

Received September 4, 2019, accepted October 1, 2019, date of publication October 16, 2019, date of current version October 31, 2019.

Digital Object Identifier 10.1109/ACCESS.2019.2947163

# Cyber Bullying and the Expected Consequences on the Students' Academic Achievement

**NORAH BASHEER ALOTAIBI** 

Social Planning Department, Social Service College, Princess Nourah bint Abdulrahman University, Riyadh 84428, Saudi Arabia

e-mail: dr.norah.alotaibi@gmail.com

This work was supported by the Deanship of Scientific Research at Princess Nourah bint Abdulrahman University through the Fast-Track Research Funding Program.


**ABSTRACT** In the Saudi school system, cyber bullying is a persistent problem perpetuated by the development of digital technology and its ubiquitous presence in almost every societal aspect. With such technologies, it is not surprising that harassment has proliferated to the virtual world of teenagers, within which harassment is rampant. This phenomenon's frequency and outcomes have alarmed stakeholders but surprisingly, studies examining the causes and motivations behind cyber space bullying engagement are few and far between. This issue was examined through the lens of a well-known theory, the Theory of Planned Behavior (TPB). More specifically, this study examined the effects of attitudes, normative beliefs, subjective norms, and perceived behavioral control/self-efficacy on intentions towards cyber bullying and expected societal outcomes. The study distributed 395 questionnaires to high school students in the 9th to 12th grades in Saudi schools. The gathered data was run through multiple linear regressions, after which the findings showed that behavioral attitudes, social norms, perceived behavioral controls, social media use, a lack of parental controls, and a lack of regulations had a direct effects on intentions towards cyber bullying. The findings also indicated that intentions towards cyber bullying had a direct effect on student academic performance. This study provides valuable information concerning intentions towards cyberspace bullying among students and the relationship between Theory of Planned Behavior (TPB) variables and the predictive utility model. Finally, this study's findings are a basis upon which prevention and intervention strategies can be developed, which has many implications for theory, practice, and policy.

**INDEX TERMS** Theory of Planned Behavior (TPB), behavioral intentions, cyber bullying, social media use, parental control, harassment regulation, and academic performance.

## I. INTRODUCTION

Although peer harassment awareness has been on the rise, school psychologists are still facing challenges when it comes to implementing preventive and intervention strategies [1]. This is particularly true in the past decade where harassment has been on a rise owing to the electronically mediated communication that has given way to cyber-harassment, a new version of harassment [2]. This is compounded by the internet applications that aid harassment as expounded on by majority of researchers [3].

The adverse effects of cyber bullying have become a crucial concern in all parts of the world. In the context of Saudi Arabia, cyber bullying has been rampant and uncontrollable and based on official statistics on cyber harassment, related crimes have increased at the rate of 57% in 2014 in comparison to the previous year as issued by the Saudi authorities

The associate editor coordinating the review of this manuscript and approving it for publication was Tiago Cruz .

specializing in security information and e-crimes. The reports also showed an increase in e-crimes, particularly those under the cyber extortion category (Anti-Harassment Center, KSA – Annual Report, 2014). According to Moafa *et al.* [4], cybercrime is definitely increasing all over the Kingdom, and organizations' attempts to protect themselves against cyber threats have been ongoing.

Cyber bullying is a serious phenomenon, and as such, it is worthy to be investigated, especially in the absence of diagnostic study focusing on Saudi cyber-cyber bullying. In a related study, [4], Alkaabi [5] contended that studies dealing with the factors that trigger behavioral intention to engage in cyber-harassment among youth and their expected effects are still scarce if not non-existent. As a consequence, there is a dire need to conduct a thorough examination of the behavioral engagement in cyber-harassment and cyber bullying among the Saudi youth.

Furthermore, it has been estimated that over 3.6 million people in the Kingdom fell victim to cybercrime in the past

year, constituting an average of \$195 (SR730) in direct financial losses. In essence, 18 adults fall victim to cybercrime every second, which leads to over 1.5 million cybercrime victims daily on a global scale [6]. Also, Saudi government authorities released official statistics that show a sharp rise in the proportion of e-crimes, particularly those under the cyber extortion crimes category.

Cyber bullying literature has mainly focused on developed nations and in the context of Saudi Arabia, a country with a distinct population and culture, it becomes crucial to determine the factors that trigger and promote cybercrime. A suitable theory must be selected to achieve the research objectives, which is to measure behavioral intention towards engaging in cyber bullying and its impact on educational achievements.

Added to the above, studies including Mukred and Yusof [7], [8] promoted the importance of education in ensuring the development of countries while other studies focused on the way educational performance can be improved through technologies adoption (e.g., [9]–[16]). Nevertheless, in the present study, the objective is different in that it attempts to examine the students' behaviors towards engaging in cyber bullying and the outcomes on their academic achievement. This study is expected to contribute to the ridding of the phenomenon from the educational sector to its own benefit.

Bullying is a problem for bullies, victims, peers, schools, classmates and the community at large. To the bully, the act of bullying gives pleasures and occupies most of his time. The time and energy that should be used in studies is now directed to mischief, hence, poor academic performance. In a bullying situation there is always fear and tension for victims. This tense atmosphere creates no room for peace. Learning can never take place effectively in an unpeaceful environment. Bullying has a very detrimental effect on children especially on the victims who can become school-phobic [17]–[22].

Therefore, this study is to investigate such phenomenon in Saudi schools to come up details and recommendation that might be used to combat, minimize and overcome the challenge.

Accordingly, the paper is organized in the following way; Section 2 introduces cyber harassment and cyber bullying concepts and Section 3 contains the academic impacts of victimizations. This is followed by Section 4, which reviews and presents relevant works on cyber bullying and Section 5, which is dedicated to the development of the study model and formulation of hypotheses. Section 6 presents and discusses the adopted methodology, Section 7 presents the results, and Section 8 provides a discussion of the findings, interpreting them to clarify the study results. Section 9 enumerates the study contribution and finally, Section 10 presents the concluding portion of the paper.

## II. CYBER HARASSMENT AND CYBER BULLYING

Cyber harassment is a similar version of cyber bullying based on the perception of the victim concerning the communication tools security levels including GSM networks and

Internet websites (e.g., social networking sites). Several definitions have been proposed by studies about harassment and the tools utilized to carry it out. To begin with, McGraw [23] explained that harassment can be carried out in different ways, which includes sending unwanted abuse, threats or obscenities through email. Harassment may also be in the form of electronic sabotage or spamming, whereby the victim is inundated with hundreds of junk e-mails, or in live Internet relay chat messages. Indirectly, harassment can be possible, making the detection of the harasser challenging and complicated. In this regard, Lwin *et al.* [24] and Moafa [25] explained that the harasser may use impersonation tactics to send abuse or fraudulent emails under the name of the victim. The victim, on the other hand, may be forced to subscribe to mailing lists without consent, resulting in hundreds of spam or unwanted emails sent daily. According to Moafa *et al.* [26], online harassment can also entail sexual harassment, which refers to unwanted interactions that is by nature, crossing a personal level.

More importantly, in Moafa *et al.* [26] study, the authors differentiated between cyber harassment and cyber stalking, in that while there is no universal definition of the former, it generally refers to using Internet, email or e-devices for the purpose of harassing the victim. In other words, cyber harassment is akin to physical harassment, targeting people based on their membership in a protected class, race and gender. In the same line of study, Smith *et al.* [27] referred to cyber harassment as use of a computer to harm an individual, making him/her anxious or psychologically disturbed. They contended that online harassment encapsulates sending threats, bullying or intimidating messages directly to the victim through email or other internet tools of communication. Harassment may also involve hacking or infiltrating private and personal data of the victim, and online theft from the victim's bank accounts and other online websites.

In Mainiero and Jones [28] study, cyber harassment was described as the process of sending offensive or inappropriate messages to colleagues at work with the objective of disturbing the victim through repetitive messages via mobile or email. This may be compounded by sending the victim personal data in order to threaten him/her with damage of secret data, in which case, the lines may be crossed by the criminal by compromising the information of the victim if the latter does not pay up the demanded amount. In Ones [29], cyber harassment was described as using cyberspace to conduct harassment activities like cyber stalking, with the criminals threatening to compromise the victims data for the purpose of gaining some advantage. According to the author, cyber harassment is of several types, some of which are; 1) sending repetitive insults to the victims, 2) sending insults to the friends of the victim to damage their friendship, and 3) availing of the personal data of the victim for blackmail.

In another related study, [30] reviewed prior definitions to develop a new definition to encompass the previous ones. Their study defined cyber bullying as the type of harassment that is comparable to an electronic equivalent of putting up

pinups on a factory wall, the pinup being the victim's personal data. Tanrikulu [31]'s systematic review contended that the criminal in cyber harassment uses technical devices for the purpose of harassment, and due to the difficulty with communicating with the harasser, the victim can be helpless and left without recourse.

The above mentioned definitions indicate that cyber harassment may be referred to as an act that causes noise to the victim and may include threats to expose his/her secret data in exchange for money. The criminal may use various ways/methods to disturb victims and this phenomenon may include cyber stalking and cyber bullying to harm the victims. In this case, cyber harassment can be conducted through internet communication channels and mobile networking, and through text messaging using photos and videos for blackmail.

There are two general forms of cyber harassment namely, cyber stalking and cyber bullying. Cyber stalking is akin to actual physical stalking, the motive being to control the victim and to be forcibly involved in the victim's life. It can take various forms including sending emails, sending spam emails and live chat harassment. On the other hand, cyber bullying is a different form of stalking that arises among the youth and its adoption could be more subtle. Cyber bullying forms include sending instant or text messages, stealing passwords and digital pictures. Some types of cyber bullying can take a simple form which may not involve a criminal act, but other forms can escalate and leave the victim vulnerable to harm. This may be exemplified by bullying by proxy, which entails a bully pretending to be the victim by posting the name of the real victim and his address on the lists of pedophiles. According to Miller [32], there are four cyber bully types and they are; vengeful angels, revenge of the nerds, mean girls and inadvertent cyber bullies. However, both cyber harassment and cyber bullying have a likelihood of escalating with the advancement and development of communication technologies and law enforcement agencies have to keep their guard, diligence, proactivity and innovation up in order to curtail, if not put a total stop to them.

