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A Model of E-Learning through Achievement Motivation and Academic Achievement among University Students in Saudi Arabia

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Abstract: In relation to E-learning, achievement motivation is the persistent drive that students have to succeed to a particular degree of quality in a competitive environment. Goals, task values, ability self-concepts, and achievement motives are only a few of the many diverse constructions that make up achievement motivation, which is not one single construct. According to the few studies that have looked at different motivation constructs as predictor variables of university students' academic achievement well beyond cognitive abilities and achievement motivation, most motivational constructs predicted educational success beyond intelligence, and students' ability self-concepts as well as task morals are more potent in predicting their achievement than goals and achievement motives. However, an effort was made in this study to examine the impact of academic achievement motivation on university students inside the Kingdom of Saudi Arabia. The purpose of the current study was to investigate the variables that influence motivation for achievement. It was predicted that these variables include ability, effort, perseverance, responsibility, the viewpoint of the teacher, and tasks. The major data collection strategy used by the researchers to accomplish their research goal involved distributing a questionnaire to 248 students. Structural equation modeling (SEM), a quantitative research technique, was used to produce the results. Because all of the criteria were significantly correlated in this study, it can be concluded that the tasks assigned to students and the perspective of the teacher both contribute to students' motivation for achievement. The significance of the findings for studying motivational constructs with various theoretical underpinnings and structural models is highlighted. The associations among all hypotheses were investigated using the following variables based on the suggested model: aptitude, efforts and persistence, duties, the teacher's viewpoint, and tasks.

Keywords: achievement motivation; academic achievement; higher education; structural equation modeling (SEM)



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1. Introduction

Success is a mission behavior that allows performance to be evaluated in relation to some internally or externally imposed standard that includes the person competing against or in relation to some level of excellence [1]. Achievement motivation is required for success, which is a prerequisite. It is a strong motivator marked by ambition, a lot of energy, and a strong sense of independence [2]. It is a dependable, taught trait where fulfillment derives from aiming for and attaining a standard of excellence.

The foundation of achievement motivation is success and achieving all of one's life goals. The need to demonstrate competence is represented by the achievement goal, which might influence the individual performing a task [3,4]. Bakhtiarvand et al. [5] looked into how achievement motivation affected the correlation between 200 students' academic performance and their learning strategy. The study's conclusions showed that achievement motivation impacted the association between learning strategies and academic success.

The results also showed that motivation had to have an indirect effect on how learning strategies and academic achievement interacted [6].

Sakiz [7] claims to have investigated the relationships between Turkish college students' academic self-efficacy beliefs, achievement method goal orientations, and academic help-seeking behavior. The findings revealed that mastery approach orientation is significantly and positively related to academic achievement among college students, whereas the effect of academic performance goal orientation is significantly and negatively related. The achievement motivation of college students was examined by Krou et al. Postgraduate students carried it. The study's conclusions demonstrate that the majority of postgraduate students were generally motivated learners. This age group accounts for the vast majority of students. Female respondents make up a large portion of the pupils with average achievement motivation, and they tend to reside in urban regions. College students' drive for achievement varied significantly depending on gender [8,9]. E-learning refers to a student's capacity to successfully navigate routine, everyday academic problems that are not catastrophic [10,11].

Although prior research has shown that adolescent students' remote learning is associated with the best results, they occasionally experience cyberstalking and bullying [12,13]. However, little research has been done to determine why distance learning can predict motivation for achievement. Academic success is known to be heavily influenced by achievement motivation because it energizes and guides behavior toward achievement [14]. Achievement motivation is not really a single construct; rather, it encompasses a number of diverse structures, including objectives, task values, motivational beliefs, and achievement motivations [15,16]. There are, however, only a few studies that (1) examined various motivational components in relation to students' student ability in one sample and (2) also took into account students' cognitive capacities and prior success with assignment values [17,18].

When analyzing the significance of motivating factors for students' achievement, it is essential to take into account students' cognitive ability and prior achievement because they are two of the best single indicators of academic achievement [19,20]. However, the study did not concentrate on evaluating the academic achievement of university students inside the Kingdom of Saudi Arabia, achievement motivation, or the psychological validity of remote learning. In order to improve academic achievement among higher education students, this research intends to create a model to analyze the effectiveness of distance learning and achievement motivation.

