights to equal accessibility to education compared to those without disabilities. This results in a large number of individuals with disabilities remaining uneducated due to the lack of proper schooling (Joint Stakeholders 15, n.d.).

Despite the poor implementation of Law 220/2000, which mandates equal accessibility to SWD in the sector of education, The American University of Beirut, has adopted a policy of accessible education.

The American University of Beirut (AUB**)** - an 8000-student liberal arts university in Beirut – is a focal point in this narrative because not only is it bound by Lebanese law but also operates under a charter granted by the New York State Education Department. It therefore must comply with the US-based Middle States Commission on Higher Education to continue receiving accreditation. In line with both Lebanese and US standards, AUB established the Accessible Education Office (AEO) in 2016. The mission of the AEO is to provide an equal platform for SWD to participate in education, at similar levels to those without disabilities, whilst not compromising the academic integrity of the AUB curriculum (Appendix B: AUB regulations).

Although the office has not yet published official data, it is estimated that about 323 AUB students have registered with the AEO during the academic years 2015-16 and 2016-17 and 289 individuals during the academic year 2017-18 (*Personal Communication, 2018*). In this same year, the main disabilities presented by students were psychiatric illnesses (38.7%), ADHD

(32.9%), Learning disabilities (11.6%), chronic medical conditions (4.4%) and to a lesser extent temporary illness, and minor injuries affecting mobility (3%) (*Personal Communication, 2018*).

Importantly, the AEO has established due procedures that students must go through prior to being deemed eligible for accommodations. First, students must submit required documentation from appropriate sources (e.g., credible medical reports), for physical, psychological, and neurodevelopmental disabilities. After reviewing the documentation (which may or may not suggest educational accommodations), the AEO formally communicates the required accommodations to the relevant faculty members who are teaching the student. Common examples of accommodations include extended time up to 50% for exams and assignments, testing in a separate location, note taking support, recording lectures, taking breaks during exams, breaking down problems and assignments, not getting penalized for grammatical errors, supplying electronic and preview materials as well as memorization aids (*Personal Communication, 2018).* However, it is up to the faculty members to apply the accommodations suggested. Not applying accommodations that the AEO believes are reasonable to the student's case might act as a barrier to the academic success of students with disabilities (*Personal Communication, 2018).*

Willingness of AUB faculty members at providing accommodations. Indeed, and despite the efforts of the AEO, AUB faculty members are not eager to provide accommodations. To better understand these reasons, and because there have been no official studies at AUB, we conducted interviews with the Dean of Student Affairs and AEO officers and attended a town hall meeting (October 2018) between AEO and faculty members, where issues were openly discussed. Based on the information, we inferred that the main factors that impact willingness to provide accommodations include a) skepticism about the AUB due process, b) belief that

accommodations impact academic standards and integrity, c) belief that accommodations are akin to preferential treatment, d) individual faculty members' characteristics such as departmental affiliation, e) the fit between accommodations and course characteristics, and f) attitudes towards specific disabilities and students who have them.

To elaborate, first, AUB faculty members are skeptical of the due process that students must go through. According to the AEO, faculty members' skepticism leads them to often request more information about the case of the student, such as proof, even though this may compromise the confidentiality of the students' medical records. Second, AUB faculty members refuse to provide accommodations because they feel that accommodations lower the course's academic integrity. Third, there is a perception that accommodations do not actually level the field, but instead give special advantage to people with disabilities. In some extreme examples, faculty members have refused to change class locations that are not accessible for students with physical disabilities (*Personal Communication, 2018).* Fourth, the AEO and Dean of Students suggested that faculty members from certain departments such as sciences or engineering, are less willing than those from other departments to provide reasonable accommodations. Fifth, the willingness to provide accommodations also seem to be contingent on the number of students in the class, and the type of accommodation requested. In general, faculty members teaching small classes find it easier to accommodate students with disabilities than those teaching large classes and lectures. Also, requested accommodations which require changing the font of the exam, for example, are easier than requesting makeup exams in large classes or changing the format of the exam overall (*personal communication, 2018*). Finally, and very importantly, AUB faculty members seem to have different attitudes towards various types of disability, and this impacts the ease by which they provide accommodations based on disability. For instance, the AEO reports

that AUB faculty members are less willing to provide accommodations for students with psychiatric disabilities when compared to those with physical disabilities, even though psychiatric illnesses represent the largest category of disabilities that students presented with in 2017-18 (*Personal Communication, 2018).*

In sum, the above suggest that the provision of accommodations is not straightforward, and that there are specific factors, which increase or decrease the willingness of instructors to give reasonable accommodations they require. The current study, to our knowledge, is the first to thoroughly investigate such factors quantitatively, and attempt to understand what predicts the willingness of faculty members to provide accommodations to university students with disabilities in Lebanon. To further understand the extent to which factors are present in other contexts, and to provide a theoretical background between the possible predictors of willingness to provide accommodations, we will first review the extant literature.

Faculty Attitudes and Personal Beliefs

While a handful of obstacles hinder the successful provision of accommodations for SWD, one of the major obstacles consistently reported are attitudes of faculty members towards the students (Rao, 2004) and towards the provision of accommodations in general (Zhang et al., 2010).

Attitudes toward disability refer to the collective set of values and beliefs a person holds towards the existence of a certain type of disability. It involves assumptions about the abilities of individuals with a certain disability to perform tasks and function in different domains (Torres-Harding, Siers, & Olson, 2012). Attitudes towards the provision of accommodations include beliefs about the necessity and reason to provide accommodations to students with disabilities (Busch, 2015). The below sections review the negative and positive attitudes faculty might hold

towards students with any type of disability and towards the provision of accommodations. They also discuss the impact this might have on the students' experiences in university settings.

Negative attitudes and beliefs towards students with disabilities and accommodations. Negative attitudes of faculty members towards college students with disabilities may include being skeptical about the ability of students with disabilities to fulfill course requirements (Abu-Hamour, 2013), holding beliefs that students with disabilities are inferior and are less capable of learning (May & Stone, 2010); are lazy and deficient in social skills (Cook, Rumrill, & Tankersley, 2009; May & Stone, 2010); are not bright enough to be taught (Scott, 1997), are different and do not share similar interests and concerns compared to those without disabilities (May & Stone, 2010), and are unable to self-advocate or perform required tasks (Davies, Safarik, & Banning, 2003; Quick, Lehmann, & Deniston, 2003).

In addition to negative attitudes towards the students themselves, some faculty members hold negative attitudes towards *accommodations*. Specifically, attitudes include beliefs that providing accommodations compromises the academic integrity of the instructors' courses (Beilke & Yssel, 1999, Dodd, Rose, & Belkort 1992), modifies the graduation requirements by the university, which is unfair to students without disabilities (Vasek, 2005), lowers academic standards (Rao & Gartin, 2003), and that students tend to request them as means of getting preferential treatment which gives them an advantage over their classmates (Davies et al., 2003; Clark, 2017). Moreover, faculty members express concerns that providing accommodations are (a) not preparing students for future work, because future employers may not accommodate for special needs (*Personal Communication, 2018*) and (b) enables students with disabilities to perform at levels below the standards established by their professional fields, the college, or society (Clark, 2017).

In terms of willingness to provide accommodations, studies have found that faculty members, who hold negative attitudes towards SWD, are less likely to give accommodations. However, the relationship between attitudes and willingness is not straightforward. Zhang et al (2010) used path analysis (a type of Structural Equation Modeling) to examine how different factors, including faculty attitudes/beliefs, influence each other to predict the provision of accommodations. They found that only attitudes and beliefs about SWD and accommodations had any direct effect on faculty members' willingness to give accommodations, with effect sizes in the small to medium range. However, interestingly, these attitudes were themselves impacted by the extent to which faculty members knew about legislations, and the extent to which they felt that their institutions support them. Particularly, faculty's knowledge about legislations and their perceived institutional support indirectly predicted willingness to provide accommodations to SWD by predicting attitudes towards SWD and the provision of accommodations. Another qualitative study by Clark (2017), implemented interviews and content analysis to examine attitudes of faculty members towards SWD and willingness to provide accommodations to these students. Results showed that attitudes towards SWD directly explained willingness of faculty members to provide accommodations to SWD. However, the type of disability of the student (visible or non-visible) influenced attitudes of faculty members towards SWD. Specifically, faculty members hold positive attitudes towards students with visible disabilities. These studies therefore show that although attitudes are an important predictor of willingness to provide accommodations, there are other variables which may impact the willingness to provide accommodations either directly or indirectly.

For instance, a handful of studies have shown a significant effect of certain individual variables on willingness of faculty members towards the provision of accommodations to SWD

including faculty members' gender (Leyser & Greenberger, 2008; Lombardi & Murray, 2011), academic discipline (Lewis, 1998; Leyser & Greenberger, 2008; Nelson, Dodd, & Smith,1999; Lombardi & Murray, 2011; Bourke, Strehorn & Silver, 2000; Leyser et al., 2011), academic rank (Lombardi & Murray, 2011; Lombardi, 2010; Leyser & Greenberger, 2008; Bourket et al., 2000; Leyser et al., 2011), knowledge about legislations (Rao & Gartin, 2003; Leyser & Greensberger, 2008), perceived institutional support (Bourke et al., 2000), contact with SWD (Leyser & Greenberger, 2008; Leyser et al., 2011; McManus, Feyes, & Saucier, 2010), type of accommodation requested (Leyser et al., 2011), and the type of disability of the student (Clark, 2017; Sniatecki, Perry, & Snell, 2015; Rao & Gartin, 2003). These individual variables are described below and are divided into characteristics that are personal to the faculty member (gender, discipline, rank, knowledge, perceived institutional support, and contact with those with disability), and those that are specific to students with disabilities.

Faculty Members' Characteristics

Even within the same institution, faculty members can hold different perceptions and attitudes towards students with disabilities and the provision of accommodations which affects their willingness to provide accommodations. These differences depend on individual characteristics including faculty's gender, professional rank, and academic unit to which they are affiliated with.

Gender

While a handful of studies found that female faculty members hold more favorable attitudes towards students with disabilities than male faculty members (Baggett, 1994; Benham, 1997; Lombardi, 2010; Leyser & Greenberger, 2008), others did not find significant differences of attitudes by gender (Bourke et al., 2000; Shannon, Schoen, & Tansey, 2009; Lombardi, 2010,

Zhang et al., 2010; Rao & Gartin, 2003). In those studies that do find gender differences, it appears that female faculty members hold more positive attitudes towards students with disabilities (Baggett, 1994, Abu-Hamour, 2013; Leyser, Greenberger, Sharoni, & Vogel, 2011; Volosnikova & Efimova, 2016), are more willing to provide accommodations than male faculty members (Bigaj et al., 1999; Leyser et al., 2003), exhibit greater fairness in the provision of accommodations, and attempt to minimize instructional barriers at greater levels (Lombardi & Murray, 2011). These gender differences have a medium effect size (Lombardi & Murray, 2011), but the difference is rarely interpreted. It remains to be seen whether gender differences can be attributed to increased empathy and altruism in females, compared to males, or to confounding variables such as rank and discipline of female faculty (Christov-Moore et al., 2014).