### III. ACADEMIC IMPACT OF VICTIMIZATION

Online bullying victims are recipients of negative psychological outcomes, which include depression, anxiety, social dissatisfaction, negative school attitudes and in some cases, substance abuse as evidenced by Egeberg *et al.* [22] and Slonje *et al.* [33] and suicide attempts and physical harm [34]. Judging from the potential adverse effects of online bullying, Wong [35] and Egeberg *et al.* [22] highlighted the need to dig deeper into the ways victims cope with cyber bullying and harassment and their coping strategies.

Victims have been known to react in different ways to the harassment threats, but little attention has been paid to their academic impacts and outcomes, particularly the way victims are affected by the threats. While some studies have delved into the bullying impact on academic achievement, findings remain inconclusive. For instance, in Glew *et al.* [36]

study, the authors revealed that victims and bullies in schools obtained lower academic achievement rates, which was evidenced to be significant despite the reported odd ratios indicating low effects (OR = 0.8–0.9). In addition, Woods and Wolke [37] revealed the effects of direct bullying, as victim or bully, on the students' academic achievement in the 2<sup>nd</sup> and 4<sup>th</sup> grades. As for indirect bullying, effect was also revealed for the victims (indirect/relational) but bullies were found to have better academic performance.

In a related study, Strøm *et al.* [38] reported that bullying had negative effects on student grades and being victims to bullying is related with lower achievement – this held true with even attending schools characterized with high bullying levels. The authors indicated that exposure to more than a single violence form (sexual abuse, violence by other youth/adult, or bullying) maximized the negative effect on school achievements. Along a similar line, Kowalski and Limber [39] indicated that academic achievements were negatively affected by traditional bullying forms and cyber bullying, with the strongest effects in the context of the latter. Also, Tokunaga [40] conducted a meta-study involving 25 reports and revealed that majority of authors highlighted the bullying effects on academic achievements, from which conclusions were drawn. First, the definitional issues need to be addressed to offer a better basis for empirical studies. Second, there is no universal theory on cyber bullying and for this a longitudinal data has to be conducted to clarify causation. Lastly, the complicated relationships in cyber bullying have to be tackled, highlighting the work that has yet to be done in the context of cyber bullying studies.

More importantly, bullying effects in school are all encompassing and have far reaching consequences. Mentally, a child's self-esteem can be affected even years following the bullying incident. Bullying victims may suffer from depression, especially in long-term bullying cases [21]. It is crucial to acknowledge that mental effects do not only influence the victim but also the bully. Those that bully others for a long period of time are evidenced to have wide range of mental, academic, and social problems and that over the years, there has been a relationship between bullying, sexual harassment and violence in future periods [26], [33], [41].

This study therefore addresses the academic effects and outcomes of intention behavior towards cyber harassment engagement among students in Saudi Arabia.

### IV. RELATED WORKS ON CYBER BULLYING

Kowalski and Limber [39] described online harassment as a form of cyber bullying that is related to online interpersonal behavior, wherein an individual spreads information that is rude, threatening, and offensive to another through online tools [42].

In addition, cyber-bullying arises with the help of communication tools, cell phones, and the internet, through which threatening messages are sent via emails, text messages, or social media and other related websites [2], [43].

In the Canadian context, a pioneering study that examined cyber bullying behavior is Beran and Li [44], who reported that 21% of middle school age children were bullied at and that 3% were bullies. In the U.S., the youth victimization rate is high at 19% among internet users, with a perpetration rate of 12% [45]. These results are supported by an Australian case with 11.5% and 8.5% for victims and perpetrators, respectively [46].

In Hunt [47] literature review dedicated to the relationship between attitudes towards bullying and actual bullying behavior, the relationship was supported. Later, several studies indicated the same significant relationship among the variables [20], [33], [38], [46]. Extant studies on bullying showed a positive relationship between student attitudes towards aggression and school bullying behavior. Studies of this caliber showed that youths holding positive aggression acceptability had a high likelihood to engage in bullying behavior because it is present within their potential responses towards problems.

In the international arena, cyber bullying studies have increasingly evolved, with authors reporting university and school bullying participation cases linked to several factors (individual and contextual). Individually, these findings indicate that boys and girls both participate in cyber bullying with distinct deviant behavioral forms [48].

In the same line of study, a systematic review of school cyber bullying prevention and intervention initiatives was conducted by Tanrikulu [31]. Empirical evidence on such initiatives prior to August 2016 were reviewed and seventeen studies were obtained, which indicated that cyber bullying negatively impacts victims as evidenced by correlational studies. These negative outcomes can be categorized into psychological, physical, social, and academic outcomes. With regards to psychological effects, involvement in cyber bullying has been linked to depression, anxiety, stress, emotional problems, low self-esteem, and suicidal thoughts. In fact, victims along with their bullies were found to go through social difficulties in their relationships [49], [50]. The academic performance of students was also found to be negatively affected by cyber bullying [22].

In a related study, Della *et al.* [51] looked into cyber bullying prevention and intervention initiatives in methodological detail prior to October 2014. Considering the proliferation of this phenomenon, a new review is required. A similar study was also conducted by Nocentini *et al.* [52], but the authors limited their study to Information and Communication Technology (ICT), which mediated prevention and intervention initiatives against bullying.

In Taiwan, Wei and Chen [53] investigated peer sexual harassment victimization in light of individual and interpersonal factors among adolescents. The study sample consisted of 1376 middle school students in Taichung City in the 7<sup>th</sup> to 9<sup>th</sup> grades. Questionnaire were distributed based on demographics, delinquency, peer/teacher interaction, and sexual harassment experience by peers. Around 25.4% of study respondents reported suffering from peer sexual

harassment in the prior semester, with boys being more exposed to harassment than their female counterparts.

Beyazit *et al.* [54] found that owning a computer was a stronger predictor of cyberbullying victimization than having access to a computer only in a public library or at an Internet café. On the other hand, Arntfield [55], asserted that a lack of parental monitoring for online activity and usage as well as previously being bullied online were significant predictors of cyberbullying victimization.

In general, some scholars suggested that the varying prevalence rates of cyberbullying across previous studies might be due to the use of different sampling methods and the assessment of participants from different age groups [56].

Brandtzæg *et al.* [57] found that children's experience of cyberbullying differ between different media platforms. Therefore, based on these considerations, this study takes into account these significant factors to propose an integrated model for cyber bullying.

## V. MODEL DEVELOPMENT AND HYPOTHESES FORMULATION

Ajzen [58]'s Theory of Planned Behavior (TPB) predicts the antecedents for engaging in controllable behaviors. The theory posits that controllable behavior is affected by behavioral beliefs, normative beliefs, and control beliefs. The theory advocates that behavioral beliefs generate behavioral attitudes, normative beliefs lead to subjective norms to perform or refrain from performing, and control beliefs develop perceptions of behavioral control (self-efficacy). Combined together, attitudes, subjective norms, and control perceptions are predictors of the intention to perform a certain behavior.

Studies in the literature [59]–[62] have consistently shown that the successful prediction of positive and negative behaviors by TPB, ranging from physical exercise, drug/alcohol abuse, and harassment.

More importantly, TPB's most fundamental component is the proposition that individual behavior is affected by salient beliefs/information that are linked to the behavior in question. The theory posits that intentions towards performing a specific behavior is core to its actual performance and that individuals have a higher likelihood of performing a behavior when their intentions are supported. This is to say that an intention is a required condition of actual behavior and the former may be initiated by attitudes, social pressure, and efficacy beliefs [63].

According to Ajzen [58], the TPB is suitable for behaviors that are under the volitional control of an individual, which in this case, stopping harassment behavior by reporting it is under an individual's volitional control. However, the ability of TPB to predict sexual abuse from the victim's perspective has not been thoroughly tested, and this holds true for the level to which TPB constructs predict intentions for different abuse forms [64].

