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# **Factors Influencing Intentions to Teach Online Among Physical Therapy Faculty in Saudi Arabia from Faculty Perspectives of View**

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## **Factors Influencing Intentions to Teach Online.....**

**This study investigated the intention to teach online courses among physical therapy faculty in Saudi Arabia the theory of planned behavior was used to predict intentions based on attitude, subjective norm, and perceived control. Gender, years of teaching experience, and the numbers of online courses previously taught were analyzed. A sample of 103 faculty members teaching in physical therapy programs in Saudi Arabia was recruited. The results showed that attitudes and subjective norms significantly influenced the intention to teach online courses. Academic rank was statistically significant. There was not a statistically significant gender difference. The participants of this study had positive attitudes as well as subjective norms; therefore, we highly recommend physical therapy programs in Saudi Arabia to promote online teaching method. For future studies, we suggest looking at application of online teaching on both faculties and students.**

**Keywords: Physical therapy, online education, online technology, medical education**

**العوامل المؤثرة في نوايا التدريس عبر الإنترنت بين كليات العلاج الطبيعي في  
المملكة العربية السعودية من وجهة نظر أعضاء هيئة التدريس**

**د/ عادل الشهراني**

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قسم تقنيات التعليم - كلية التربية      قسم العلاج الطبيعي - كلية العلوم الطبية التطبيقية  
جامعة الملك خالد

بحثت هذه الدراسة في نية تدريس الدورات عبر الإنترنت بين أعضاء هيئة التدريس في العلاج الطبيعي في المملكة العربية السعودية، واستخدمت نظرية السلوك المخطط للتنبؤ بالنوايا بناءً على الموقف والمعايير الذاتية والتحكم المتصور وقد تم تحليل عامل الجنس، وسنوات الخبرة في التدريس، كذلك عدد الدورات التي سبق تدريسها عبر الإنترنت، وتم اختيار عينة من (١٠٣) عضو من أعضاء هيئة التدريس الذين يدرسون في برامج العلاج الطبيعي في المملكة العربية السعودية. أظهرت النتائج أن المواقف والأعراف الشخصية تتأثر بشكل كبير بنية تدريس الدورات عبر الإنترنت. كانت المرتبة الأكاديمية ذات دلالة إحصائية. لم يكن هناك فرق ذات دلالة إحصائية بين الجنسين. كان لدى المشاركين في هذه الدراسة مواقف إيجابية بالإضافة إلى معايير ذاتية؛ لذلك يوصى الباحثان بشدة ببرامج العلاج الطبيعي في المملكة العربية السعودية لتعزيز أسلوب التدريس عبر الإنترنت. بالنسبة للدراسات المستقبلية، نقتح النظر في تطبيق التدريس عبر الإنترنت لكل من الكليات والطلاب.

**الكلمات المفتاحية: العلاج الطبيعي، التعليم عبر الإنترنت، التكنولوجيا**

**الإلكترونية، التعليم الطبي**

## **Introduction**

Saudi Arabia has slowly progressed toward e-learning in formal education, and many obstacles have delayed the transition, such as problems with teaching quality, instructional delivery, and learning outcomes.<sup>1,2</sup> However, online teaching remains the chosen path of many universities in Saudi Arabia. Although the online environment is not optimal for teaching and learning clinical skills, information-based courses can effectively be taught online.<sup>1</sup>

Mastering physical therapy (PT) combines application of theory and practical skill to enhance health and help reduce physical disability, pain, and immobility. PT also helps to prevent various diseases and disabilities by applying certain modalities and manipulations. Most of the PT programs at Saudi universities use traditional classroom formats to deliver lectures and some universities offer online classes during the general education period (that are unrelated to PT).<sup>3</sup> The typical PT programs at Saudi universities are classroom-oriented four-year programs plus one-year internships. However, some programs are four and one-half years in the classroom with six-month internships. The first year usually is a preparatory year of courses in English as a second language, humanities, mathematics, and other general education requirements. During the second year, students begin to focus on PT through introductory PT, anatomy, and physiology courses. During the third and fourth years, students have opportunities for clinical experience while taking advanced PT courses. Then, they move into the internship period to apply the clinical skills they learned in the classroom to patients under the direct supervision of a preceptor.<sup>3</sup> This study explored PT faculty members' intentions to teach courses online instead of in the classroom.