Academic Discipline

Another characteristic that seems to influence willingness to provide accommodations is the disciplinary field to which the faculty member is affiliated with (Rao, 2004; Lewis, 1998; Leyser & Greenberger, 2008; Nelson et al., 1999; Lombardi & Murray, 2011; Bourke et al., 2000; Leyser et al., 2011). Faculty members affiliated with the fields of humanities, in general, seem to hold more favorable views towards SWD and are more willing to provide accommodations, in comparison to faculty members affiliated with sciences, engineering, mathematics and business (Lewis, 1998; Leyser & Greenberger, 2008; Nelson et al., 1990; Bourke et al., 2000). Particularly, faculty members of education seem to be the most willing to provide accommodations when compared to those from other departments (Rao & Gartin, 2003; Vogel et al., 1999; Bourke et al., 2000; Lewis, 1998). For instance, when comparing faculty members' attitudes across three academic divisions including the College of Education, the College of Business, and the College of Arts and Sciences from traditional 4-year academic

institutions, those from the College of Education responded most positively in expressing willingness to provide accommodations (Nelson et al., 1999). However, some studies reported no significant relationship between academic affiliation and willingness to provide accommodations to SWD (Zhang et al., 2010; Abu- Hamour, 2013). The difference across academic disciplines could also be confounded by increased awareness about disabilities throughout the years, provided the difference of time between the studies.

Academic Rank

Willingness to provide accommodations to students with disabilities has also been shown to differ across faculty's academic rank. For instance, faculty members at the instructor and assistant academic rank appear to hold more positive attitudes towards students with disabilities and are more willing to provide teaching accommodations than faculty members at the associate level (Abu-Hamour, 2013; Leyser & Greenberger, 2008; Lombardi & Murray, 2011; Lombardi, 2010; Bourke et al., 2000; Leyser et al., 2011). Similarly, junior faculty members seem to be attuned to the needs of students with disabilities (Bourke et al., 2000), and in general, younger faculty members are more willing to provide accommodations than older faculty members (Vogel et al., 1999). Along the same lines, faculty members with less than five years of teaching experience hold more favorable attitudes towards students with disabilities and are more willing to provide accommodations, than those with more years of experience (Leyser et al., 2011, Abu-Hamour, 2013). In contrast, some studies found that academic rank had no impact on willingness of faculty members to provide accommodations to SWD (Zhang et al., 2010).

Faculty's Personal Contact with Students with Disabilities

Another factor that affects willingness to provide accommodations to students with disabilities is faculty members' personal contact with and prior experience teaching SWD (Rao

& Gartin, 2003; Leyser & Greenberger, 2008; McManus et al., 2010, Leyser et al., 2011). Faculty members with prior experience of teaching students with disabilities are better at understanding and assisting other students with disabilities (Rao & Gartin, 2003), are more comfortable in the provision of accommodations (Leyser et al., 2003; Rao & Gartin, 2003), and are more likely to provide accommodations to students with disabilities in the future than faculty members with no prior experience or contact with students with disabilities (Rao & Gartin, 2003; Lesyer & Greenberger, 2008). They also hold favorable attitudes towards students with disabilities (McManus et al., 2010; Leyser et al., 2011) including the belief that students with disabilities add richness and diversity to their courses (Abu-Hamour, 2013), help them adopt a variety of learning styles, and allow them to reflect on their teaching methodologies (Burgstahler & Doe, 2006). Additionally, the quality rather than the quantity of contact of faculty members with SWD predicted positive attitudes towards SWD (McManus et al., 2010). Nonetheless, Rao and Gartin (2003), found that faculty members with prior teaching experience of SWD were more willing to provide accommodations, but contact with individuals with disabilities did not significantly impact this willingness. These results, therefore, indicate that direct contact of faculty members with SWD significantly impacts their willingness to provide accommodations to these students.

While a handful of studies have consistently shown that certain faculty characteristics influence willingness to provide accommodations, having knowledge about specific disabilities and the disabling conditions as well as mandated legislations also seem to influence willingness of faculty members to provide accommodations.

Knowledge of Disabilities and Relevant Legislations

Knowledge of disabilities. A review of the extant literature showed that faculty

members' knowledge regarding the characteristics and special needs of students with disabilities is limited (Rao, 2004; Abu-Hamour, 2013; Rumrill, Koch, Murphy, & Jannarone, 2002). In turn, this affects the ability of faculty members to provide appropriate and reasonable accommodations to these students (Brockelman. Chadsey, & Loeb, 2006; Murray, Wren, & Keys, 2008). For instance, faculty members who are trained in universal design principles (UD) – designing courses in a way that accommodates diverse and alternative learners equal opportunity to learn, and demonstrate mastery - may find it easier to understand students with disabilities than those who do not have knowledge of UD (Rao, 2004). In addition, those who receive training and special courses in the area of disabilities are willing to provide technological, instructional, and examination accommodations when needed (Abu-Hamour, 2013), hold more positive views about students with disabilities (Abu-Hamour, 2013; Murray, Lombardi, Wren, & Keys, 2009), show success in delivering instructional practice (Lombardi, 2010), and are more comfortable in understanding students with disabilities and special needs (Leyser et al., 2011). This suggests the importance of supporting the development of faculty members around knowledge pertaining to students with disabilities.

Conversely, those who lack knowledge about the characteristics and specific needs of students with disabilities are less able to design responsive or supportive instruction, and less likely to accept students with disabilities in their classrooms (Cook, Gerber, & Murphy, 2000).

Knowledge of legislations. Faculty members' knowledge about the mandated legislations and their legal responsibilities also seem to be limited. This includes knowledge of laws as well as university policies. In the USA, studies have found that half or more of faculty members are not familiar with the basic legislations regarding disability such as the ADA (Thompson, Bethea, & Turner, 1997) and even fewer faculty members were aware of more in-

depth legislations (see also Dona & Edmister, 2001). Likewise, faculty members at 12 different post-secondary US institutions reported through focus groups that legislations were unclear and vague and that they are unaware of what makes an accommodation reasonable (Burgstahler, Duclos, & Turcotte, 2000).

Likewise, in the Arab region, a study in Jordan found that most faculty members in a public university, were unfamiliar with any disability legislations in Jordan (Abu-Hamour, 2013). However, faculty members have expressed desire to learn more about legislations (Abu-Hamour, 2013). Nonetheless, knowledge about legislations is an important factor that significantly impacts willingness of faculty members to provide accommodations to SWD. For instance, knowledge about legal responsibilities and legislations significantly influences positive attitudes towards SWD and willingness to provide accommodations to these students (Zhang et al., 2010; Leyser & Greenberger, 2008). Similarly, Rao and Gartin (2003) found that knowledge about Section 504 impacted willingness to provide accommodations to SWD. However, familiarity with the ADA legislation alone did not significantly impact willingness to provide accommodation to SWD. In addition, faculty members with prior disability-focused training had greater knowledge (Lombardi & Murray, 2011), held more positive attitudes towards SWD (Lombardi & Murray, 2011; Lombardi, 2010), and were more willing to provide accommodations to SWD than those without prior training (Leyser et al., 2011).

Hence, these results suggest that knowledge about disabilities and legislations influence willingness to provide accommodations either directly or indirectly through influencing attitudes towards SWD and the provision of accommodations.

Faculty Members' Perceived Institutional Support and Trust

A handful of studies have shown that faculty members rely on the institution's support

for information regarding their legal responsibilities and the due process to provide accommodations (Burgstahler et al., 2000; Bourke et al., 2000). For instance, over 160 staff and faculty members reported the importance of the institution's support in (a) influencing the ease of the provision of accommodations to students with disabilities (Bourke et al., 2000), (b) perceived sufficiency of resources to provide accommodations and (c) the necessary knowledge about the due process and seeking additional support whenever needed (Burgstahler et al., 2000). Faculty members tend to hold favorable attitudes towards SWD and the provision of accommodations and are willing to provide accommodations to SWD when they believe that they are receiving sufficient support from their institutions and trust the due process of providing accommodations (Zhang et al., 2010; Bourke et al., 2000; Burgstahler et al., 2000). In contrast, faculty members who doubt the due process of the institution in the provision of accommodations and believe that the institution does not provide sufficient resources and support, are hesitant in providing accommodations to SWD (personal communication, 2018; Bourke et al., 2000). Therefore, trusting the institutional processes in providing the necessary resources and support, positively impacts faculty willingness to provide accommodations.

Although certain characteristics seem to influence willingness of faculty members to provide accommodations, a well-established body of research showing that certain characteristics of students with disabilities also seem to influence faculty members' willingness to provide accommodations.

Characteristics of Students with Disabilities

Type of Disability

The type of disability that individuals presents with seem to influence people's willingness to facilitate inclusive environments in social contexts for these individuals. For

instance, an in-depth study conducted by UNICEF (2017) examined general community knowledge, attitudes, and practices towards individuals with disabilities and found specific hostility towards persons with intellectual and/or mental disabilities in terms of willingness for inclusion, as opposed to those with physical disability (Stade, Khattab, & Ommering, 2017).

Similar patterns are observed in the context of higher education in terms of attitudes towards students with disabilities and willingness to provide accommodations. Faculty members hold favorable attitudes towards and are accepting of students with noticeable or visible disabilities, such as hearing and visual impairments (Baggett, 1994; Gitlow, 2001, Leyser, 1989; Sniatecki et al., 2015; Clark, 2017), and physical and mobility disabilities (Baggett, 1994). In contrast, they are most skeptical of students with non-visible disabilities such as students with learning disabilities, and psychological problems like depression (Beilke & Yssel, 1999; Baggett, 1994; Berry & Mellard, 2002; Burgstahler et al., 2000; Leyser, 1989; Sniatecki et al., 2015; Clark, 2017). Similarly, faculty members are more likely to believe that students with visible disabilities can graduate (Houck, Asselin, Troutman, & Arrington, 1992), be successful and compete academically at the college level (Sniatecki et al., 2015), and are more acceptable for inclusion than students with severe mental disabilities, multiple disabilities, and emotional/behavioral problems (Sniatecki et al., 2015).

In terms of willingness to provide accommodations, faculty members are more willing to provide accommodations to students with hearing and visual impairments and learning disabilities than to students with emotional/psychological disabilities (Wolman, McCrink, Rodriguez, & Harris-Looby, 2004; Sowers & Smith, 2004).