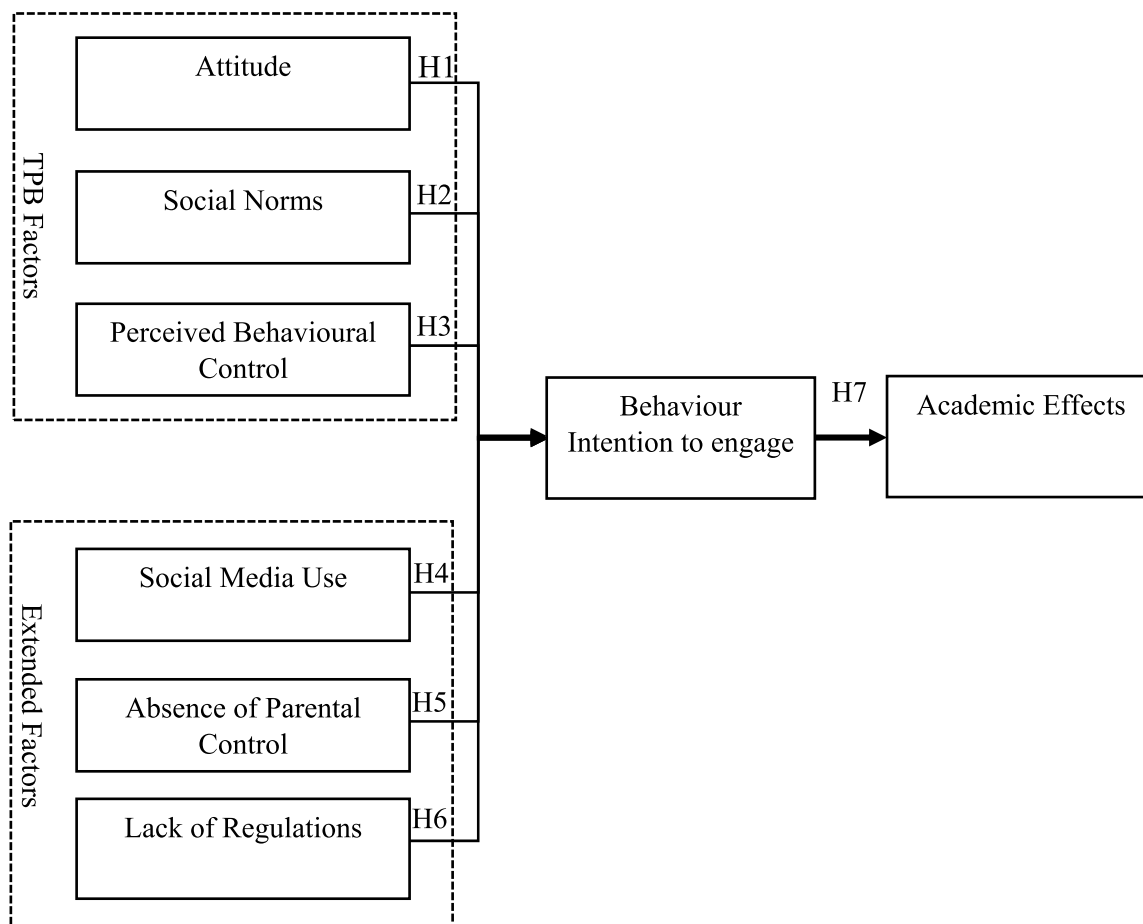


FIGURE 1. Proposed model and study hypotheses.

According to Ponmalar [65], human behavior stems from an individual’s cultural and social background and accordingly, intentions may be predicted through the relative importance of attitudes, subjective norms, and perceived behavioral controls, which may vary between different behaviors and situations.

The cultural applicability of TPB has been evidenced by studies that showed the theory’s key role in cyber bullying and harassment reporting among Saudi students. Thus, this study adopted and extended the TPB model by adding additional factors (social media use, lack of parental supervision, and lack of rules and legislations). The theory posits that it is impossible to determine behavior but intentions can be assessed and measured through individual control of a behavior. Hence, constructs were added to the TPB model in this study as seen in Figure 1. Stated clearly, the model considered in this study consists of behavioral intentions, attitude variability, subjective norms, perceived behavioral control, social media use, absence of parental supervision, and lack of rules and legislations. This constitutes a robust model within which the complexity of cyber bullying involvement and engagement is explored among Saudi high school students.

Based on the above proposed study model, the following hypotheses were proposed (Table 1 and Figure 1):

## VI. METHODOLOGY

A research methodology can be described as a set of logical steps developed to provide and maintain a research direction. While carrying out research, it is crucial to choose an approach (quantitative, qualitative, or both), with applications based on the research objectives research (Creswell 2013).

### A. POPULATION AND SAMPLING IN QUANTITATIVE METHOD

A quantitative method using a survey questionnaire was adopted for this study following Sekaran and Bougie [66] guidelines. Questionnaire adoption was guided by the following: questionnaire wording, item categorization, items scales and coding, questionnaire response gathering, and questionnaire appearance. The questionnaire was accurately developed to ensure the gathering of quality data, a high response rate, and to minimize bias [67]. The study also collected measurement items from relevant past studies and modified them to suit the study context.

There are four main sections in the questionnaire. In the first section, general respondent information was solicited in terms of demographic characteristics. In the second section, measurement items for cyber bullying factors

**TABLE 1. Hypotheses of the study.**

H1	Attitude has a significant relationship with the students' behavioral intention.
H2	Social norms have a significant relationship with student behavioral intentions.
H3	Perceived behavioral control has a significant relationship with student behavioral intentions.
H4	Social media use has a significant relationship with student behavioral intentions.
H5	Absence of parental control has a significant relationship with student behavioral intentions.
H6	Lack of regulations has a significant relationship with student behavioral intentions.
H7	Student behavioral intentions has a positive relationship with cyber bullying academic effects.

**TABLE 2. Construct source.**

Construct	No. of Items	Reference
Attitude	5	[47, 68]
Social Norms	5	[28, 49, 68]
Perceived Behavioral Control	5	[59, 68]
Social Media Use	5	[30]
Absence of Parental Control	5	[68]
Lack of Regulations	5	[4]
Behavioral Intention	5	[26, 68]
Effects	5	[4, 20, 62]

(attitude, social norms, perceived behavioral control, social media use, absence of parental control, and lack of regulations) were listed. The third section contained measurement items for behavioral intention engagement. In the fourth section, items concerning the effects of student academic performance factor were listed. Each of the questionnaire sections and constructs are listed in Table 2. The questionnaire items are listed in Table 7.

### B. FACE VALIDITY TEST (INSTRUMENT)

Questionnaire items should be validated by examining 2 item types, answers provided by a scale and answers to open-ended questions that solicit respondent opinions.

To confirm the validity of the questionnaire, face validity tests were carried out using a team of experts to confirm that the instruments measured what they were intended to measure. In this regard, Han, Kim [69] stated that face validity, whether formal or informal, needs to be carried out before the actual survey. Item validity was confirmed by adopting items from prior relevant studies, as their validity had already been established. Owing to differences in scope and environment, formal face validity was carried out using 10 experts, whose feedback was obtained to modify and adjust the items within the questionnaire.

Of these 10 experts, 5 hailed from academia, 2 were cyber harassment specialists, and 3 hailed from education. The researcher also supported validity by further discussing any ambiguities with the experts. This was followed by modifications pertaining to wrong vocabulary and grammar, typo errors, duplicate meanings, long sentences, and difficult words.

Some of the items were modified accordingly and then the English version of the questionnaire was sent to experts to ensure its intelligibility. After completing the questionnaire, the experts provided comments that were used to modify the questionnaire based on the actual working environment. According to Polit and Beck [70], correlational studies need instrument validity confirmation and reliable collected data. Questionnaire validity was obtained and established from the viewpoint of the 10 mentioned experts.

### C. QUESTIONNAIRE TRANSLATION

The initial English questionnaire was translated into Arabic using established steps. The questionnaire needed to be translated because Saudi respondents are more well-versed in Arabic than English, as Arabic is the local language. Therefore, a translator was obtained as suggested by [71], who stated that a translator has to be well-versed in the required language.

Added to the above, in Guillemin, Bombardier [72] study, the author revealed that a quality translation is achieved when two different translator services are used as it allows for the detection of errors and provides different interpretations unclear items in the first questionnaire. Hence, in this study, instruments were translated by the Legal Translator Office, and then the Arabic version was back-translated into English before being verified by another translator. The two translators were not forwarded the original English instrument and thus, their translation was devoid of biases and expectations, ensuring that unexpected meanings stood out in the final version [72].

### D. SAMPLING STRATEGY

The primary objective of this study was to determine the drivers of cyber bullying among Saudi students and its impact on student academic performance. The study sample was gathered from secondary students in Saudi schools to which the questionnaire was distributed.

There are several methods for determining a suitable sample size for a questionnaire study. In Comrey and Lee [73] study, they established the following rule of thumb for sample categories; 100 indicates poor, 200 indicates fair, 300 indicates good, 500 indicates very good, and 1000 indicates excellent. Similarly, Wimmer and Dominick [74] related that in multivariate research, there has to be a large sample for multiple response data analysis, in particular there should be 250 (good), 500 (very good) or 1000 (excellent) samples.

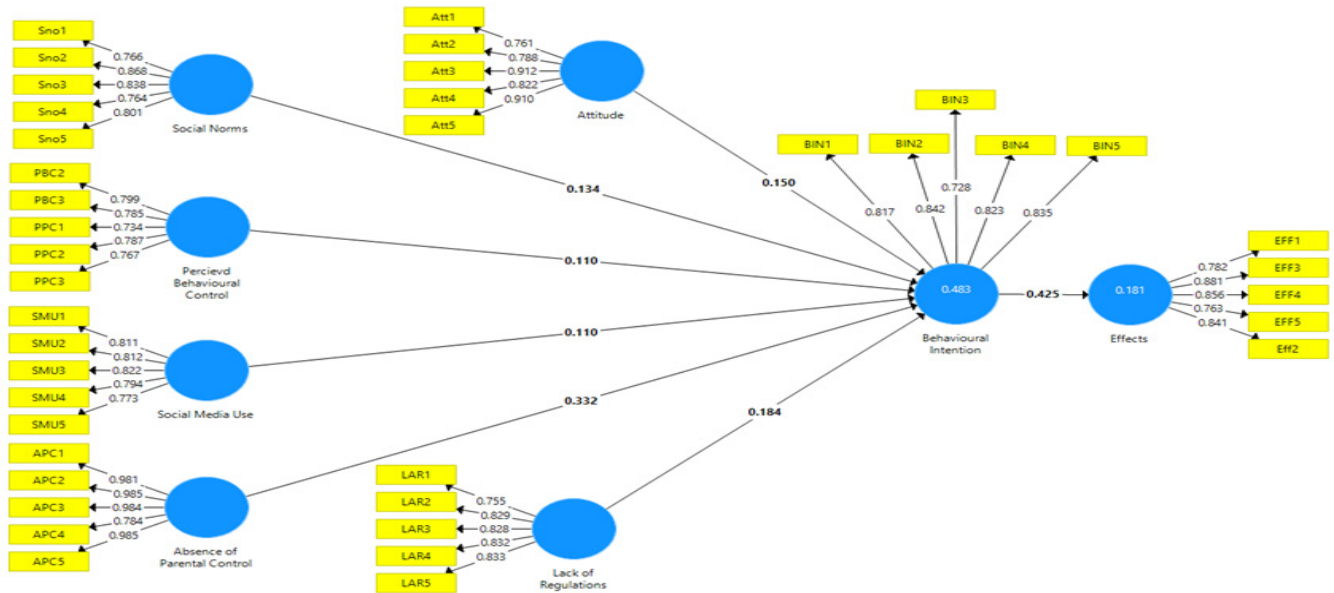


FIGURE 2. The measurement model (PLS algorithm results (regression weights)).