## **Theoretical framework**

Using online platforms for healthcare education is rapidly increasing because it supports relatively easy access to content, lifelong learning, and it develops self-learning skills.<sup>4</sup> A simple definition of “e-learning” is that it is the use of the internet for educational purposes. However, e-learning is more than converting content into an electronic format; it incorporates a pedagogical tactic aiming to engage learners and

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enhance their self-learning skills through their collaboration and interaction with other online learners.<sup>2</sup> Previous studies on online learning in healthcare education (including PT) have suggested that it is an effective and widely accepted way to enhance learning.<sup>5-7</sup> However, integrating online learning in healthcare programs depends on several factors, one of which is faculty intentions to teach online classes.

This study employed Ajzen's theory of planned behavior (TPB) to explain PT faculty intentions to teach online classes.<sup>8</sup> The TPB is a widely used approach to understanding human behavior by predicting intentions to engage in specific behaviors. TPB defines intentions as "the motivational factors that influence a behavior; they are indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior."<sup>8(p181)</sup> It argues that the intention to perform any action is determined by the attitude toward undertaking the action, the subjective norms involved, and perceived behavioral control. Individuals with strong intentions to act in a specific way are more likely than those with weak intentions to do so. The initial relationship is the extent of a positive or negative attitude toward the behavior, followed by the influences of subjective norms, meaning the extent to which the individual approves or disapproves of the behavior. Third, perceived behavioral control, which is individual perceptions of the ease or difficulty of engaging in the behavior, influences intention.

## **Methodology**

PT faculty members of various nationalities working throughout Saudi Arabia were invited to participate in study. A survey instrument was used to collect data. The participants were select randomly. The sample of 103 included 9 demonstrators (bachelor's degrees), 53 lecturers (master's degrees), 35 assistant professor, 3 associate professor, and one full professors. The participants were recruited through social media and email by providing an explanation of the study's objectives. Online recruitment was used because the population of possible participants were scattered throughout Saudi Arabia or were out of the country in graduate school in Australia, United Kingdom, or United States.

A five-part questionnaire was administered adapted from Ajzen.<sup>8</sup> The items covered personal information, attitudes toward online learning,

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norms, perceived control, and intention to use online teaching. This survey was suitable only for PT program faculty members currently working at Saudi universities, including those who were abroad for educational purposes. All nationalities were accepted, and clinical as well as academic settings were including.

### ***Research questions***

- (1) Do faculty members' attitudes, subjective norms, and perceived control influence the intention to teach online courses?
- (2) Do male and female faculty members differ in the intention to teach online courses?
- (3) Do faculty members' numbers of years of experience, numbers of online courses previously taught, and academic ranks influence the intention to teach online courses?

## **Results**

### ***Sample characteristics***

Slightly more than one-half ( $n = 55$ , 53.4%) of the participants had taught for one to five years, followed by about 22.3% ( $n = 23$ ) with 6 to 10 years of teaching experience. About 14.6% ( $n = 15$ ) had 11 to 15 years of experience and just seven (6.8%) of the participants had 16 to 20 years of experience. One participant (1 %) had more than 21 years of experience. Regarding academic rank, the majority was lecturers ( $n = 53$ , 53.4%), about one-third was assistant professors ( $n = 35$ , 34%), nine (8.7%) were teacher assistants, three (2.9%) were associate professors, and one participant (1%) was a full professor. The participants were asked about the number of online courses they had taught. The vast majority reported never having taught online ( $n = 94$ , 91.3%), others ( $n = 7$ , 5.8%) had taught between one and five online courses, two participants (1.9%) had taught more than 11 online courses, and one participant (1%) had taught one online course. The most common specialty was orthopedics ( $n = 38$ , 36.9%), followed by neuroscience ( $n = 16$ , 15.5%), biomechanics ( $n = 12$ , 11.7%), pediatrics ( $n = 11$ , 10.7%), cardiopulmonary medicine ( $n = 10$ , 9.7%), basic science ( $n = 7$ , 6.8%), vestibular rehabilitation ( $n = 5$ , 4.9%), and the spine ( $n = 4$ , 3.9%). About two-thirds of the sample was Saudi ( $n = 67$ , 65%), followed by

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Egyptians ( $n = 16, 16\%$ ), 13 (12.6%) Indians, and four (3.9%) Jordanians.

***Instrument reliability***

Cronbach’s alpha was computed to assess the reliability of the instrument, which was 0.92. Table 1 shows the constructs and items with the Cronbach’s alpha coefficient.