Thus, students with non-visible disabilities such as psychological difficulties encounter the most attitudinal barriers and require additional attention and support from accessibility

programs and services at university settings. This is crucial provided the wide array of mental health symptomology and functioning that varies among individuals (Sniatecki et al., 2015) as well as the high prevalence of psychological disabilities amongst students applying for accommodations at the American University of Beirut (*Personal Communication, 2018*).

Aims and Hypotheses

The current study examined the extent to which faculty members at AUB are willing to provide accommodations to students with disabilities and understand the individual differences that predict said willingness. Specifically, we examined whether willingness differs based on existing faculty members' attitudes towards students with disabilities and towards educational accommodations in general, characteristics of faculty members such as gender, academic discipline, academic rank, personal contact with students with disabilities, knowledge about disabilities and legislations, faculty's perceived institutional support and students' characteristics such as type of disability.

This study is novel because, to our knowledge, it is the first study that systematically examined the willingness of faculty members to provide accommodations to students with disabilities in a higher educational institution in the Arab region in general and in Lebanon in specific. The American University of Beirut is a unique setting to conduct the study because it is the only higher educational institution in Lebanon that has established an accessibility education program to improve the learning experience of students with disabilities through the provision of reasonable accommodations. This study also yields valuable and practical information about the barriers that AUB faces in providing accessible education – hence adding to the ecological validity of the study. Another unique contribution of this study is that, while previous studies examined willingness of faculty members to provide accommodations to one type of disability,

we examined different types of disabilities, including physical, mental (psychological), and neurodevelopmental (learning and ADHD).

Exploratory analyses that answer the following questions were conducted:

a. To what extent are faculty members willing to provide reasonable accommodations to students with disabilities?

b. What are the prevalent attitudes and beliefs towards providing accommodations to students with physical, mental, and neurodevelopmental disabilities?

c. To what extent do attitudes of faculty members towards students with disabilities and the provision of accommodations *explain* willingness to provide accommodations to students with disabilities?

d. To what extent do characteristics of faculty members such as gender, academic discipline, and teaching experience *explain* willingness to provide accommodations to students with disabilities?

e. To what extent does faculty members' knowledge about disabilities and legislations, perceived institutional support and trust, personal contact with students with disabilities, *explain* their overall reported willingness to provide accommodations?

f. Is there a difference in providing willingness to provide accommodations, based on the type of disability (mental, physical, and neurodevelopmental) and type of accommodation requested?

Participants

Sample size calculation. To calculate the desired sample size, we used the rule of thumb by Field and Miles (2012) that 10-15 cases per predictor are needed. We took into consideration

several parameters, including the expected effect size, statistical significance (alpha level= 0.05), power ($1 - \beta = .8$), and number of predictors (8 predictors). First, to estimate the expected effect size for our study, we examined two previous similar studies that looked at willingness of faculty to provide accommodations to students with disabilities (Zhang et al., 2010; Rao & Gartin, 2003), and extracted their relevant coefficients. Both studies reported effect sizes that were small (Cohen's d = 0.27, 0.29; standardized beta weights = 0.1 to 33), with the exception of one relationship that had a large effect size (Cohen's d = 0.5). By averaging these values, we determined that the expected effect size for our study is likely to be medium (Cohen's-f value = 0.25). Field and Miles (2012), argue that to establish a medium effect size for 5-20 predictors, a sample size of 160 is needed. Therefore, considering all these parameters the ideal sample size would be n= 160.

Response rate and sampling technique. While the sample size is crucial to detect statistical significance and appropriate effect, it is also important to ensure that our sample is representative and proportional to the number of staff in the various AUB faculties. Although we attempted to use a proportionate stratified sampling technique so that that number of participants from each faculty is representative of the faculty's proportion to AUB as a whole, this was not accomplished. We sent the survey to the entire AUB faculty members through an invitation email directing participants to an online link which included a consent form and the survey questions was initially sent followed by two reminders.

Procedures

Prior to data collection, we obtained ethical approval from the Institutional Review Board (IRB) at the American University of Beirut. Data was collected by approaching faculty members face to face, at the various faculties and departments at AUB as well as sending invitations to

introduce and link faculty members to an online survey (Lime Survey online survey software) via email (faculty lists accessible by Dr. Zeinoun), social media (faculty webpages), posters and snow-balling.

Participants had to provide their consent to participate by reading an informed consent form online and clicking "I Agree" or "Next" to indicate their consent. The consent form contained information explaining and ensuring: (1) confidentiality, (2) anonymity, (3) voluntary participation, (4) withdrawal from the study at any time without any losses or negative consequences, (5) freedom not to answer questions that make participants uncomfortable, (6) that all data obtained will be kept in a password protected laptop, and (7) that all research related materials and documents will be secured in the principal investigator's office.

Participant characteristics. The sample comprised of AUB faculty members (*N*=144) with the majority being full-timers (80.8%), females (52.6%) with an age range between 24 and 65 (M=44.63, SD=10.66). Teaching experience ranged from 1 to 40 years of experience (M=13.86, SD=9.60). All seven AUB faculties were represented, albeit not in a proportional manner (Table 2). The highest percentage of the sample was from the Faculty of Arts & Sciences (51.3%), while the least were from the Hariri School of Nursing (2.6%) (Table 2).

Table 1
Participant Characteristics

Variable	N	%	M	SD
Reported gender				
Female	41	53%	-	-
Male	36	46%	-	
Age	78	-	44.63	10.6
Contract				
Full Time	63	80.80%		
Part-Time	14	17.9%		
Years Teaching	-	-	13.9	9.6

Table 2
Participant Representation across AUB Faculties

AUB Faculty	Number (%) of Actual Staff in Faculty	Number (%) of Participants from Faculty
FAS- Arts & Sciences	469 (39.1%)	40 (51.3%)
OSB-School of Business	85 (7.08%)	9 (11.5%)
FM- Medicine	314 (26.0%)	6 (7.7%)
FHS- Health Sciences	49 (4.08%)	6 (7.7%)
MSFEA- Engineering and Architecture	198 (16.3%)	6 (7.7%)
FAFS- Agricultural & Food Sciences	60 (2.08%)	5 (6.04%)
HSN- School of Nursing	25 (2.08%)	2 (2.6%)
Total	1200[a]	144 (12% of population)
Cases with Missing Data	-	66 (45%)
Total Sample Retained	-	78 (6.5% of population)

Note. OSB = Olayan Sulaiman School of Business; MSFEA= Maroun Semaan Faculty of Engineering and Architecture; HSON = Hariri School of Nursing. a = Although the official number of AUB faculty is 1200, a good proportion of these faculty are clinical associates at the Faculty of Medicine who do not have any teaching duties. They are therefore not a critical part of the population of interest.

Measures

In this line of research, there are very few standardized measures used consistently across studies (Lombardi & Murray, 2011). Most studies either develop instruments specific to their research questions and institutions (Cook et al., 2009; Baker et al., 2012; Zhang et al., 2010), or adapt and adjust surveys developed by others (Nelson et al., 1990; Sniatecki et al., 2015; Leyser et al., 2011). This practice, albeit common in survey research, poses several problems which prevented us from using existing scales.

First, because most research has been conducted in other countries, their survey questions assess practices and legislation that are country specific. This is problematic since the current study was conducted at AUB within the Lebanese sociocultural context and needs to examine practices, and legislation particular to Lebanon. Therefore, new items were needed which are specific to this context.

Second, while previous research adapted and/or developed instruments to examine willingness of faculty to provide accommodations to students with one type of disability, this study aims to examine willingness to provide accommodations to *various* types of disabilities including physical, psychological, and neurodevelopmental disabilities. Therefore, items or responses needed to be adapted, to reflect the different types of disabilities.

Third, while a lot of researchers constructed their own instruments by either (a) reviewing the literature, (b) consulting with professionals, and/or (c) conducting pilot studies prior to the administration of the survey, (Baker et al., 2012; Bourke et al., 2000; Cook et al., 2009) a common limitation is the lack of psychometric properties of the such surveys (Sniatecki et al., 2015). Therefore, there is no "gold standard" that measures the constructs of interest.

Thus, in view of these issues, and in order to circumvent the above problems, we created a survey instrument that combines items from previous scales, with self-generated items. We did this systematically by first amassing all questionnaires used to measure our variables of interest, specifying the constructs tapped by each item, and then selecting items and constructs that fit our research questions. Additionally, to tap into constructs that are specific to AUB and Lebanon, we generated new items based on information obtained by the relevant AUB authorities. The developed instrument had a total number of 52 items and demographics section of 9 items. The specific methodology used to develop each scale is detailed below, while Table 11 outlines the

main scales, constructs, and items.

Demographics. The demographics section asked faculty about age, gender, teaching duties, type of contract (Full time or part time basis), departmental affiliation, and years of teaching experience. We excluded academic rank as requested by the IRB to avoid identification of participants from small departments.

Contact with students with disabilities. To capture the extent to which faculty have personal contact with students with disabilities, we used questions from a survey entitled Expanding Cultural Awareness of Exceptional Learners (ExCEL; Lombardi, 2010), and one was self-generated (See Table 11). The total number of items is 3 items.

Willingness to provide accommodations. This scale is largely based on the ExCEL survey developed by Lombardi (2010), part of which measures postsecondary teachers' willingness to provide specific accommodations (e.g., I *am willing to give extra time on exams*) to SWD in general. The instrument measures level of agreement/opinion through 57 response options measured by a six-point Likert type scale ranging from 1 (*strongly agree)* to 6 (*strongly disagree*). Out of the 57 items, only 9 items were deemed relevant to our study. These 9 items (Appendix A) were slightly adapted to make them more applicable to AUB faculty. For example, the item "*I am willing to provide copies of my overheads or PowerPoint presentations*" was changed to "*I am willing to provide copies of my PowerPoint presentations*" because overhead projections are less available in AUB facilities. In addition to these 9 items, we added five additional items which refer to accommodations mentioned specifically by the AUB AEO (e.g., *I am willing to change the font size and presentation of exams*). This scale has a total of 14 items.

Second, because our study aims at understanding willingness to provide accommodations to different types of disabilities, we changed the response options from a 6-point Likert type to

categorical options (*Yes, No*), for each of the specified disabilities – physical, psychological, and neurodevelopmental (Learning and ADHD). We also added a response choice of "*does not apply in my courses"* for the different types of accommodations in case some accommodations do not apply to the nature of the course. Moreover, the beginning of the survey provides a response option for faculty members who are unwilling to provide *any* types of accommodations to students with any kind of disability.

It is important to note that we although psychological disorders, learning disorders and ADHD are all technically classified as mental illnesses in the Diagnostic and Statistical Manual 5 (DSM -5) (APA, 2013), we deemed it important to separated them because studies differentiate between mental disorders and learning disabilities (Sniatecki et al., 2015), and because ADHD alone is the most frequent disability reported by the AUB AEO (*Personal Communication, 2018*).