This study employed a probability sampling method, specifically random sampling, for sample collection as this type of sampling leads to desirable participant samples using social media and school internets. This sampling is beneficial as it calculates sampling error, which is the level to which a sample differs from the population using a plus or minus sign depending on the sampling error [66].

A sampling frame was obtained comprised of Saudi secondary school students, from which stratified random sampling was used on different groups that constituted the general population [75]. The target sample group was comprised of 12-16 year old students from both genders with different backgrounds.

VII. RESULTS OF THE ANALYZED DATA

In this section, the survey results from Structural Equation Modeling (SEM) and Smart PLS 3 are presented. The section also interprets the findings.

A. MEASUREMENT MODEL ASSESSMENT

A measurement model essentially specifies the way each construct is measured and its assessment is tested through goodness-of-fit, reliability, and construct validity.

Measurement error, being the difference between the actual variable value and the value obtained through the measurement, has several sources, particularly in the social sciences. These may include poorly worded items in the questionnaire survey, lack of understanding of the scaling method, and ineffective application of statistical tools, all of which results in random and/or systematic errors (random errors threaten reliability, systematic errors threaten construct validity) [76]. All measurements in multivariate analysis are likely to have measurement errors, which should be mitigated as much as possible. Researchers can accurately determine measurement

errors through multivariate measurements, and thus account for it in their findings.

The PLS algorithm results (regression weights) for the model are depicted in Figure 2 and were drawn from PLS version 3.0.

1) MODEL FIT INDICATORS – GOODNESS-OF-FIT

The use of goodness-of-fit in PLS-SEM has been subject to debate in the literature. To begin with Hair Jr, Hult [76] revealed that PLS-SEM lacks an established global goodness-of-fit measurement as it is generally used for testing and confirmation. Meanwhile, Bentler and Huang [77] introduced goodness-of-fit measurements into the PLS-SEM framework, with Henseler, Dijkstra [78] proposing a Standardized Root Mean Square Residual (SRMR). This residual measures the squared consistency between observed correlations and those implied by the model to establish model validity. They deemed values less than 0.08 as indicative of a good fit.

To assess the fit of this study’s model, consistent PLS fit values were provided with a SRMR of 0.07 (lower than 0.08). As such, data was deemed to fit the model.

2) RELIABILITY TESTS

A measurements reliability is confirmed through consistency and stability tests and in this regard, Awang, Afthanorhan [79] referred to reliability as the level to which a measurement model is reliable in measuring a latent construct.

The reliability assessment for the measurement model was conducted by following the criteria below:

1. Internal Reliability – Bernstein and Nunnally [80] explained that reliability is achieved through a Cronbach’s alpha value that is 0.7 or higher. Specifically, Cronbach’s alpha is a reliability coefficient that indicates the level to which items are positively correlated

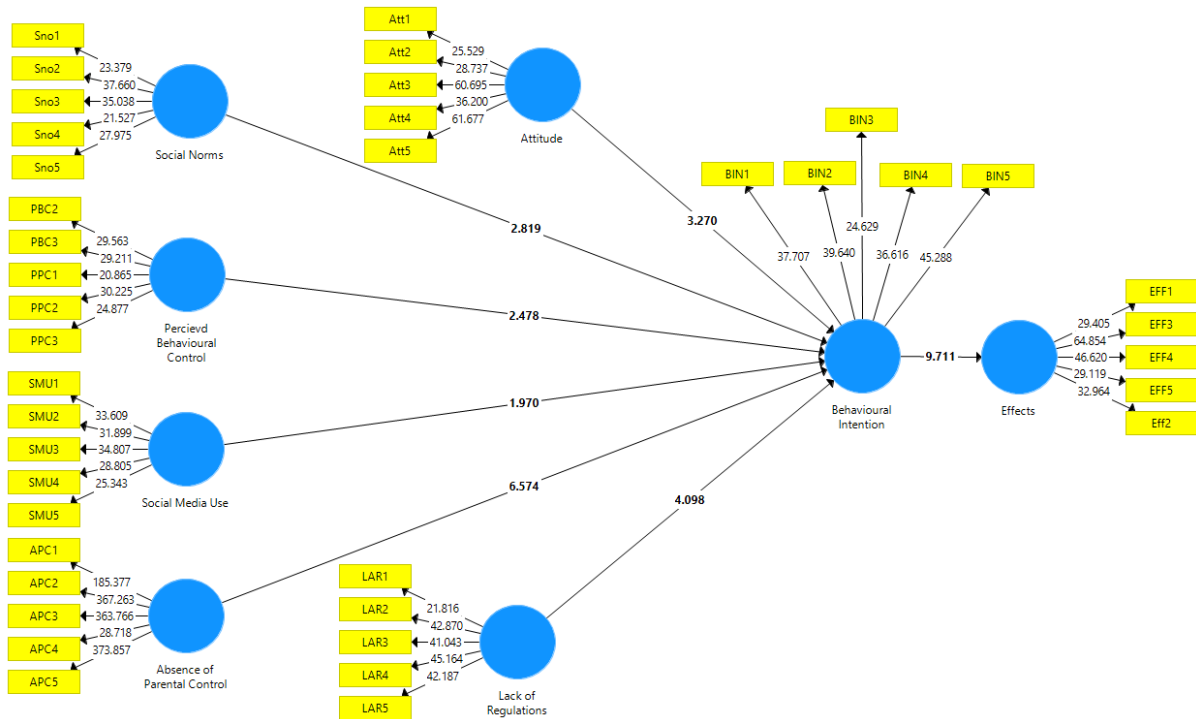


FIGURE 3. Study structural model (PLS bootstrapping (T Statistics)).

to each other. It is calculated in light of average inter-correlations between items that measure a specific concept [66]. However, owing to limitations between Cronbach's alpha and population numbers, this study applied an alternative measure of internal consistency reliability known as composite reliability [76].

2. Composite Reliability – this measures the reliability and internal consistency of a latent construct, requiring a value of  $CR > 0.7$  to establish construct composite reliability as recommended by [81], [82]. CR is obtained through the following formula;  $CR = (\sum K)^2 / ((\sum K)^2 + (\sum 1 - K^2))$ , with K depicting the factor loading of each item.

Composite reliability ranges from 0 to 1, with greater values depicting greater reliability levels. Generally, values are interpreted like those of Cronbach's alpha, where composite reliability values from 0.60 to 0.70 are considered acceptable in the exploratory studies, and those below 0.60 are according to Hair Jr, Hult [76] indicative of a lack of internal consistency reliability.

Factor loading was also employed to confirm indicator reliability, with high loadings on a construct showing that related indicators have a lot in common [76]. Factor loadings exceeding 0.50 were deemed to be significant [76]. The items loadings all exceeded the recommended 0.50 value as presented in Table 3.

Convergent validity is the level to which a measurement positively correlates with alternative measurements for a specific construct. For its establishment, researchers recommend Average Variance Extracted (AVE) [76], which provides the

grand mean value of squared indicator loadings related to a construct. Stated clearly, it shows the sum of the squared loadings over the number of indicators. Hence, AVE is equivalent to the communality of a construct. Adopting this premise with individual indicators, AVE values of 0.50 or higher show that a construct generally explains half of indicator variance. However, AVE values lower than 0.50 indicative that on average, more errors can be found in items compared to the construct's explained variance [76].

As shown in Table 3, sufficient values were obtained according to the criterion laid down by Hair, Jr., *et al.* [76]. Factor loading values ranged from 0.728 to 0.985, Cronbach's alpha ranged from 0.835 to 0.969, CR ranged between 0.882 and 0.977, and AVE ranged from 0.600 to 0.897.

### B. STRUCTURAL MODEL ASSESSMENT

The second step in SEM analysis involves the assessment of the structural equation model. After the validation of the measurement model, the structural model can be represented through the specification of construct relationships. Hair, Jr., *et al.* [76] related that the structural model presents variable relationships details.

According to Hair, Jr., *et al.* [76], the structural model can be assessed by obtaining the beta ( $\beta$ ),  $R^2$ , and corresponding t-values using the bootstrapping procedure and a re-sample of 5000. They added that this may also be done by obtaining effect sizes ( $f^2$ ) and predictive relevance ( $Q^2$ ) values. Meanwhile, in Sullivan and Feinn [83] study, the authors claimed that p-values reveal if an effect exists, although the size of



**TABLE 3. Reliability test results.**

Latent Variable	Items	Loading	Composite Reliability	AVE	Cronbach's Alpha
Attitude	ATT1	0.761	0.923	0.707	0.895
	ATT2	0.788			
	ATT3	0.912			
	ATT4	0.822			
	ATT5	0.910			
Social Norms	SNO1	0.766	0.904	0.654	0.867
	SNO2	0.868			
	SNO3	0.838			
	SNO4	0.764			
	SNO5	0.801			
Perceived Behavioral Control	PPC1	0.799	0.882	0.600	0.835
	PPC2	0.785			
	PPC3	0.734			
	PPC4	0.787			
	PPC5	0.767			
Social Media Use	SMU1	0.811	0.900	0.644	0.863
	SMU2	0.812			
	SMU3	0.822			
	SMU4	0.794			
	SMU5	0.773			
Absence of Parental Control	APC1	0.981	0.977	0.897	0.969
	APC2	0.985			
	APC3	0.984			
	APC4	0.784			
	APC5	0.985			
Lack of Regulations	LAR1	0.755	0.909	0.666	0.874
	LAR2	0.829			
	LAR3	0.828			
	LAR4	0.832			
	LAR5	0.833			
Behavioral Intention	BIN1	0.817	0.905	0.656	0.868
	BIN2	0.842			
	BIN3	0.728			
	BIN4	0.823			
	BIN5	0.835			
Effects	EFF1	0.782	0.914	0.682	0.882
	EFF2	0.881			
	EFF3	0.856			
	EFF4	0.763			
	EFF5	0.841			

the effect is not provided. The PLS bootstrapping (t-statistics) results obtained using PLS 3.0 are shown in Figure 3.