**Table 1**  
**Survey item Cronbach’s alpha coefficient**

<b>Constructs</b>	<b>Corresponding Items</b>	<b>Alpha</b>
<b>Attuites</b>	<b>1-9</b>	<b>.74</b>
<b>Subjective norm</b>	<b>10-19</b>	<b>.61</b>
<b>Perceived control</b>	<b>20-29</b>	<b>.89</b>
<b>Intention</b>	<b>30-35</b>	<b>.87</b>
<b>Overall</b>	<b>35</b>	<b>.92</b>

***Research Question One***

The first research question was: “Do faculty members’ attitudes, subjective norms, and perceived control influence the intention to teach online courses?” The intention to teach online was regressed on attitudes, subjective norms, and perceived control. Table 2 shows that the overall model significantly explained variation in intention to teach online courses ( $F(3, 99), p < .000, R^2 = .269$ ). About 50.6% of the variance in intention to teach online was explained by attitude, subjective norm, and perceived control. Table 3 shows the regression coefficients indicating that attitude significantly influenced intention to teach online courses. The assumptions multiple regression (normality of residual, multicollinearity and homoscedasticity ) were investigated, and all of them were satisfied. Figure 2 is a histogram of the residual values of intention to teach online courses.

**Table 2**  
**ANOVA of Regression Model for Intention Variable ( $n = 103$ )**

<b>Model</b>	<b>Sum of square</b>	<b>df</b>	<b>Mean square</b>	<b>F</b>	<b>Sig</b>
<b>Regression</b>	<b>26.9</b>	<b>3</b>	<b>8.9</b>	<b>33.8</b>	<b>.00</b>
<b>Residual</b>	<b>26.2</b>	<b>99</b>	<b>.265</b>		
<b>Total</b>	<b>53.1</b>	<b>102</b>			

**Table 3**

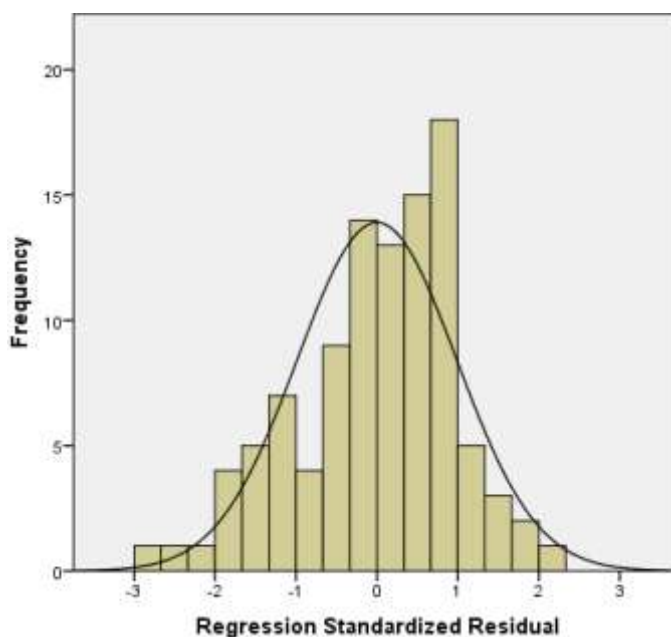
**Summary of regression coefficients for the impact of faculty attitude, subjective norm, and perceived control on their intention**

<b>Variables</b>	<b>B</b>	<b><math>\beta</math></b>	<b>Sig</b>
<b>Constant</b>	<b>5.6</b>		<b>.00</b>
<b>Attitude</b>	<b>-.07</b>	<b>-.58</b>	<b>.00</b>
<b>subjective norm</b>	<b>-.01</b>	<b>-.17</b>	<b>.05</b>
<b>perceived control</b>	<b>-.05</b>	<b>-.00</b>	<b>.96</b>

Note. \*p < 0.05

**Figure 1**

**Histogram of the residual values of intention variable**



**Research Question Two**

The second research question was: “Do male and female faculty members differ in the intention to teach online courses?” A multiple regression analysis was performed to test the effects of participants’ years of experience, academic ranks, numbers of online courses previously taught, and specialty on intention to teach online courses. Table 4 shows that the overall regression model did not significantly explain variation in intention to teach online courses ( $F(4, 98) = 1.7, p = .13, R^2 = .068$ ). As shown in Table 5, academic rank significantly



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influenced intention to teach online courses. The assumptions multiple regression (normality of residual, multicollinearity and homoscedasticity) were investigated, and all of them were satisfied.