The scale was scored in two ways. To know the extent to which the faculty would provide the accommodation in general, regardless of the disorder, we added the number of "Yes" answers for each accommodation. Score could range from 0 to 4 per item, and from 0 to 56 for the whole scale. To measure the extent to which faculty would provide accommodations based on disability, we added one point for each time that an accommodation was endorsed per disability. The score per each of the four disabilities ranged from 0 to 14.

Finally, we generated one vignette that asks whether faculty members are willing to provide the *same* accommodation (extra time) to a student with physical, learning and mental disability. Response choices included a 3-point Likert scale ranging from 1(*unlikely*) to 3 (*likely*).

To obtain a total score for this scale, we computed two scores. One, the sum of willingness to provide accommodation in general regardless of disability, and another score to

measure willingness to provide accommodation for each specific disability category. Total scores for each question were computed as a new variable (e.g. Q1 Total) as well as the total scores for each category of disability (e.g. Physical Disability Total Willingness).

Personal beliefs and attitudes towards students with disabilities, and accommodations. Attitudes and personal beliefs of faculty can be very broad, and different studies have focused on narrow aspects of this construct. To tap on to a broader understanding of faculty attitudes and beliefs, we used items from several studies so that all aspects of the construct are included. Specifically, we used items that tap on to faculty's belief that students take advantages of their disability and accommodations (2 items), that accommodations foster dependence (3 items), accommodations are fair/unfair (4 items), they reduce academic standards and course integrity (3 items), that students with disabilities are all the same (2 items), and generally weak academically (4 items). This adds up to a total of 18 items for this scale that covers the 6 facets discussed earlier. In the current sample, the scale demonstrated very good internal reliability with Cronbach's alpha of .87. The total score was calculated by summing all the ratings, and reverse coding items 6,10,14,16. The higher the score, the more negative the attitudes.

Knowledge about legislation and disabilities. Because this scale deals with specific Lebanese laws and AUB policies, we generated 9 items that measure faculty members' knowledge about the Lebanese law, AUB policies, and local definitions of disability. We also added two items from the Excel study that measure one's reported knowledge of designing accessible courses, one's self-confidence in understanding disabilities, and one item from Cook et al. (2009) that measures knowledge about privacy and disclosure of disability status. This adds up to a total of 12 items for this scale. In the current sample, the scale demonstrated acceptable

reliability (α =.61). To calculate a total score, we assigned three points for each true statement that the participants answered as True, 2 points if answered Unsure, and 1 point if the participant indicated it is False. We reverse coded item 4 and 8. The higher the score, the more the knowledge the participant had.

Perceived institutional support and trust. To measure the extent to which faculty members feel supported by the institution, we adapted one item from the ExCEL survey, one from Cook et al. (2009), and wrote 2 additional items that are specific to AUB institutional procedures. Additionally, because faculty mistrust was an emergent theme at AUB, we wrote 3 items that tap on to one' trust (or mistrust) of the due process that students must go through to obtain accommodations. This resulted in 7 items for this scale. In the current sample, the scale initially demonstrated poor internal reliability (α =.57). This was due to item 3 (*It is helpful talking to my colleagues to know more about providing accommodations*) that appeared to have low item-total item correlation (-.23). By removing this item, the scale's internal consistency increased to acceptable (α = 0.68). The total score of the scale was calculated by summing all the ratings of the items. Items that indicated lack of perceived support or trust, were reversed-coded. The higher the score on the scale, the more the participant perceived support and trust from the institution.

Finally, the survey also included an open-ended question that asks participants to note any suggestions/recommendations they might have.

Pilot study. We conducted a pilot study with 5 faculty members to elicit feedback regarding the length of the survey and detection of any blatant errors. The principal investigator sent the approved email script to five acquaintances at AUB and asked them if they would kindly complete it and email the PI with feedback, if any. No changes were made, and the measures

were determined to be ready for data collection.

Study Design

The current study implemented an exploratory, quantitative, and cross-sectional design through a survey instrument administered online. Independent variables included attitudes of faculty members towards students with disabilities and towards the provision of accommodations, characteristics of faculty members including gender, years of teaching experience, personal contact with students with disabilities, knowledge about disabilities and legislations, faculty members' perceived institutional support, and students' type of disability. The dependent (outcome) variable in this study is willingness of faculty members to provide accommodations to students with disabilities.

Results

Statistical Analyses

Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS-24). It included examination of data for potential outliers, and missing data through missing value analysis. We ran descriptive statistics to examine all independent variables. Since our aim is to examine predictor variables that have sound theoretical reasoning for predicting the outcome and to understand how willingness of faculty differs based on predictors, we ran forced entry multiple regression (Field & Miles, 2012). Forced entry multiple regression places predictors in one block and estimates parameters for each predictor (Field et al., 2013).

Assumptions of Multiple Regression

The assumption of normal distribution of the outcome variable was tested by examining histograms, and Shapiro-Wilk test. The histogram visually resembled a bell-curve and the Shapiro-Wilk test was not significant ($p = 0.08$), indicating a normal distribution. The assumption

of multicollinearity was tested by looking at the correlation matrix between the predictor variables and the Variance Inflation Factors (VIF). None of the correlations between predictor variables were above 0.7 and all predictors had a Variance Inflation Factor (VIF) value of less than 10 which indicates an absence of multicollinearity (Field & Miles, 2012). We tested the assumption of linearity by examining P-P plots and scatterplots. No cases were falling below the lines or outside the range of -3 to 3 either on the x-axis or y-axis (Field & Miles, 2012). The assumption of independence of errors was tested by examining the Durbin-Watson value of the model, which was 1.82. Values greater than 1 and less than 3 indicates that the residuals are uncorrelated and cause no concern (Field & Miles, 2012). Finally, we tested the assumption of homoscedasticity by examining residual plots of standardized predicted values against standardized residuals. The residuals appeared to increase consistently with the distance up the line, indicating that the assumption of homoscedasticity was met (Field & Miles, 2012).

Also, we examined Cook's distance to ensure the absence of any outliers or influential cases that may impact the results of the linear multiple regression. No cases had a Cook's distance greater than 1, which indicates the absence of any outliers (Field & Miles, 2012).

Missing Value Analysis

Initially, a total of 144 participants responded to the survey, which is approximately 12% of all AUB faculty. To deal with the missing values in the scales, we performed data cleaning and case-wise deletion of cases that were missing a total of 25% or more of their item ratings. After this procedure, the final sample size retained for the analysis was 78 participants (N=78), which is 6.5% of AUB faculty.

Willingness to Provide Accommodations

In terms of the overall accommodations that participants are willing to provide scores

ranged between 0 and 56, with an average score of 34.54 (*SD* =12.50). The most endorsed accommodation (83% of sample said yes) was willingness to spend extra time meeting students to clarify/review course content (*M*= 3.53, *SD*= 1.15). The least endorsed (21.8%) was allowing students with disabilities to complete extra credit assignments (*M* = 1.10, *SD*= 1.70). Table 3 reports faculty endorsement for each accommodation.

When we examined faculty willingness to provide *any* accommodation based on type of disability, we found that physical disabilities were most favored, with 91% of participants endorsing all 14 accommodations. Ranked second were learning disabilities, with 89.7% of faculty members reporting that they are willing to give all 14 accommodations (*M*= 8.94, *SD*= 3.21), followed by mental illnesses (87.2%; *M*= 7.69, *SD*= 3.75), and ADHD (88.5%; *M*= 8.25, *SD*= 3.39),

This finding was relatively consistent with responses to the vignettes, whereby participants indicated most willingness to provide the *same* accommodation (extra time) to a student with dyslexia (91%), followed by a student with a medical condition (83.3%), and least to a student with depression (79.5%). There were no differences in total willingness scores, across gender, academic affiliation (faculty membership), years of teaching experience, or contact with disability.

Table 3

Endorsed Accommodations per disability at AUB

Type of Accommodation	Does not Apply in my course		Physical Disability		Mental Disability		Learning Disability		ADHD		Total Scores By Accommodation
	N	%	N	%	N	%	N	%	N	%	
Spend extra time (i.e., in addition to office hours) meeting students to clarify/review course content	3	3.8%	69	88.5%	68	87.2%	71	91%	67	85.9%	275
Extend deadlines or give extra time for assignments	5	6.4%	65	83.3%	66	84.6%	70	89.7%	64	82.1%	265
Give extended time on exams	8	10.3%	62	79.5%	58	74.4%	67	85.9%	63	80.8%	250
Provide copies of my PowerPoint presentations, or notes.	9	11.5%	63	80.8%	55	70.5%	61	78.2%	56	71.8%	236
Allow the student to take exams in a quiet place	10	12.8%	50	64.1%	52	66.7%	55	70.5%	56	71.8%	213
Allow recording of my class sessions	8	10.3%	57	73.1%	48	61.5%	54	69.2%	53	67.9%	213
Change the font size and presentation of exams	9	11.5%	64	82.1%	39	50%	51	65.4%	43	55.1%	197
Design my courses and/or practica in a way that they are as accessible as possible to all students.	13	16.7%	51	65.4%	45	57.7%	50	64.1%	48	61.5%	194
Allow students to use technology not allowed to others (e.g., laptop, calculator).	13	16.7%	44	56.4%	30	38.5%	40	51.3%	34	43.6%	188
Change the method of responding on exams (e.g., written to oral; open-ended to multiple choice)	13	16.7%	49	62.8%	33	42.3%	49	62.8%	37	47.4%	168
Use technology so that my course material can be available in a variety of formats (e.g., choose books available in audio format; allow speech-to-text).	16	20.5%	51	65.4%	43	55.1%	48	61.5%	46	59%	148
Ignore attendance and/or late arrival, even if this is required for other students.	9	11.5%	39	50%	39	50%	26	33.3%	29	37.2%	133
Overlook errors in spelling, and grammar and grade based on content alone.	20	25.6%	29	37.2%	23	29.5%	45	57.7%	31	39.7%	128

Allow student to complete "extra credit" assignments.	23	29.5%	19	24.4%	22	28.2%	23	29.5%	22	28.2%	86
Total Scores by Disability	-	-	633		523		626		569		

Note. ADHD = Attention Deficit Hyperactivity disorder

Table 4

Willingness to Provide Accommodations by Faculty Members at AUB

Type of Accommodation	% of sample endorsing accommodation	Mean (*SD*)
Spend extra time (i.e., in addition to office hours) meeting students to clarify/review course	83.3%	3.53 (1.15)
Extend deadlines or give extra time for assignments	73.1%	3.40 (1.22)
Give extended time on exams	70.5%	3.21 (1.43)
Provide copies of my PowerPoint presentations, or notes.	66.7%	3.03 (1.56)
Allow the student to take exams in a quiet place	55.1%	2.73 (1.65)
Allow recording of my class sessions	59.0%	2.73 (1.69)
Change the font size and presentation of exams	50.0%	2.53 (1.63)
Design my courses and/or practica in a way that they are as accessible as possible to all students.	56.4%	2.49 (1.86)
Allow students to use technology not allowed to others (e.g., laptop, calculator).	53.8%	2.41 (1.86)
Change the method of responding on exams (e.g., written to oral; open-ended to multiple choice)	37.2%	2.15 (1.71)
Use technology so that my course material can be available in a variety of formats (e.g., choose books available in audio format; allow speech-to-text).	35.9%	1.90 (1.78)
Ignore attendance and/or late arrival, even if this is required for other students.	29.5%	1.71 (1.71)
Overlook errors in spelling, and grammar and grade based on content alone.	28.2%	1.64 (1.71)
Allow student to complete "extra credit" assignments.	21.8%	1.10 (1.70)

Contact with Students with Disabilities

When asked about the extent to which participants have had contact with SWD, the majority of the sample reported having little contact. For instance, more than half of the sample (55.5%) reported having taught between 1 and 10 SWD, in the past 10 years. In terms of experience in providing accommodations, more than half of the sample (51.3%) reported having *fairly good* experience in providing accommodations to SWD, while almost 40% reported having *very little* experience in providing accommodations to SWD. Moreover, when asked about personal experiences with any type of disability, about a quarter of participants had no contact with anyone that had a disability (23.1%), while 42% reported that their personal experience was limited to teaching SWD (Table 4).