1) DISCRIMINANT VALIDITY

Discriminant validity was confirmed in this study using Fornell-Larcker's criterion (Table 5) where the square root values of the AVEs, lying diagonally (bolded values), were found to exceed correlations between constructs in the corresponding rows and columns. This shows that the constructs

more related to their respective indicators than that of other model constructs [84], [85], establishing good discriminant validity [76]. Additionally, the exogenous correlation did not exceed 0.85 [79], which indicates discriminant validity.

2) HYPOTHESES TESTING

The assessment of the structural model shows hypotheses testing (Figure 3), with standardized path coefficients depicting relationship strength between exogenous constructs,

TABLE 4. Effect size  $f^2$ .

Factor	Behavioral Intention	Effects on Student Performance
Attitude	0.031	
Social Norms	0.029	
Perceived Behavioral Control	0.017	
Social Media Use	0.019	
Absence of Parental Control	0.151	
Lack of Regulations	0.049	
Behavioral Intention		0.221

endogenous constructs, and the dependent construct. Table 6 tabulates the results.

The  $R^2$  value shows the level of variance in dependent variables explained by the independent variables, which means the higher the  $R^2$  value, the higher the predictive ability of the structural model. The  $R^2$  value has to be high enough to achieve a minimum explanatory strength as mentioned by [86]. In this regard,  $R^2$  values have to be equal to or more than 0.10 to adequately explained variance in a specific endogenous construct. However, [87] revealed that  $R^2$  values should be higher than 0.26, with acceptable powers exceeding 0.02, while Chin [85] explained that  $R^2$  values should be over 0.65, with acceptable powers exceeding 0.18. According to Hair, Jr., *et al.* [76], substantial  $R^2$  values have to exceed 0.75, with acceptable powers exceeding 0.25. The  $R^2$  values of the structural model are displayed in Table 6, and they were high enough to achieve an acceptable explanatory power.

It is notable that the variance explained in the endogenous construct (effects) is 0.483 (48%). In relation to this, attempts towards predicting human behavior (e.g., psychology) generally obtain R-squared values less than 50%. This is because humans are difficult to predict compared to physical processes and thus, the  $R^2$  values of actual behavior are represented by actual effects, discounting other effects that are present, which future studies can explore.

In this study, effect size ( $f^2$ ) was also obtained to determine if the exogenous latent construct had a significant, moderate, or weak effect on the endogenous latent construct [88]. According to [76], this is possible by testing changes in the ( $R^2$ ) value, while Cohen [87] recommended a  $f^2$  value rule of thumb as follows: 0.35 illustrates large effects, 0.15 illustrates medium effects, and 0.02 illustrates small effects. Table 4 contains the  $f^2$  values obtained in this study.

SEM was used to carry out confirmatory and exploratory modeling to test and develop the study theory. The proposed model was developed through two steps. First, the model structure was formulated by combining models that have been previously tested and validated through SEM, after which the

model was incorporated in a single comprehensive framework. Second, the model was examined for goodness-of-fit.

Beta ( $\beta$ ) values were obtained according to Hair Jr, *et al.* [76] formula to ensure that construct and composite reliability were established. The obtained t-values exceeded 1.96, and each factors Cronbach's alpha was calculated through SPSS 21 for internal reliability. All values were higher than 0.70 (good reliability).

Moreover, PLS was used to assess model fit and the Standardized Root Mean Square Residual (SRMR) was 0.07, which is below 0.08. As such, the data model fit was also established. In sum, the proposed model satisfies the criteria of goodness-of-fit indices and shows empirical data fit. The structural model was pronounced to have excellent fit with reliability and validity, and the results supported all formulated hypotheses.

### 3) DISCUSSION AND INTERPRETATIONS

The analysis findings show that the exogenous factors of attitude, social norms, perceived behavioral control, social media use, absence of parental controls, and lack of regulations were all directly, significantly, and positively related to the endogenous factor of behavioral intention.

The first hypothesis proposed a significant relationship between attitude and behavioral intention and this was supported ( $\beta = 0.150$ ,  $t = 3.270$ ,  $p < 0.001$ ). The second hypothesis proposed a positive relationship between social norms and behavioral intention and this was also supported ( $\beta = 0.134$ ,  $t = 2.819$ ,  $p < 0.001$ ). This held true for the third hypothesis, which proposed a significant relationship between perceived behavioral control and behavioral intention ( $\beta = 0.110$ ,  $t = 2.478$ ,  $p < 0.001$ ). These make up the TPB factors, and as such, the obtained results concerning the three TPB factors are consistent with those in the prior literature. For instance, Alleyne [63], de Lijster, Felten [62], Eaton and Stephens [59] and Khani Jaihooni, Kouhpayeh [61] revealed subjective norms and self-efficacy predicted behavioral intentions towards engaging in harassment among boys and girls.

Moving on to social media use, the results supported the fourth hypothesis, which proposed a significant relationship between social media use and the behavioral intention of students ( $\beta = 0.110$ ,  $t = 1.970$ ,  $p < 0.001$ ). This factor was added to extend TPB and is considered a new determinant. This result is consistent with prior studies by Mainiero and Jones [28] and Moafa, Ahmad [4], who revealed social media use effects. Therefore, it can be stated that notwithstanding social media uses effect in improving social experiences, there are some negative outcomes that stem from it like cyber bullying, cyber harassment, and cyber stalking [30].

The fifth hypothesis proposed a relationship between the absence of parental controls and the behavioral intention of Saudi students to engage in cyber bullying. Based on the analysis results, this was supported ( $\beta = 0.332$ ,  $t = 6.574$ ,  $p < 0.001$ ). This is another factor added to extend TPB,

TABLE 5. Discriminant validity results.

	ATT	SNO	PBC	SMU	APC	LAR	BIN	EFF
Attitude	<b>0.841</b>							
Social Norms	0.343	<b>0.808</b>						
Perceived Behavioural Control	0.433	0.252	<b>0.775</b>					
Social Media Use	0.226	0.23	0.255	<b>0.803</b>				
Absence of Parental Control	0.338	0.248	0.411	0.37	<b>0.947</b>			
Lack of Regulations	0.347	0.244	0.332	0.355	0.375	<b>0.816</b>		
Behavioural Intention	0.445	0.366	0.434	0.391	0.571	0.469	<b>0.81</b>	
Effects	0.429	0.261	0.458	0.364	0.321	0.386	0.425	<b>0.826</b>

TABLE 6. Hypothesis testing results.

Hypothesis		$\beta$	T-value	Support	R <sup>2</sup>
<b>Intention to Adopt</b>					0.483
H1	Attitude → Behavioral Intention	0.150	3.270	Supported	
H2	Social Norms → Behavioral Intention	0.134	2.819	Supported	
H3	Perceived Behavioral Control → Behavioral Intention	0.110	2.478	Supported	
H4	Social Media Use → Behavioral Intention	0.110	1.970	Supported	
H5	Absence of Parental Control → Behavioral Intention	0.332	6.574	Supported	
H6	Lack of Regulations → Behavioral Intention	0.178	4.098	Supported	
<b>Student's Academic Performance</b>					
H7	Behavioral Intention → Student's Performance	0.425	9.711	Supported	0.181

making it a new determinant that was supported by prior studies [48]. This is a pioneering study that included this factor in cyber bullying in a Saudi Arabian context, which is a developing nation. The findings highlight the significance of parent controls when it comes to online activities. Rigby [41] and other authors also empirically showed the significance of parental supervision, without which the mitigation cyber bullying would be impossible.

This study also tested the relationship between the lack of regulations and behavioral intention in the sixth hypothesis, which was supported by the results ( $\beta = 0.178, t = 4.098, p < 0.001$ ). In other words, a lack of regulations contributes to behavioral intentions towards engaging in cyber harassment. This result was also supported by Moafa, Ahmad [4], who revealed that laws and regulations in Saudi Arabia are constantly changing to accommodate changes online and mitigate social offenses.

This study found that behavioral intention towards engaging in cyber harassment was significantly related to student academic performance, supporting the seventh hypothesis ( $\beta = 0.425, t = 9.711, p < 0.001$ ). Prior works reported the same findings, albeit using different methods and factors in different contexts. For instance, Tambawal and Rukayya [20] reached the conclusion that victims have a greater likelihood to put a stop to harassment if they held unfavorable attitudes towards it or had the support of others.

All the proposed hypotheses were supported by the obtained results and are consistent with a majority of findings in the literature concerning the factors that affect the

behavioral engagement in cyber bullying and harassment as well as their effects on academic and educational performance [20], [48], [62].

Furthermore, this study showed that 74.5% of the surveyed respondents have been victims of repetitive cyber bullying, which supports Beran and Li [44] and [2]. Victims were also involved in cyber bullying, making them both the bullies and victims. For youth in schools, cyber bullying is more prevalent than cyber harassment and cyber stalking. While social media brings about cyber harassment, cyber stalking, and cyber bullying, which ultimately affects academic performance among school students, the questionnaire used in this study only focused on cyber bullying.