**Table 4**  
**ANOVA of Regression Model for Intention Variable (n = 103)**

Model	Sum of square	df	Mean square	F	Sig
Regression	3.6	4	.90	1.7	.13
Residual	49	98	.50		
Total	53	102			

Note. \*p < 0.05

**Table 5**  
**Summary of regression coefficients for the impact of faculty attitude, subjective norm, and perceived control on their intention**

Variables	B	$\beta$	Sig
Constant	2.6		.00
Years of experience	.12	.19	.07
Number of online courses taught previously	.09	.06	.53
Academic ranking	-.23	-.23	.03
PT specialty	.02	.12	.10

Note. \*p < 0.05

***Research Question Three***

Research question three asked: “Do faculty members’ numbers of years of experience, numbers of online courses previously taught, and academic ranks influence the intention to teach online courses?” An independent samples *t*-test was used to test whether males and females differed in their intentions to teach online courses. No significant gender difference was found ( $t = 37.2, p = .449$ , Table 6).

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**Table 6**  
**Independent t-test results of gender differences**

Intention	Equal variances assumed	F	Levene's Test for Equality of Variances Sig	t	df	Sig. (2-tailed)	Mean Difference
			.57	.449	-.002	101	.999
	Equal variances not assumed			-.001	37.23	.999	-.00026

**Discussion**

This study investigated the intentions of PT faculty members to teach online courses compared to traditional classes. The results found that the overall model significantly predicted intentions to teach online. The findings supported those of previous studies about individual characteristics and online teaching.<sup>10-14</sup> However, the present study further examined factors that might influence the adoption of online teaching. The strongest influences were attitude and subjective norm, but perceived control did not significantly contribute to the model. One reason that perceived control had no significant effect might be the respondents' perceptions of online teaching if they get proper training to enhance their online teaching skills. According to the TPB,<sup>8</sup> perceived control is about the perception of the ease or difficulty of performing the targeted behavior. As the perception that the numbers of resources, knowledge, and opportunities increase and the numbers of obstacles or impediments decrease, the perception of one's control over a behavior increases.

Academic rank and PT specialty significantly influenced attitudes, subjective norms, and perceived control, suggesting that, if the opportunity to teach a specific specialty, the faculty members are more likely to participate in online teaching in the future. For example, manual therapy classes need more hands-on training and faculty members will not be able to deliver the needed skills through online classes. However, courses with big chunk of theoretical content can be delivered via online instructions. This result suggests that educational institutions might

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benefit by offering courses or practical opportunities to engage in online teaching.

The questionnaire data provided further insight regarding factors that influence faculty members' intention to teach online. The participants mentioned aspects of the internet, such as remote access, real-time availability, and rich resources, as the main reasons they considered teaching online. Another main reason for intending to teach online related to administrative factors, such as student demands, university requirements, and costs. In sum, technological advancements and administrative factors were the two main influences on the participants' intentions.

Although technological advancements and administrative factors might matter to participation in online teaching, the qualitative data revealed factors that might discourage intention to participate in online teaching. First, instructional support focuses on designing learning activities that meet pedagogical needs and effective assessments for learning outcomes. The goal of online teaching is to promote learning and to facilitate instructors' and students' online experiences. Many of the respondents indicated a need for instructional support in online teaching in addition to the computer technical assistance they received. Many of them noted that training in relevant instructional design strategies and pedagogies would likely increase the adoptability and sustainability of online teaching. They further indicated that educational institutions should give equal attention to technical training in online teaching.

Second, there might be insufficient design and development opportunities during the respondents' programs of study. Some respondents indicated that the most common learning activity involving online teaching was studying the ways that an online course was delivered. Apparently, online courses need more emphasis during graduate school to ensure that students interested in online teaching have sufficient learning and training opportunities. Similarly, the respondents mentioned a need for effective instructional strategies. They indicated that most online teaching designs were based on traditional classroom instructional models, and they assumed that the online courses' learning outcomes would be the same as classroom courses' learning outcomes.

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Some respondents favored the development of instructional models tailored to a variety of online delivery formats. This is particularly pertinent because new technologies are continuously being introduced. Instead of modifying classroom models to fit online platforms, researchers should focus on how learning online happens and develop new theories and models for online teaching.<sup>2,15</sup>

### **Availability of data and material**

The data that support the findings of this study are available on request from the corresponding author AQ. The data are not publicly available due to participant privacy.

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