Table 5
Reported Contact with Disabilities

Item	N	%	M	SD
Teaching SWD in the past 10 years	-	-	3.38	1.51
1-5	22	28.2%	-	-
6-10	21	26.9%	-	-
11-20	8	10.3%	-	-
Over 21	12	15.4%	-	-
Experience in Providing Accommodations to SWD	-	-	2.55	0.62
No Experience	3	3.8%	-	-
Very Little Experience	30	38.5%	-	-
Fairly Good Experience	40	51.3%	-	-
A Lot of Experience	2	2.6%	-	-
Personal Experience with Disability	-	-	2.19	1.21
I have very little or no experience	18	23.1%	-	-
I have taught students with disabilities	33	42.3%	-	-

I have a family member/close friend with a disability	23	29.5%	-	-
I have a disability myself	1	1.3%	-	-

Note. SWD=Students with Disabilities.

Knowledge about Disabilities and Legislations

In terms of knowledge, scores ranged between 25 and 33, with an average score of 28.85 (*SD* =1.96). The majority of the sample was unsure about what falls under the international or Lebanese legal definition of disability and the rights of people with disabilities in Lebanon. Importantly, the sample overwhelmingly reported lack of knowledge in designing their courses to increase accessibility to students (universal design), or to make adequate accommodations to students with disabilities in their courses (Table 5).

Table 6
Knowledge about Disabilities and Legislations Descriptive

Item	Yes		Unsure		No		Mean (*SD*)
	N	%	*N*	%	*N*	%	
Knowledge of Definitions							
Lebanon's legal definition of disability includes visual and hearing impairments.	36	46.2%	41	52.6%	0	0	2.47 (0.50)
Lebanon's legal definition of disability includes learning disorders (e.g. dyslexia).	12	15.4%	65	83.3%	0	0	2.16 (0.37)
Lebanon's legal definition of disability includes Attention Deficit Hyperactivity Disorder	7	9.0%	70	89.7%	0	0	2.09 (0.29)
Lebanon's legal definition includes those with temporary problems such as grieving.	0	0	77	98.7%	0	0	2.00 (0.00)
Lebanon's legal definition of disability includes mental illness (e.g. anxiety, bipolar disorder).	11	14.1%	66	84.6%	0	0	2.14 (0.35)
Lebanon's legal definition of disability includes chronic illness (e.g. Diabetes).	7	9.0%	70	89.7%	0	0	2.09 (0.29)

Item	Yes		Unsure		No		Mean (*SD*)
Knowledge of Designing Accommodations							
I know how to design my courses in a way to maximize accessibility to students (e.g.	18	23.1%	57	73.1%	0	0	2.24 (0.43)
Currently I do not have sufficient knowledge to make adequate accommodations for SWD in	26	33.3%	51	65.4%	0	0	1.66 (0.48)
I understand why a US-chartered institution like AUB is required to have a process for providing accommodations to students with disabilities.	7	9.0%	70	89.7%	0	0	2.09 (0.29)
I understand the rights of disabled persons under the Lebanese Law220/2000 in the	18	23.1%	58	74.4%	0	0	2.24 (0.43)
I am confident in my understanding of the legal definition of disability.	63	17.9%	14	80.8%	0	0	2.18 (0.39)
I understand that students with disabilities are not required to disclose diagnostic and treatment information to course instructors.	55	70.5%	23	29.5%	0	0	2.71 (0.46)

Perceived Institutional Support and Trust

In terms of faculty members' perceived institutional support and trust, scores ranged between 15 and 32, with an average score of 23.96 (*SD* = 4.07). By examining the questions with the highest mean rating and combining the results of the response options "strongly agree" and "agree", it appears that 61.6% of faculty members do trust that AUB does the needed investigations to know if a student truly needs accommodations (*M* = 3.62, *SD* = 0.97), and 68% trust the legitimacy of the documentation (*M*= 3.59, *SD*= 1.09). However, 61.6% of participants have less trust that other colleagues are indeed providing accommodations as well (*M*= 3.00, *SD*= 0.91).

Table 7
Perceived Institutional Support and Trust

Item	Strongly Disagree And Disagree		Neutral		Strongly Agree And Agree		Mean (SD)
	N	%	N	%	N	%	
When a student has issues due to disability, I know what process they need to go through to evaluate eligibility for accommodations.	21	26.9%	7	9.0%	50	64.1 %	3.51(1.25)
When SWD are having difficulties in my course (s), I am uncertain about where I can find support at AUB.	23	29.5%	7	9.0%	41	52.6 %	3.42 (1.23)
I understand the due process that AUB students go through in order to be eligible for accommodations.	19	24.3%	13	16.7%	52	66.7 %	3.37 (1.08)
I trust the legitimacy of the documentation (e.g. medical report) provided by the student with disability to AUB.	13	16.7%	12	15.4%	53	68.0 %	3.59 (1.09)
It is helpful talking to my colleagues to know more about providing accommodations.	9	11.6%	19	24.4%	55	70.6 %	3.68 (0.96)
I trust that AUB does the needed investigations and due process to truly know if the student needs accommodations or not	9	11.5%	21	26.9%	57	73.1 %	3.62 (0.97)
I feel that other professors do not provide accommodations to SWD	9	11.5%	21	26.9%	57	73.1 %	3.00 (0.91)

*SWD= Students with Disabilities

Personal Beliefs and Attitudes

In terms of personal beliefs and attitudes, participants' sores ranged from 19 to 66, with an average score of 36.66 (*SD* = 9.08), indicating much variability across answers. By combining response options "strongly agree" and "agree", 48.8% of faculty members reported that SWD take advantage of the accommodations when they do not really need them and 43.6% reported that SWD use the disability as an excuse. However, many also held positive attitudes. About 98% reported that students with disabilities can be successful at the university level, and that reasonable accommodations do not really interfere with set academic standards.

Table 8
Personal Beliefs and Attitudes towards Accommodations and SWD

Item	Strongly Disagree		Neutral		Strongly Agree		Mean (SD)
	N	%	N	%	N	%	Mean (SD)
Personal Beliefs and Attitudes towards Accommodations							
Some students take advantage of their accommodations and may not really need them.	23	29.4%	17	21.8%	38	48.8%	3.32 (1.15)
Providing accommodations inhibits the development of self-reliance and independence in the student.	50	64.1%	17	21.8%	11	14.1%	2.27 (1.05)
Accommodations will not prepare students for the future workforce.	55	70.5%	11	14.1%	12	15.3%	2.29 (1.03)
Accommodations ensure equal opportunity to SWD.	5	6.4%	8	10.3%	64	82.0%	1.83 (0.95)
Accommodations are unfair to students without disabilities.	65	83.3%	10	12.8%	3	3.9%	1.78 (0.86)
Accommodations give students with disability an advantage over other students.	61	78.3%	14	17.9%	3	3.9%	1.95 (0.85)
Reasonable accommodations do not really require me to lower my academic standards.	1	1.3%	4	5.1%	73	93.6%	1.67 (0.64)
Personal Beliefs and Attitudes towards SWD							
	N	%	N	%	N	%	Mean (SD)
Some students use the disability as an excuse	28	35.9%	16	20.5%	34	43.6%	3.32 (1.15)
Students should try their best to get along without accommodations.	52	66.7%	12	15.4%	14	18.0%	2.31 (1.07)
Having students with disabilities in the classroom takes away from the quality of education other students receive.	74	94.8%	2	2.6%	2	2.6%	1.54 (0.68)

Students with disabilities share common negative traits (e.g. lazy, dependent) as a function of disability.	72	92.3%	6	7.7%	-	-	1.53 (0.64)
SWD share common positive traits as a function of disability.	25	32.1%	33	42.3%	19	24.3%	3.10 (0.98)
Students with disabilities are ultimately academically weaker than others.	64	82.0%	10	12.8%	4	5.1%	1.91 (0.86)
Students with disabilities can be successful at the university level.	1	1.3	-	-	76	97.5%	1.51 (0.58)
Students with disabilities should consider enrolling in a discipline other than mine.	64	82.1%	10	12.8%	4	5.1%	1.77 (0.99)
Students with disabilities are more difficult to teach than students without disabilities.	29	37.2%	21	26.9%	28	35.9%	2.87 (1.11)

Note. SWD=Students with Disabilities.

Variables that Explain Willingness to Provide Accommodations

We conducted a forced entry multiple regression, whereby all the theoretical predictors, characteristics (gender, years of teaching experience), contact with disability (including experience teaching SWD, personal experience with disability, and experience giving accommodations to SWD), knowledge of legislations and disabilities, perceived institutional support and trust, and personal beliefs and attitudes, were entered into the model at once. However, we did not enter "faculty affiliation" as an independent variable for several reasons, because our small sample size meant that the cell sizes of departmental affiliation were too small. If we were to collapse the departments into faculties, this would not be a meaningful predictor because of the large variability in departments within each faculty. The overall model explained about 34% of variance in the scores of the outcome variable - willingness to provide accommodations ($p< 0.05$). By examining the individual predictors, we note that only personal beliefs and attitudes had a significant contribution to the model ($\beta = -.34$, $p = 0.023$).

Table 9
Multiple Regression Model Summary

Model	R	R^2	Adjusted R^2	SE of the Estimate
1	.586[a]	.343	0.09	11.320

Note.[a] Variables in the model included gender, experience teaching SWD, teaching experience, experience providing accommodations, personal experience with disability, personal beliefs and attitudes, knowledge, and perceived institutional support and trust.