The findings of this study provide significant contributions to TPB theory extension, with the addition of three factors backed by empirical findings. More specifically, this study established that an absence of parental control and a lack of regulations are some of the factors that drive cyber bullying. Students normally experience online threats through social media, whether as victims of online hacking or data theft, and this may be mitigated by them avoiding talking or chatting to strangers online, who may have fake personas. Family, particularly parents, play a key role in preventing and mitigating online bullying by being role models and looking out for their children.

As a whole, the argument has been presented that Internet use could cause users to become socially inept and isolated, whereas others believe that the increased

TABLE 7. Questionnaire items.

No	Factor	Item	Question
1	Attitude	ATT1	Engaging in online bullying makes me feel good about myself
2		ATT2	I think it is okay for students to make fun of other students, call them names and insult them online
3		ATT3	In some cases, a student deserves to be bullied online by other students
4		ATT4	I believe that it is crucial for students to stand up for themselves when faced with bullying online
5		ATT5	Intervening or preventing against cyber bullying is a good and positive thing to do for the bullied victim
1	Social Norms	SNO1	I feel like I should do according to what my friends think at any period of time
2		SNO2	I value what the adults in the school like administrators, teachers and staff think and their opinions
3		SNO3	Significant others in my life, like my parents, uncle, aunt, grandparents and teachers would not approve of me stepping out of line when dealing with others online during the school period or any other period
4		SNO4	My closest peers would disapprove of me interacting without civility online at any time, now or in the future
5		SNO5	Individuals whose opinion I value, like a brother/sister and friends engage in online harassment
1	Perceived Behavioral Control	PPC1	When in trouble, I can usually extricate myself out of it
2		PPC2	When confronted with problems, I can usually come up with several solutions
3		PPC3	I easily get angry with things that are minor to others
4		PPC4	Faced with opposition, I can usually determine ways to get my way
5		PPC5	I usually remain calm when faced with difficulties by using my coping abilities
1	Social Media Use	SMU1	Using negative social media is deemed as a type of cyber bullying
2		SMU2	Impersonation of an individual is deemed as harassment and bullying
3		SMU3	Exploring someone's online page without consent is harassment
4		SMU4	Using social media is crucial to my studies but sometimes it can be used for cyber bullying and harassment
5		SMU5	Using social media makes it easy to concentrate on studies but only when it is not used for bullying
1	Absence of Parental Control	APC1	Students who act out online should be stopped by their parents
2		APC2	My parents/guardians would disapprove of my engaging in any indecent form of behavior online at any period of time
3		APC3	A bullied student online should be protected by his/her parents by reporting the incident
4		APC4	I value what my friends think I should do at any point of time
5		APC5	Significant others to my life like my parents, uncle/aunt, grandparents, or teachers would disapprove of my negative behavior online at any point of time
1	Lack of Regulations	LAR1	My home computer's control software makes it frustrating for me to engage in online activities and to access certain sites
2		LAR2	My school responsibilities should make me refrain from engaging in online bullying
3		LAR3	Dealing with school work and home assignments should make it difficult for me and my peers to engage in negative online activities
4		LAR4	With strict regulations, engagement in bullying online can be restricted
5		LAR5	Bullies should be punished in order to minimize bullying cases
1	Behavioral Intention	BIN1	My non-involvement in bullying behaviour saves lives, prevents trauma, distress, depression and discomfort of others
2		BIN2	I feel that I should retaliate to those who harass or threaten me online

interactions it enables could improve social relationships. Unfortunately, the use of the Internet to perpetrate

cyberbullying may present a stronger argument for the detrimental effects of this technology. Bullying is a major problem

TABLE 7. (Continued.) Questionnaire items.

3		BIN3	Because physical harassment is clearly observed, it is better to harass online in order hide such behaviour from others
4		BIN4	My intervention in online bullying would positively benefit the victim
5		BIN5	Students should stand for themselves when experiencing bullying online
1	Effects	EFF1	Feeling fear from cyber bullying has affected my academic performance
2		EFF2	Feeling sad from experiencing cyber bullying has affected my academic performance
3		EFF3	Being cyber bullied make me want to refrain from going to school
4		EFF4	Victimization has made me lose concentration on my lessons
5		EFF5	My performance level has been fully affected after experiencing harassment

in modern society as it occurs at many different ages and in many different forms.

4) RESEARCH CONTRIBUTIONS

This study provides major contributions to Saudi authorities, specifically in the education sector, when it comes to promoting awareness of cyber bullying and in providing solutions to mitigate, if not to prevent, this phenomenon.

The literature is riddled with studies on general harassment, within which cyber bullying and cyber harassment effects on the educational achievement of students are still scarce. Therefore, this study concentrated on examining the effects of cyber bullying on the educational performance of students in Saudi schools, a problem that has been compounded through technology use. The primary aim of the study was to examine the factors influencing intentions towards engaging in cyber harassment among Saudi students through the use of the Theory of Planned Behavior (TPB).

The study used social media use, parental controls, and lack of regulation alongside existing TPB factors to examine their effects on behavioral intentions towards cyber harassment in Saudi schools. Prior studies have largely ignored the above mentioned factors in cyber harassment. This study extended TPB by developing and proposing a model that identifies significant factors that play a key role in mitigating cyber harassment, cyber stalking, and cyber bullying in schools.

VIII. CONCLUSION

In Saudi schools, the phenomenon of bullying, not unlike schools in other countries, is a proliferating phenomenon that could psychologically scar victims for life by bringing about poor psychological well-being, poor adjustments to society, psychological distress, and even physical illness. This study explored the factors that drive bullying among school students because shedding light on a problems causes is the first step to its resolution. In other words, being aware of the reasons behind bullying in schools paves the way for authorities, parents, and guardians to prevent their children from becoming victims or instigators. On the whole, the study findings showed that attitude, social norms, perceived behavioral control, social media use, absence of parental controls, and lack of regulations were directly and signifi-

cantly related to behavioral intentions towards cyber bullying. The findings highlight the negative effect of cyber bullying on the academic achievement of students so that such an effect can be mitigated by the proper authorities.

REFERENCES

- [1] Y. C. Sherer and A. B. Nickerson, "Anti-bullying practices in American schools: Perspectives of school psychologists," *Psychol. Schools*, vol. 47, no. 3, pp. 217–229, 2010.
- [2] T. N. Beran, C. Rinaldi, D. S. Bickham, and M. Rich, "Evidence for the need to support adolescents dealing with harassment and cyber-harassment: Prevalence, progression, and impact," *School Psychol. Int.*, vol. 33, no. 5, pp. 562–576, 2012.
- [3] K. Van Royen, K. Poels, H. Vandebosch, and P. Adam, "Thinking before posting?" Reducing cyber harassment on social networking sites through a reflective message," *Comput. Hum. Behav.*, vol. 66, pp. 345–352, Jan. 2017.
- [4] F. A. Moafa, K. Ahmad, W. M. Al-Rahmi, N. Yahaya, Y. B. Kamin, and M. M. Alamri, "Develop a model to measure the ethical effects of students through social media use," *IEEE Access.*, vol. 6, pp. 56685–56699, 2018.
- [5] A. O. S. Alkaabi, "Combating computer crime: An international perspective," Ph.D. dissertation, Dept. Inf. Secur., Queensland Univ. Technol., Brisbane, QLD, Australia, 2010.
- [6] B. M. E. Elnaim, "Cyber crime in Kingdom of Saudi Arabia: The threat today and the expected future," *Inf. Knowl. Manage.*, vol. 3, no. 12, pp. 14–19, 2013.
- [7] M. Mukred and Z. M. Yusof, "Electronic records management and its importance for decision making process in yemeni higher professional education (HPE): A preliminary review," in *Proc. 1st Int. Conf. Recent Trends Inf. Commun. Technol. (IRICT)*, Johor Bahru, Malaysia, 2014, pp. 105–114.
- [8] M. Mukred and Z. M. Yusof, "The role of electronic records management (ERM) for supporting decision making process in yemeni higher professional education (HPE): A preliminary review," *J. Teknologi*, vol. 73, no. 2, pp. 117–122, 2015.
- [9] M. Mukred and Z. M. Yusof, "Factors influencing the adoption of electronic records management (ERM) for decision making process at higher professional education (HPE)'s institutions," in *Proc. 1st ICRIL-Int. Conf. Innov. Sci. Technol. (IICIST)*, Kuala Lumpur, Malaysia, 2015, pp. 399–403.
- [10] M. Mukred, Z. M. Yusof, U. A. Mokhtar, and N. A. Manap, "Electronic records management system adoption readiness framework for higher professional education institutions in yemen," *Int. J. Adv. Sci., Eng. Inf. Technol.*, vol. 6, no. 6, pp. 804–811, 2016.
- [11] M. Mukred and Z. M. Yusof, "The DeLone–McLean information system success model for electronic records management system adoption in higher professional education institutions of Yemen," in *Proc. Int. Conf. Reliable Inf. Commun. Technol.* Cham, Switzerland: Springer, 2017, pp. 812–823.
- [12] M. Mukred and Z. M. Yusof, "The performance of educational institutions through the electronic records management systems: Factors influencing electronic records management system adoption," *Int. J. Inf. Technol. Project Manage.*, vol. 9, no. 3, pp. 34–51, 2018.
- [13] M. Mukred, Z. M. Yusof, U. A. Mokhtar, and F. Fauzi, "Taxonomic framework for factors influencing ERMS adoption in organisations of higher professional education," *J. Inf. Sci.*, vol. 45, no. 2, pp. 139–155, 2019.