Table 10
Multiple Regression Parameters

	Unstandardized β	Coefficients SE	Standardized β	t	p
(Constant)	22.908	32.555		0.704	.485
Gender	5.870	3.043	.249	1.929	.060
No Experience Teaching SWD	1.741	8.129	.032	.214	.831
Little Experience Teaching SWD	6.551	4.181	.244	1.567	.124
Fairly Good Experience Teaching SWD	-4.040	6.612	-.093	-.611	.544
A lot of Experience Teaching SWD	7.039	5.500	.236	1.280	.207
Unsure about the number of SWD taught	-3.659	5.941	-.098	-.616	.541
No experience Providing Accommodations	8.777	10.372	.160	.846	.402
Very Little Experience Providing	4.346	7.560	.178	.575	.568
Fairly Good Experience	2.693	7.519	.114	.358	.722
A lot of Experience Providing	-15.923	11.256	-.239	-1.415	.164
I have a family member or close friend with disability	7.317	8.443	.294	.867	.391
I have taught SWD	3.346	8.685	.139	.385	.702
I have a disability myself	2.320	15.842	.025	.146	.884
I have very little personal contact with disability	3.149	9.337	.106	.337	.738
Personal Beliefs and Attitudes	-.483	.205	-.339	-2.358	0.023*
Knowledge about Legislations and Disability	.526	.856	.087	.614	.542
Perceived Institutional Support and Trust	-.129	.393	-.045	-.328	.745

*Note. *significant result, SWD= Students with Disabilities. Categorical Variables with more than 2 levels were dummy coded as 0 and 1.*

Qualitative Comments

Thirty faculty members (n = 30) out of the total sample made qualitative comments. To understand the major issues that emerged from these comments, we read the statements and summarized them into common themes. We then counted the number of times that themes emerged. About 30% of comments suggested the need for additional trainings/workshops for faculty members on how to make courses more accessible through universal design principles. Faculty members also suggested that student and faculty should have better guidelines about accommodations, so that everyone knows their roles and responsibilities. The second most frequent theme that emerged was that faculty members felt sometimes ambivalent. On one hand, they wanted to ensure that SWD are included, but on the other hand, they experienced many incidents of abuse of these accommodations, such as requests for accommodations that were unreasonable (e.g., producing 5 different exams for one student). Along the same lines, faculty members were also mindful that SWD may struggle in certain professions such as nursing, where physical and mental health are important for successful completion of the assigned work. Finally, few comments were made about the evaluation process that AUB implemented in their request for accommodations, and the need for making the process of the provision of accommodations clearer, unified across all AUB faculties, and more efficient. Additional comments centered on praising the study and suggesting some future directions.

Discussion

The main aim of this study was to survey the willingness of AUB faculty members to provide reasonable accommodations to students with physical, psychological and neurodevelopmental disabilities, in a higher educational institution in Lebanon, and to explore

the factors that explain such willingness. We found that participants are generally willing to provide accommodations to SWD, but they are more likely to do so to students with learning disabilities, and least likely to accommodate those with mental illness. When we examined the various individual variables that may explain this willingness, only personal beliefs and attitudes significantly explained reported willingness.

Otherwise, when we explored results on other scales, we found that our sample reported modest contact with SWD (less than 10 students in the past 10 years), and only about one third, knew someone with disability who was not a student. In terms of knowledge, our sample was, on average, very ambivalent about what constitutes disability and how to design courses to accommodate them. While about half of the sample correctly identified visual/hearing impairments as a disability under the Lebanese law, between 80 and 98% were unsure whether learning disabilities, ADHD, mental illness, physical illness or grieving, are legally considered disabilities. About two thirds reported being unsure of how to design courses in a way that is accessible to all students.

Participants' personal attitudes towards SWD and accommodations varied widely – while on one hand, between 40-45% believed that SWD use their disability as "an excuse", and do not really need the accommodations, on the other hand, 80 to 94% thought inclusion of SWD is a positive initiative and giving accommodations does not impact academic standards. Finally, participants seem to trust the legitimacy and institutional process that students go through at AUB in obtaining permission for accommodations.

This is the first study, to our knowledge, that systematically examined the willingness of faculty members to provide accommodations to students with disabilities in a higher educational institution in the Arab region in general, and in Lebanon in specific.

AUB faculty want to give accommodations, but…?

Our study showed that the majority of our sample are willing to provide accommodations to students with disabilities. However, their willingness was contingent upon the type of accommodation requested and the type of disability the student has. This is partially consistent with previous literature, which is further elaborated on below (Cook et al., 2009; Troccoli, 2017; Sniatecki et al., 2015; Rao & Gartin, 2003).

Type of accommodation matters. Participants reported that they are most willing to spend extra time meeting students outside office hours to clarify or review course content (83.3%), while the second most reported accommodation was to provide SWD extra time on exams and assignments (73.1%).

Interestingly, meeting with students outside of office hours is not commonly reported in other studies (Rao & Gartin, 2003; Cook et al., 2009; Zhang et al., 2010). One of the possible explanations that our sample prefers this accommodation the most, is that it might seem fair since this could be offered to all students equally whether they have a disability, or not. Also, meeting students outside office hours might not really be perceived as an accommodation, but rather part-and-parcel of teaching duties. In contrast, faculty in other countries where previous studies were conducted might rely more on teaching assistants and graduate assistants to provide such one-to-one help and may not view such effort to be part of their duties.

Conversely, providing SWD extra time on exams and assignments was well endorsed by 73.1% of our participants (2nd most common) *and* by faculty members in other studies. Rao & Gartin (2003) noted that 94% of faculty members were happy to provide SWD extra time on exams, and generally faculty members were inclined to do this because it requires minimal effort on their behalf (Cook et al., 2009; Troccoli, 2017). Indeed, extended time on exams and

assignments is the most utilized accommodation in higher education (Troccoli, 2017; Sniatecki et al., 2015; Rao & Gartin, 2003; Newman et al., 2011). Fortunately, it is also essential to the academic success of SWD (Timmerman & Mulvihill, 2015; Kim & Lee, 2016; Newman et al., 2011).

The least endorsed accommodation (allowing SWD to complete extra credit assignments), which was endorsed by only 21.8% of our sample, is similarly disliked by faculty in other studies. For example, only 19% of faculty members reported willingness to provide extra credit assignments (Cook et al., 2009). They were perceived to lower course and academic standards (Cook et al., 2009). In our sample, faculty may dislike this accommodation because many classrooms are seeing an increase in number of students, and this requires more effort on the behalf of faculty to accommodate SWD.

In contrast to this, the second least endorsed accommodation (28.2%) by our sample (overlooking grammar/spelling errors and grading only content) was accepted by faculty members in other studies. Rao and Gartin (2003), found that 46% of their sample was happy to overlook spelling and grammatical errors in assignments. This may be because of sample differences. Our respondents were mostly from the departments of Business, Psychology, and English (21%), where writing clarity comprises a high percentage of evaluation and grading.

Type of disability matters. In addition to surveying faculty's willingness in general, we also examined willingness to provide accommodations per disability (physical, learning, ADHD, and mental illnesses). Although faculty members were willing to give extra time to students of physical, psychological and learning disabilities, this was not true when we examined all accommodations. Instead, when all 14 accommodations were considered, we find that participants were likely to endorse more accommodations for students with physical disabilities,

followed by learning disabilities, ADHD, and least to those with mental illnesses. This is consistent with past studies which indicate that non-visible disabilities (e.g., mental illness) are stigmatized and perceived negatively by faculty members when compared to visible disabilities and are therefore least likely to be given accommodations (Sniatecki et al., 2015).

It is somewhat surprising, that learning disabilities, which are also technically invisible, were viewed more favorably than mental illness. Others have also reported this phenomenon, whereby faculty members express more willingness to accommodate students with learning disabilities and physical disabilities over students with psychological disabilities (Wolman et al., 2004). It is also somewhat consistent with studies which show that faculty members generally view students with learning disabilities positively (Gitlow, 2001), and believe that they can graduate from college (Houck et al., 1992), while they may not feel the same way about students with psychological disabilities (Berry & Mellard, 2002).

There are a few possible explanations for this. There might be an overall perception that learning disabilities, since they typically exist from childhood, cannot be “faked”, while mental disabilities such as depression or anxiety, can be faked. Hence mental disorders may be viewed as “less legitimate” and used as an “excuse”. It is also possible that learning disabilities are perceived to be specifically impeding education and the process of learning, thus, the willingness to provide accommodations in this area of the student’s life would be higher. In contrast, the impact of mental illness on educational functioning may not be clear to some. Finally, if we examine the broader context of the study, there might be more misconceptions and stigma around mental disabilities than learning disabilities in the Arab culture than the western culture.

These findings suggest that students with mental illnesses are likely to encounter more attitudinal barriers to access accommodations than those with learning, physical disabilities and

ADHD. At AUB, these students may require additional support from the AEO office to cope with the negative attitudes they might encounter with faculty. This is important because psychiatric disabilities comprise the highest percentage of disability (38.7%) amongst AUB students (*personal communication, 2018).*

Personal Beliefs and Attitudes Predict Reported Willingness

In our sample, personal beliefs and attitudes significantly and individually explained willingness to provide accommodations to SWD, beyond any of the other variables examined. This is consistent with previous research that found personal attitudes to be a direct predictor of willingness to provide accommodations, with small to medium effect (Zhang et al., 2010).

This finding is not unusual, since there is consistent evidence that people's attitudes influence their behaviors. Most prominently, the Theory of Planned Behavior (TPB) posits that people's actions are preceded by beliefs, attitudes and norms (Ajzen, 1991; Ajzen & Fishbein, 2005). The theory has been used to explain how negative attitudes towards groups of individuals, such as those with disabilities predict discriminatory behavior towards them (Macfarlen & Woolson, 2013; Armitage & Conner, 2001). Since our study shows preliminary evidence that attitudes predict faculty members' reported behaviors, then it is possible to improve behaviors by targeting attitudes and beliefs.

Finally, it is interesting to note that none of the faculty characteristics significantly explained variability in willingness. Specifically, there were no gender differences across any measures, and gender was not a significant predicator of willingness. A possible explanation is that the bulk of our participants were sampled from the humanities. These participants, albeit balanced in terms of gender, may be more open to diversity in student samples as a result of their

education and training. Therefore, the sample may not have been sufficiently varied in perspectives, and backgrounds, leading to a dampening of any gender differences.

Practical Implications

The above findings have several implications. First, since personal beliefs and attitudes towards accommodations and SWD significantly predicted reported willingness, targeting the most prevalent negative attitudes could be helpful in changing behavior. This can be achieved through awareness sessions, and training for faculty members, since these methods have been shown to be effective in changing attitudes (Lombardi et al., 2011). Such sessions can impact knowledge about disabilities with a particular focus on mental illness as disability, outlining social and legal responsibilities related to disabilities, and explaining available campus resources. A similar session was conducted by the Faculty of Arts and Sciences in February 2019 and appeared to be well received by about 50 teaching faculty members who attended. Other initiatives may also include interactive sessions where faculty members and students listen to students with disabilities and ask questions. For example, AUB clubs and Embrace (a non-governmental organization that works on mental health issues), organize a yearly session entitled "Embracing Mental Illness" where individuals with mental illness give testimonials of their disability. This event attracts hundreds of AUB students, staff and faculty, and has been described as helpful in reducing misunderstandings, stereotypes and negative attitudes towards students with mental illness. However, none of these initiatives measured attitudes before and after the sessions. This may be an interesting follow-up study examining the change in attitudes after training or interactive sessions.

Another practical implication that emerges from our findings, is the need for formal training in designing accessible courses and learning how to integrate reasonable

accommodations. Currently, AUB has produced an AEO Fact Sheet handbook with information about accommodations, but our findings suggest that many faculty members are interested in learning more about accessible coursework. Therefore, AUB could implement face-to-face or online training courses that specifically teach faculty how to design courses based on the principles of universal design, and what kind of accommodations they can do. For example, many faculty members do not know that choosing textbooks that are available in audio and electronic format is an easy way to make text more accessible to all students from the beginning. Universally designed courses are a win-win situation for both faculty and students; it reduces the time and effort invested from faculty in providing the necessary accommodations and benefits students in reducing the barriers they face in classes.

Limitations and Future Directions

The main limitation of the current study is the small sample size, mostly due to low response rates. This also compromised the representativeness of the sample, whereby not all faculties/departments were proportionately represented. Nonetheless, this limitation has been reported in similar studies where response rates fall, approximately, between 20% (Clark, 2017; Bourke, et al., 2000; Houck, et al., 1992; Lombardi & Murray, 2011), and 29% (Reynolds & Hitchcock, 2014). In addition, the current study only targeted faculty members from one liberal arts university in Lebanon. Future research can consider including other universities that are known to provide accommodations in Lebanon, leading to a larger and more diverse sample of faculty members.

Moreover, this line of research lacks well-validated instruments. In our study, we had to construct our own instrument to fit the context of Lebanon and AUB. Even though the internal reliability of the scales ranged from acceptable to good reliability, future studies should consider

constructing an instrument that could be used worldwide. This would allow a comparison of willingness of faculty members across universities in different geographic locations.

In light of the results from the current study, future studies should consider investigating the discrepancy in attitudes towards learning versus mental disabilities and measuring attitudes pre and post trainings to evaluate change in the reported attitudes.

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APPENDICES

APPENDIX A

FACULTY DEMOGRAPHICS QUESTIONNAIRE

Personal

1. Age *(Drop down menu with options 18-75)*
2. Gender
    1. Female
    2. Male
    3. Other

Occupational

3. Do you currently teach classes or labs at AUB/MC (this does not include clinical rotations, supervision or other clinical teaching duties)? If no, you may exit the survey.
    a. Yes
    b. No
4. Is your contract full-time or part-time?
    1. Part-time
    2. Full-time

5. In which AUB Department(s)s do you primarily teach? *(Drop down menu of all the departments with ability to choose more than one)*

6. How many years of teaching experience in higher education (whether AUB or elsewhere) do you have? *(Drop down menu with options from 0-50)*

Contact with Disabilities

7. In the past ten years, approximately, how many college students with disabilities (e.g., physical, psychological etc.) have you taught?
    1. None
    2. 1-5
    3. 6-10
    4. 11-20
    5. over 21
    6. don't know/not sure

8. In your opinion, how much experience do you have, in providing accommodations to students with disabilities in higher education?
    1. No experience
    2. Very little experience
    3. Fairly good experience
    4. A lot of experience

9. To what extent, do you have ***personal experience*** with disability (e.g., physical, psychological etc?)
    1. I have a family member, or close friend with a disability
    2. I have taught students with disabilities
    3. I have a disability myself
    4. I have very little personal contact or experience with disability.

Willingness to Provide Accommodations

The below reasonable accommodations are typically given to students with documented disabilities at university. **Suppose that the student truly has the disability, and has provided all needed documentation to AUB.** First, indicate whether you are at all willing to provide accommodations. If yes, please indicate which accommodations you are willing to give or not, in your course.

#	Accommodation	Does not Apply in my Course	Physical Disability (e.g., hearing, vision, motor)	Mental Health Disability (e.g., depression)	Learning Disability (e.g., dyslexia)	Attention Deficit Hyperactivity Disorder (ADHD)
I am <u>not willing</u> to give any accommodations for any reported disability.						
I am <u>willing</u> to provide some or all accommodations as indicated below_____						
		NA	Yes/No	Yes/No	Yes/No	Yes/No
1	Provide copies of my powerpoint presentations, or notes.	NA	Yes/No	Yes/No	Yes/No	Yes/No
2	Allow recording of my class sessions	NA	Yes/No	Yes/No	Yes/No	Yes/No
3	Extend deadlines or give extra time for assignments	NA	Yes/No	Yes/No	Yes/No	Yes/No
4	Change the method of responding on exams (e.g., from written to oral; open-ended to multiple choice questions)	NA	Yes/No	Yes/No	Yes/No	Yes/No
5	Allow student to complete "extra credit" assignments.	NA	Yes/No	Yes/No	Yes/No	Yes/No
6	Spend extra time (i.e., in addition to office hours) meeting students to clarify/review course content	NA	Yes/No	Yes/No	Yes/No	Yes/No
7	Use technology so that my course material can be available in a variety of formats (e.g., i choose books available in audio format; allow speech-to-text)	NA	Yes/No	Yes/No	Yes/No	Yes/No
8	Give extended time on exams	NA	Yes/No	Yes/No	Yes/No	Yes/No
9	Allow students to use technology not allowed to others (e.g., laptop, calculator).	NA	Yes/No	Yes/No	Yes/No	Yes/No
10	Ignore attendance and/or late arrival, even if this is required for other students.	NA	Yes/No	Yes/No	Yes/No	Yes/No
11	Allow the student to take exams in a quiet place	NA	Yes/No	Yes/No	Yes/No	Yes/No
12	Design my courses and/or practica in a way that they are as accessible as possible to all students.	NA	Yes/No	Yes/No	Yes/No	Yes/No
13	Overlook errors in spelling, and grammar and grade based on content alone.	NA	Yes/No	Yes/No	Yes/No	Yes/No
14	Change the font size and presentation of exams	NA	Yes/No	Yes/No	Yes/No	Yes/No

Willingness to Provide Accommodations for Specific Disabilities

Instructions: The below vignettes refer to common issues that faculty encounter. Please read them, and rate the extent to which you would be willing to provide the accommodation.

1. All things being equal across these students, rate the extent to which you are likely to provide **extra time** on an assignment to a:

	Item	**Very Likely**	**Possibly**	**Unlikely**
A	Sophomore with a documented problem in her cornea that dries and hurts her eyes, therefore needing more breaks time when writing, making her slow to finish assignments.	3	2	1
B	Sophomore with a documented problem of depression that impacts her sleep, mood, and focus, therefore making her slow to finish assignments.	3	2	1
C	Sophomore with a documented problem of dyslexia that impacts her speed of reading, therefore making her slow to finish assignments.	3	2	1

Personal Beliefs and Attitudes towards Students with Disabilities, and Accommodations

Instructions: The below statements reflect beliefs that some people have regarding students with disabilities, and towards accommodations. Read each statement, and rate the extent to which you agree or disagree with it, currently.

	Item	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
1	Some students take advantage of their accommodations, and may not really need them	5	4	3	2	1
2	Some students use the disability as an excuse	5	4	3	2	1
3	Providing accommodations inhibits the development of self-reliance and independence in the student.	5	4	3	2	1
4	Students should try their best to get along without accommodations	5	4	3	2	1
5	Accommodations will not prepare students for the future workforce	5	4	3	2	1
6	Accommodations ensure equal opportunity to students with disabilities.	5	4	3	2	1
7	Accommodations (such as extra exam time) are unfair to students without disabilities	5	4	3	2	1
8	Accommodations ensure equal opportunity to students with disabilities.	5	4	3	2	1
9	Accommodations give students with disability an advantage over other students	5	4	3	2	1
10	Reasonable accommodations do not really require me to lower my academic standards.	5	4	3	2	1
11	Accommodations (e.g., extra time on exam) compromise the integrity of the course or curriculum.	5	4	3	2	1
12	Having students with disabilities in the classroom takes away from the quality of education other students receive.	5	4	3	2	1
13	Students with disabilities share common negative traits (e.g., lazy, dependent) as a function of disability.	5	4	3	2	1
14	Students with disabilities share common positive traits (e.g., very hard working) as a function of disability.	5	4	3	2	1
15	Students with disabilities are ultimately academically weaker than others					
16	Students with disabilities can be successful at the university level.	5	4	3	2	1
17	Students with disabilities should consider enrolling in a discipline other than mine	5	4	3	2	1
18	Students with disabilities are more difficult to teach than students without disabilities	5	4	3	2	1

Knowledge about Disabilities and Legislations

Instructions: The below statements examine the extent of knowledge about legislations and disabilities. Read each statement, and rate the extent to which you currently agree or disagree with it

	Item	**Yes**	**Unsure**	**No**
1	Lebanon's legal definition of disability includes those with visual and hearing impairment	3	2	1
2	Lebanon's legal definition of disability includes those with learning disorders (e.g., dyslexia)	3	2	1
3	Lebanon's legal definition of disability includes those with ADHD	3	2	1
4	Lebanon's legal definition of disability includes those with temporary problems such as grieving.	3	2	1
5	Lebanon's legal definition of disability includes those with mental illness (e.g., anxiety, bipolar disorder)	3	2	1
6	Lebanon's legal definition of disability includes those with chronic illness (e.g., diabetes)	3	2	1
7	I know how to design my courses in a way to maximize accessibility to students (e.g., universal design)	3	2	1
8	Currently, I do not have sufficient knowledge to make adequate accommodations for students with disabilities in my course	3	2	1
9	I understand why a US-chartered institution like AUB is required to have a process for providing accommodations to students with disabilities	3	2	1
10	I understand the rights of disabled persons under the Lebanese Law 220/2000 in the educational context	3	2	1
11	I am confident in my understanding of the legal definition of disability	3	2	1
12	I understand that students with disabilities are not required to disclose diagnostic and treatment information to course instructors.	3	2	1

Perceived Institutional Support and Trust

Instructions: The below statements reflect perceptions that some people have regarding institutional support, and trust of the process of the provision of accommodations. Read each statement, and rate the extent to which you agree or disagree with it, currently