- [14] M. Mukred, Z. M. Yusof, U. A. Mokhtar, and F. Fauzi, "A framework for electronic records management system adoption in the higher professional education: Individual, technological and environmental factors," in *Proc. Int. Conf. Reliable Inf. Commun. Technol.* Cham, Switzerland: Springer, 2018, pp. 840–849.
- [15] M. Mukred, Z. M. Yusof, F. M. Alotaibi, U. Asma' Mokhtar, and F. Fauzi, "The key factors in adopting an electronic records management system (ERMS) in the educational sector: A UTAUT-based framework," *IEEE Access*, vol. 7, pp. 35963–35980, 2019.
- [16] M. Mukred, Z. M. Yusof, and F. M. Alotaibi, "Ensuring the productivity of higher learning institutions through electronic records management system (ERMS)," *IEEE Access*, vol. 7, pp. 97343–97364, 2019.
- [17] C. Esposito and D. Bacchini, and G. Affuso, "Adolescent non-suicidal self-injury and its relationships with school bullying and peer rejection," *Psychiatry Res.*, vol. 274, pp. 1–6, Apr. 2019.
- [18] L. Berdondini and A. P. D. Liefoghe, "Beyond 'bullies' and 'victims': A systemic approach to tackling school bullying," in *Violent Adolescents*. London, U.K.: Routledge, 2018, pp. 21–37.
- [19] V. Khamis, "Bullying among school-age children in the greater Beirut area: Risk and protective factors," *Child Abuse Neglect*, vol. 39, pp. 137–146, Jan. 2015.
- [20] M. U. Tambawal and M. U. Rukayya, "Bullying and its effects on academic performance of secondary school students in Nigeria: Implications for counselling," *Int. J. Adv. Acad. Res.*, vol. 3, no. 2, pp. 1–8, 2017.
- [21] H. K. Al-Raqad, E. S. Al-Bourini, F. M. Al Talahin, and R. M. E. Aranki, "The impact of school bullying on students' Academic achievement from teachers point of view," *Int. Educ. Stud.*, vol. 10, no. 6, pp. 44–50, 2017.
- [22] G. Egeberg, S. Thorvaldsen, and J. A. Rønning, "The impact of cyberbullying and cyber harassment on academic achievement," in *Digital Expectations and Experiences in Education*. Dordrecht, The Netherlands: Springer, 2016, pp. 183–204.
- [23] D. K. McGraw, "Sexual harassment in cyberspace: The problem of unwelcome e-mail," *Rutgers Comput. Tech. LJ*, vol. 21, p. 491, 1995.
- [24] M. O. Lwin, B. Li, and R. P. Ang, "Stop bugging me: An examination of adolescents' protection behavior against online harassment," *J. Adolescence*, vol. 35, no. 1, pp. 31–41, 2012.
- [25] F. A. Moafa, "Classifications of cybercrimes-based legislations: A comparative research between the UK and KSA," *Int. J. Adv. Comput. Res.*, vol. 4, no. 2, p. 699, 2014.
- [26] F. A. Moafa, K. Ahmad, W. M. Al-Rahmi, N. Yahaya, Y. B. Kamin, and M. M. Alamri, "Cyber harassment prevention through user behavior analysis online in Kingdom of Saudi Arabia (KSA)," *J. Theor. Appl. Inf. Technol.*, vol. 96, no. 6, pp. 1732–1746, 2018.
- [27] R. Smith, P. Grabosky, and G. Urbas, "Cyber criminals on trial," *Criminal Justice Matters*, vol. 58, no. 1, pp. 22–23, 2004.
- [28] L. A. Mainiero and K. J. Jones, "Sexual harassment versus workplace romance: Social media spillover and textual harassment in the workplace," *Acad. Manage. Perspect.*, vol. 27, no. 3, pp. 187–203, 2013.
- [29] D. S. Ones, "Stalking, Harrassment, and murder in the workplace: Guidelines for protection and prevention," *Personnel Psychol.*, vol. 55, no. 1, pp. 223–226, 2002.
- [30] W. M. Al-Rahmi, N. Yahaya, M. M. Alamri, N. A. Aljarboa, Y. B. Kamin, and F. A. Moafa, "A model of factors affecting cyber bullying behaviors among University students," *IEEE Access*, vol. 7, pp. 2978–2985, 2018.
- [31] I. Tanrikulu, "Cyberbullying prevention and intervention programs in schools: A systematic review," *School Psychol. Int.*, vol. 39, no. 1, pp. 74–91, 2018.
- [32] C. Miller, "Cyber harassment: Its forms and perpetrators," *Law Enforcement Technol.*, vol. 33, no. 4, p. 26, 2006.
- [33] R. Slonje, P. K. Smith, and A. Frisén, "Perceived reasons for the negative impact of cyberbullying and traditional bullying," *Eur. J. Develop. Psychol.*, vol. 14, no. 3, pp. 295–310, 2017.
- [34] S. Hinduja and J. W. Patchin, "Bullying, cyberbullying, and suicide," *Arch. Suicide Res.*, vol. 14, no. 3, pp. 206–221, 2010.
- [35] R. Y. Wong, "Dealing with online harassment: Understanding online protective coping strategies on social networking sites," in *Proc. PACIS*, 2017, p. 279.
- [36] G. M. Glew, M. Y. Fan, W. Katon, F. P. Rivara, and M. A. Kernic, "Bullying, psychosocial adjustment, and academic performance in elementary school," *Arch. Pediatrics Adolescent Med.*, vol. 159, no. 11, pp. 1026–1031, 2005.
- [37] S. Woods and D. Wolke, "Direct and relational bullying among primary school children and academic achievement," *J. School Psychol.*, vol. 42, no. 2, pp. 135–155, 2004.
- [38] I. F. Strøm, S. Thoresen, T. Wentzel-Larsen, and G. Dyb, "Violence, bullying and academic achievement: A study of 15-year-old adolescents and their school environment," *Child Abuse Neglect*, vol. 37, no. 4, pp. 243–251, 2013.
- [39] R. M. Kowalski and S. P. Limber, "Psychological, physical, and academic correlates of cyberbullying and traditional bullying," *J. Adolescent Health*, vol. 53, no. 1, pp. S13–S20, 2013.
- [40] R. S. Tokunaga, "Following you home from school: A critical review and synthesis of research on cyberbullying victimization," *Comput. Hum. Behav.*, vol. 26, no. 3, pp. 277–287, May 2010.
- [41] K. Rigby, "School perspectives on bullying and preventative strategies: An exploratory study," *Austral. J. Educ.*, vol. 61, no. 1, pp. 24–39, 2017.
- [42] J. Wolak, K. J. Mitchell, and D. Finkelhor, "Does online harassment constitute bullying? An exploration of online harassment by known peers and online-only contacts," *J. Adolescent Health*, vol. 41, no. 6, pp. S51–S58, 2007.
- [43] N. Yahaya, B. M. Kamin, and M. Alamri, "Integrated-system to minimizing cyber harassment in Kingdom of Saudi Arabia (KSA)," *Int. J. Eng. Technol.*, vol. 7, no. 4, pp. 2192–2196, 2018.
- [44] T. Beran and Q. Li, "Cyber-harassment: A study of a new method for an old behavior," *J. Educ. Comput. Res.*, vol. 32, no. 3, pp. 265–277, 2005.
- [45] M. L. Ybarra and K. J. Mitchell, "Online aggressor/targets, aggressors, and targets: A comparison of associated youth characteristics," *J. Child Psychol. Psychiatry*, vol. 45, no. 7, pp. 1308–1316, 2004.
- [46] T. Sakellariou, A. Carroll, and S. Houghton, "Rates of cyber victimization and bullying among male Australian primary and high school students," *School Psychol. Int.*, vol. 33, no. 5, pp. 533–549, 2012.
- [47] C. Hunt, "The effect of an education program on attitudes and beliefs about bullying and bullying behaviour in junior secondary school students," *Child Adolescent Mental Health*, vol. 12, no. 1, pp. 21–26, 2007.
- [48] C. M. Kokkinos, N. Antoniadou, A. Asdre, and K. Voulgaridou, "Parenting and Internet behavior predictors of cyber-bullying and cyber-victimization among preadolescents," *Deviant Behav.*, vol. 37, no. 4, pp. 439–455, 2016.
- [49] M. Campbell, B. Spears, P. Slee, D. Butler, and S. Kift, "Victims' perceptions of traditional and cyberbullying, and the psychosocial correlates of their victimisation," *Emotional Behav. Difficulties*, vol. 17, nos. 3–4, pp. 389–401, 2012.
- [50] W. Cassidy, C. Faucher, and M. Jackson, "Cyberbullying among youth: A comprehensive review of current international research and its implications and application to policy and practice," *School Psychol. Int.*, vol. 34, no. 6, pp. 575–612, 2013.
- [51] V. D. Cioppa, A. O'Neil, and W. Craig, "Learning from traditional bullying interventions: A review of research on cyberbullying and best practice," *Aggression Violent Behav.*, vol. 23, pp. 61–68, Jul./Aug. 2015.
- [52] A. Nocentini, V. Zambuto, and E. Menesini, "Anti-bullying programs and information and communication technologies (ICTs): A systematic review," *Aggression Violent Behav.*, vol. 23, pp. 52–60, Jul./Aug. 2015.
- [53] H.-S. Wei and J.-K. Chen, "Factors associated with peer sexual harassment victimization among Taiwanese adolescents," *Sex Roles*, vol. 66, nos. 1–2, pp. 66–78, 2012.
- [54] U. Beyazit, Ş. Şimşek, and A. B. Ayhan, "An examination of the predictive factors of cyberbullying in adolescents," *Social Behav. Personality, Int. J.*, vol. 45, no. 9, pp. 1511–1522, 2017.
- [55] M. Arntfield, "Towards a cybervictimology: Cyberbullying, routine activities theory, and the anti-sociality of social media," *Can. J. Commun.*, vol. 40, no. 3, pp. 372–388, 2015.
- [56] S. Bauman, R. B. Toomey, and J. L. Walker, "Associations among bullying, cyberbullying, and suicide in high school students," *J. Adolescence*, vol. 36, no. 2, pp. 341–350, 2013.
- [57] P. B. Brandtzæg, E. Staksrud, I. Hagen, and T. Wold, "Norwegian children's experiences of cyberbullying when using different technological platforms," *J. Children Media*, vol. 3, no. 4, pp. 349–365, 2009.
- [58] I. Ajzen, "The theory of planned behavior," *Org. Behav. Hum. Decis. Process.*, vol. 50, no. 2, pp. 179–211, 1991.
- [59] A. A. Eaton and D. P. Stephens, "Using the theory of planned behavior to examine beliefs about verbal sexual coercion among urban black adolescents," *J. Interpersonal Violence*, vol. 34, no. 10, pp. 2056–2086, 2019.
- [60] M. Y. Li, I. Frieze, and C. S.-K. Tang, "Understanding adolescent peer sexual harassment and abuse: Using the theory of planned behavior," *Sexual Abuse*, vol. 22, no. 2, pp. 157–171, 2010.
- [61] A. K. Jeihooni, A. Kouhpayeh, S. Najafi, and M. R. Bazrafshan, "Application theory of planned behavior on promotion of safe sexual behaviors among drug users," *J. Substance Use*, vol. 24, no. 3, pp. 293–299, 2019.