	Item	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
1	When a student has issues due to disability, I know what process they need to go through to evaluate their eligibility for accommodations.	5	4	3	2	1
2	When students with disabilities are having difficulties in my course(s), I am uncertain about where I can find support at AUB	5	4	3	2	1
3	It is helpful talking to my colleagues to know more about providing accommodations.	5	4	3	2	1
4	I understand the due process that AUB students go through in order to be eligible for accommodations.	5	4	3	2	1
5	I trust the legitimacy of the documentation (e.g., medical report) provided by the student with disability to AUB.	5	4	3	2	1
6	I trust that AUB does the needed investigations and due process to truly know if the student needs accommodations or not	5	4	3	2	1
7	I feel that other professors do not provide accommodations to students	5	4	3	2	1

END OF SURVEY

APPENDIX B

TABLES

Table 11
Number of Members per AUB Faculty

Faculty	Full Time	Part Time	Total	% from Total Sample
Faculty of Arts & Sciences	312	157	469	39.1%
Faculty of Medicine	306	8	314	26.0%
Faculty of Engineering & Architecture	131	67	198	16.3%
School of Business	61	24	85	7.08%
Faculty of Agriculture & Food Sciences	39	21	60	5.00%
Faculty of Health Sciences	42	7	49	4.08%
Faculty of Nursing	23	2	25	2.08%

*Lebanese Law 220/2000
The law mandates that individuals with disabilities be given their rights within economic and social domains, through access to employment, medical and rehabilitation services, education, transportation, sports, and housing. Specifically, part VII of the law ensures the rights of all individuals with disabilities to education by mandating educational institutions to provide examination in accessible formats and providing integrative educational services.

**AUB Regulation*
AUB is required by applicable Lebanese Law, US Federal Law (Section 504 of the Rehabilitation Act and The Americans With Disabilities Act Amendments Act - ADAAA), as

well as its own commitment to inclusion and diversity addressed within its Non-Discrimination Policy to provide effective auxiliary aids and services for qualified students with documented disabilities if such aids are needed to provide equitable access to AUB's programs and services. AUB must also respond adequately to the UN Convention on the Rights of Persons with Disabilities (UN CRPD).

Table 12. Scales and Adapted Items.

Author	Factor	Facets of factor	Item
Lombardi & Murray (2011)	Willingness to provide accommodations	Accommodations in general	1- I am willing to provide copies of my PowerPoint presentations. 2- I am willing to allow recording of my class sessions 3- I am willing to extend deadlines or give extra time for assignments 4- I am willing to change the method of responding on exams (e.g., from written to oral; open-ended to Multiple Choice questions) 5- I am willing to allow student to complete "extra credit" assignments. 6- I am willing to spend extra time (i.e., in addition to office hours) meeting students to clarify/review course content 7- I am willing to use technology so that my course material can be available in a variety of formats (e.g., I choose books available in audio format; allow speech-to-text) 8- I am willing to give extended time on exams 9- I am willing to allow students to use technology not allowed to others (e.g., laptop, calculator).
Mallouk & Zeinoun	Willingness to provide accommodations	Accommodations in general	10- I am willing to ignore attendance and/or late arrival, even if this is required for other students. 11- I am willing to allow the student to take exams in a quiet place
Mallouk & Zeinoun	Willingness to provide accommodations	Aaccommodations in general	12- I am willing to design my courses and/or practica in a way that they are as accessible as possible to all students. 13- I am willing to overlook errors in spelling, and grammar and grade based on content alone. 14- I am willing to change the font size and presentation of exams
Author	**Factor**	**Facets of factor**	**Item**
Mallouk & Zeinoun	Willingness to provide accommodation to a specific disability	Willingness to provide a frequent accommodation to a specific disability	"All things being equal, which of the below students are you more likely to provide a extra time on an assignment: A. Sophomore with a documented problem in her cornea that dries and hurts her eyes, therefore needing more breaks when writing, making her slow to finish assignments. B. Sophomore with a documented problem of depression that impacts her sleep, mood, and focus, therefore making her slow to finish assignments. C. Sophomore with a documented problem of dyslexia that impacts her speed of reading, therefore making her slow to finish assignments."
Mallouk & Zeinoun	Willingness to provide accommodation to a specific disability	Willingness to provide an infrequent accommodation to a specific disability	"All things being equal across these students, and assuming your course requires attendance, rate the extent to which you are likely to allow more than 3 absences without penalty to: A. A student with a documented problem such as diabetes, who might be too tired to attend all classes. B. A student with a documented problem of post-traumatic stress disorder (PTSD) that impacts her sleep, mood and focus, therefore not allowing her to attend. C. A student with a documented problem of a Attention Deficit Disorder (ADD) which makes it likely for the student to miss scheduled appointments."

Author	Factor	Facets of factor	Item
Cook, Rumrill, & Tankersley, 2009	Personal beliefs/Attitudes towards accommodations/students	Compromises academic standards	1- Reasonable accommodations do not really require me to lower my academic standards.
Zhang, Landmark, Hsu, & Kwok 2010	Personal beliefs/Attitudes towards accommodations/students	Compromises academic standards	2- Accommodations (e.g., extra time on exam) compromises the integrity of the course or curriculum objectives. 3- Having students with disabilities in the classroom takes away from the quality of education other students receive.
Baker, Boland, & Nowik, 2012	Personal beliefs/Attitudes towards accommodations/students	Disability as excuse/advantage point	4- Some students take advantage of their accommodations, and may not really need them
Lombardi & Murray 2011	Personal beliefs/Attitudes towards accommodations/students	Disability as excuse/advantage point	5- Some students use the disability as an excuse
Zhang et al., 2010	Personal beliefs/Attitudes towards accommodations/students	Lack of independence	6- Providing accommodations inhibits the development of self-reliance and independence in the student.
Barnard-Brak, Sulak, Tate & Lechtenberger, 2010	Personal beliefs/Attitudes towards accommodations/students	Lack of independence	7- Students should try their best to get along without accommodations
Mallouk & Zeinoun	Personal beliefs/Attitudes towards accommodations/students	Lack of independence	8- Accommodations will not prepare students for the future workforce
Bourke, Strehorn, & Silver, 2000	Personal beliefs/Attitudes towards accommodations/students	Perceived fairness/unfairness	9- I believe that accommodations help students succeed in my courses
Lombardi & Murray (2011)	Personal beliefs/Attitudes towards accommodations/students	Perceived fairness/unfairness	10- Providing testing accommodations (such as extra exam time) to students with documented disabilities is unfair to students without disabilities 11- Providing accommodations to students with disabilities is a way to ensure equal opportunity and access to learning in higher education settings
Zhang et al., 2010	Personal beliefs/Attitudes towards accommodations/students	Perceived fairness/unfairness	12- Providing accommodations to a student with a disability gives the student an advantage over other students in the class.

Cook et al., 2009	Personal beliefs/Attitudes towards accommodations/students	Stereotypes about students with disabilities	13- Students with disabilities share common negative traits (e.g., lazy, dependent) as a function of disability. 14- Students with disabilities share common positive traits (e.g., very hard working) as a function of disability.
Barnard-Brak, et al. (2010)	Personal beliefs/Attitudes towards accommodations/students	Weak students	15- Students with disabilities are ultimately academically weaker than others
Lombardi & Murray (2011)	Personal beliefs/Attitudes towards accommodations/students	Weak students	16- I believe that students with disabilities can be successful at the university level
Zhang et al., 2010	Personal beliefs/Attitudes towards accommodations/students	Weak students	17- Students with disabilities should consider enrolling in a discipline other than mine
Reynolds and Hitchcock, 2014	Personal beliefs/Attitudes towards accommodations/students	Weak students	18- Students with disabilities are more difficult to teach than students without disabilities
Author	Factor	Facets of factor	Item
Mallouk & Zeinoun	Knowledge	Knowledge about definition	1- Lebanon's legal definition of disability includes those with visual and hearing impairment 2- Lebanon's legal definition of disability includes those with learning disorders (e.g., dyslexia) 3- Lebanon's legal definition of disability includes those with ADHD 4- Lebanon's legal definition of disability includes those with temporary problems such as grieving. 5- Lebanon's legal definition of disability includes those with mental illness (e.g., anxiety, bipolar disorder) 6- Lebanon's legal definition of disability includes those with chronic illness (e.g., diabetes)
Mallouk & Zeinoun	Knowledge	Knowledge about design	7- I know how to design my courses in a way to maximize accessibility to students (e.g., universal design)
Lombardi & Murray (2011)	Knowledge	Knowledge about design	8- Currently, I do not have sufficient knowledge to make adequate accommodations for students with disabilities in my course
Mallouk & Zeinoun	Knowledge	Knowledge about legislations	9- I understand why a US-chartered institution like AUB is required to have a processes for providing accommodations to students with disabilities
Mallouk & Zeinoun	Knowledge	Knowledge about legislations	10- I understand the rights of disabled persons under the Lebanese Law 220/2000 in the educational context

Lombardi & Murray (2011)	Knowledge	Knowledge about legislations	11- I am confident in my understanding of the legal definition of disability
Cook et al., 2009	Knowledge	Knowledge about privacy	12- I understand that students with disabilities are not required to disclose diagnostic and treatment information to course instructors.
Author	Factor	Facets of factor	Item
Cook et al., 2009	Institutional support/Trust	Institutional trust	1- I understand the due process that AUB students go through in order to be eligible for accommodations.
Mallouk & Zeinoun	Institutional support/Trust	Institutional trust	2- I trust the legitimacy of the documentation (e.g., medical report) provided by the student with disability to AUB. 3- I trust that AUB does the needed investigations and due process to truly know if the student needs accommodations or not 4- I feel that other professors do not provide accommodations to students
Mallouk & Zeinoun	Institutional support/Trust	Perceived institutional support	5- When a student has issues due to disability, I know what process they need to go through to evaluate their eligibility for accommodations.
Lomabrdi and Murray (2011)	Institutional support/Trust	Perceived institutional support	6- When students with disabilities are having difficulties in my course(s), I am uncertain about where I can find support at AUB
Mallouk & Zeinoun	Institutional support/Trust	Perceived institutional support	7- It is helpful talking to my colleagues to know more about providing accommodations.
Author	Factor	Facets of factor	Item
Lombardi & Murray (2011)	Personal contact with students with disabilities	Contact with students with disabilities	1- In the past five years, how many college students with disabilities have you taught or worked with?
Mallouk & Zeinoun	Personal contact with students with disabilities	Experience with accommodating	2- How would you rate your experience in providing educational accommodations to students with disabilities, in the classroom
Mallouk & Zeinoun	Personal contact with students with disabilities	Personal experience with disabilities	3- "To what extent, you have personal experience with disability (e.g., physical, psychological etc?)