- [62] G. P. de Lijster, H. Felten, G. Kok, and P. L. Kocken, "Effects of an interactive school-based program for preventing adolescent sexual harassment: A cluster-randomized controlled evaluation study," *J. Youth Adolescence*, vol. 45, no. 5, pp. 874–886, 2016.
- [63] P. Alleyne, "Using the theory of planned behaviour and risk propensity to measure investment intentions among future investors," *J. Eastern Caribbean Stud.*, vol. 36, no. 1, pp. 1–21, 2011.
- [64] K. R. Betts, V. B. Hinsz, and S. R. Heimerdinger, "Predicting intentions of romantic partner abuse with the theory of planned behavior," *Current Psychol.*, vol. 30, no. 2, pp. 130–147, 2011.
- [65] N. A. Ponnalar, "The influence of individual and organisational factors on the intention to report sexual harassment/Ponnalar N Alagappan," Ph.D. dissertation, Dept. Hum. Resource, Univ. Malaya, Kuala Lumpur, Malaysia, 2017.
- [66] U. Sekaran and R. Bougie, *Research Methods for Business: A Skill Building Approach*. Hoboken, NJ, USA: Wiley, 2016.
- [67] F. J. Fowler, Jr., *Survey Research Methods*. Newbury Park, CA, USA: Sage, 2013.
- [68] S. O. Adekoya, "Examining attitudes, subjective norms, perceived behavioral control, and intentions in cyberspace bullying behaviors among high school students," Ph.D. dissertation, Dept. Educ. Leadership, Northeastern Univ., Boston, MA, USA, 2015.
- [69] S.-S. Han, J. Kim, Y. S. Kim, and S. Ahn, "Validation of a Korean version of the moral sensitivity questionnaire," *Nursing Ethics*, vol. 17, no. 1, pp. 99–105, 2010.
- [70] D. F. Polit and C. T. Beck, "The content validity index: Are you sure you know what's being reported? Critique and recommendations," *Res. Nursing Health*, vol. 29, no. 5, pp. 489–497, 2006.
- [71] W. D. Hendricson, I. J. Russell, T. J. Prihoda, J. M. Jacobson, A. Rogan, and G. D. Bishop, "An approach to developing a valid Spanish language translation of a health-status questionnaire," *Med. Care*, vol. 27, no. 10, pp. 959–966, 1989.
- [72] F. Guillemin, C. Bombardier, and D. Beaton, "Cross-cultural adaptation of health-related quality of life measures: Literature review and proposed guidelines," *J. Clin. Epidemiol.*, vol. 46, no. 12, pp. 1417–1432, 1993.
- [73] A. L. Comrey and H. B. Lee, *A First Course in Factor Analysis*. London, U.K.: Psychology Press, 2013.
- [74] R. D. Wimmer and J. R. Dominick, *Mass Communication Research: An Introduction*. Belmont, CA, USA, 2006.
- [75] J. W. Creswell, *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*. Newbury Park, CA, USA: Sage, 2017.
- [76] J. F. Hair, Jr., G. T. M. Hult, C. M. Ringle, and M. Sarstedt, *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Newbury Park, CA, USA: Sage, 2016.
- [77] P. M. Bentler and W. Huang, "On components, latent variables, PLS and simple methods: Reactions to Rigdon's rethinking of PLS," *Long Range Planning*, vol. 47, no. 3, pp. 138–145, 2014.
- [78] J. Henseler, T. K. Dijkstra, M. Sarstedt, C. M. Ringle, A. Diamantopoulos, D. W. Straub, and R. J. Calantone, "Common beliefs and reality about PLS: Comments on Rönkkö and Evermann (2013)," *Organizational Res. Methods*, vol. 17, no. 2, pp. 182–209, 2014.
- [79] Z. Awang, A. Afthanorhan, and M. A. M. Asri, "Parametric and non parametric approach in structural equation modeling (SEM): The application of bootstrapping," *Mod. Appl. Sci.*, vol. 9, no. 9, p. 58, 2015.
- [80] J. C. Nunnally and I. H. Bernstein, *Psychometric Theory*. New York, NY, USA: McGraw-Hill, 1992.
- [81] R. B. Kline, *Structural Equation Modeling*. New York, NY, USA: Guilford Press, 1998.
- [82] D. Gefen, D. Straub, and M. C. Boudreau, "Structural equation modeling and regression: Guidelines for research practice," *Commun. Assoc. Inf. Syst.*, vol. 4, no. 1, p. 7, 2000.
- [83] G. M. Sullivan and R. Feinn, "Using effect size—or why the P value is not enough," *J. Graduate Med. Educ.*, vol. 4, no. 3, pp. 279–282, 2012.
- [84] C. Fornell and D. F. Larcker, *Structural Equation Models With Unobservable Variables and Measurement Error: Algebra and Statistics*. Los Angeles, CA, USA: SAGE, 1981.
- [85] W. W. Chin, "The partial least squares approach to structural equation modeling," *Mod. Methods Bus. Res.*, vol. 295, no. 2, pp. 295–336, 1998.
- [86] N. Urbach and F. Ahlemann, "Structural equation modeling in information systems research using partial least squares," *J. Inf. Technol. Theory Appl.*, vol. 11, no. 2, pp. 5–40, 2010.
- [87] J. Cohen, *Statistical Power Analysis for the Behavioral Sciences*. Evanston, IL, USA: Routledge, 2013.
- [88] D. Gefen, E. E. Rigdon, and D. Straub, "Editor's comments: An update and extension to SEM guidelines for administrative and social science research," *MIS Quart.*, vol. 32, no. 2, pp. 1–14, 2011.

**NORAH BASHEER ALOTAIBI** received the bachelor's and master's degrees (Hons.) in social work from Princess Nourah bint Abdulrahman University, Riyadh, in 1420 and 1427 A.H., respectively, the Ph.D. degree in social work from King Saud University, Riyadh, in 1436 A.H., and the Diploma degree in family counseling. Her master's thesis is Planning for developing the Social Welfare Services Provided to Female Prisoners in Saudi Society. Her Ph.D. thesis is the Partnership between the Private Sector and Non-profit Organizations within the Social Responsibility.

As an Academician, she has long work experience; for example, she was a Social Monitoring Officer with the Foundation of the juvenile Girls' Welfare, Ministry of Social Affairs, previously located in Riyadh, from 1424 to 1425 A. H. She also supervised the students' training of social work in the fields of development, prisons, schools, social, and medical fields. She also participated in the program of training and continuous education on the job at Women's Prison, Riyadh. She was the Director of the Internal and External Relations, Princess Nourah bint Abdulrahman University, for girls, from 1429 to 1430 A.H. She was also a Family Counselor and the Director of the programs and courses with the Hulul Center for Consulting and Training Services for one year. She was also the Director of the Female Section for the Committee of the Welfare of the Prisoners and those who are released and their families in Riyadh, from 1428 to 1430 A.H. She was a Family Counselor with the Wa'ee Center for Social Consultations and has been an affiliate of the Wa'ee Association for social rehabilitation, since 1430 A.H. She was also the Head of the Drug Prevention Research Unit, Center of Promising Research in Social Research and Women's Studies, in 1439 and 1440 A.H. She has also been a Former Social Counselor with the Social Guidance Center, Ministry of Social Affairs for four years and a Volunteer Consultant with the Human Development Center for Family Counseling. She is currently an Assistant Professor of social planning with the Faculty of Social Work, Social Service College, Princess Nourah bint Abdulrahman University. She is also a member of the Teaching Staff and the Department Head of social planning with the Faculty. She also attended and presented a paper in the second symposium of reform and rehabilitation in the reform institutions (prisoner and society), held in 1428 A.H. at the King Faisal Hall for Conferences, Riyadh. She presented a lecture and conducted a workshop in the course of Developing the Professional Performance of Social Workers in the Kingdom's Prisons held by the College, in 1428 A.H. Furthermore, she published a book *Social Welfare Services in Women's Prison from Planning and Development Perspective* which is one of the publications of the Prince Naif Arab University for Security Sciences.

She has been an Active Social Worker and is a member of many social associations such as the Saudi Society for Social Studies, the Saudi Society for Sociology and Social Service, Wa'ee Association for Social Rehabilitation, the Association of Autism Families, and the Society of Movement Disability for Adults. She also participated in many committees, to mention but a few, the personal interviews committee for female students in the university housing, from 1438 to 1439 A.H., the disciplinary committee and the disciplinary councils for female students, from 1439 to 1440 A.H., and the Academic Accreditation Committee, from 1439 to 1440 A.H.

...