1.1. E-Learning and Academic Achievement in Saudi Arabia

All universities in the Kingdom of Saudi Arabia (KSA) can now provide distance learning programs because of advances in technology [21,22]. In order to facilitate remote learning and offer a particular training program for instructors and students, the majority of universities made a significant investment in a sizable staff of specialists. Distance education has been provided using learning management systems, which employ a variety of technology tools that enhance learning interactions, such as teleconferencing, discussion boards, threads, or pre-recorded films [23,24]. However, it is uncertain how this last-minute change would affect students' confidence in their ability to succeed at correspondence courses in Saudi Arabian universities. Teachers speaking in a classroom setting, students attending, taking notes, asking questions, and receiving answers to those questions have traditionally been the cornerstone of a traditional school degree [25].

The growth of communication technologies, such as the phone, radio, TV, and most recently the internet, has led to the emergence of new systems of learning, including open and E-learning [26]. By simply hitting a few buttons on a computer, students can now immediately obtain instruction and learn at home while listening to professors who are located thousands of miles away, communicate with the professor, and ask questions without actually being in a classroom context [27].

The delivery of education via E-learning has changed from being “anywhere” to being “anytime,” despite being a more costly choice in terms of setup [28]. A form of education known as “remote learning,” sometimes known as “E-learning,” “e-learning,” “mobile learning,” or “online learning,” involves keeping students and teachers physically apart while they are teaching and studying. Furthermore, it is a mode of instruction that effectively uses a range of tools and technologies to enhance student learning (10) and to facilitate clear communication between students and professors (as well as among students themselves) [29].

The absolute minimum technical components of effective E-learning are the purchase of hardware such as a computer, a smart phone (cell phones), a webcam, some sort of listening device, teleconferencing programs such as WebEx or Zoom, Microsoft Windows as well as Apple operating systems, and consistent internet access with a speed of around 56 kbps (56,000 kbps) or greater [30]. Many schools all throughout the world started implementing remote learning technologies, such as mobile learning tools, during COVID-19 [31]. Many schools in Saudi Arabia have used websites as a remote study aid since the Saudi authorities chose to shut down all schools during the COVID-19 epidemic [32].

Platform is an online classroom that teachers and their students may use on laptops and smartphones to continue learning throughout the COVID-19 pandemic. Teachers can post all course materials, exercises, homework, and quizzes using the site. On the other hand, students can use the platform to access the virtual classrooms, communicate with the teachers during the course, download the course materials, and turn in their homework. In universities, E-learning is a distance learning platform that supports the learning and teaching processes at all educational levels with a variety of characteristics.

Additionally, it aids in attaining the curriculum’s instructional objectives and lesson plans [33]. The teaching and learning process is supported by a set of educational technologies included in E-learning. It is a virtual classroom where students and teachers can connect at the same time through online sessions or whenever it is most convenient for them through recorded courses [34,35]. The platform also has great tools for facilitating collaboration between students and teachers, including email services, teams, and several routes for contact between students, teachers, and parents [36].

1.2. Sustainability and E-Learning

The growing prevalence of technology in everyday life draws attention to the growing significance of distance education in higher education. Researchers have expressed a lot of interest in E-learning [37,38]. This is because it has the power to reinvent education and increase its accessibility to a wider audience. Higher living standards could be provided by spreading education to a larger population. Higher education now frequently includes E-learning [39]. It eliminates the barriers to education posed by space and time and offers more opportunities for learning to more people [40]. As a result, E-learning is effective, efficient, affordable, and long-lasting [41]. Many academics believe that E-learning represents a digital revolution and a major advancement in education [42]. By offering a cutting-edge virtual environment, it improves the learning process and raises student satisfaction levels [43].

E-learning fosters information exchange and offers learning chances to underprivileged and remote populations [44]. Moreover, it promotes communication between educators and students as well as between instructors and learners, while also offering a setting and resources that encourage innovation and creativity [43]. Success in E-learning is greatly influenced by a variety of factors, including the learning environment, instructional strategies, learning resources, and learning objectives. Artificial intelligence, big data, and cloud computing have all been used to accelerate the development of remote learning environments, which now offer better learning conditions for online learning [45].

A smart learning environment is a location or setting that uses data capture and automated assessment of the entire process to successfully support student learning by identifying student characteristics to help them use the most relevant tools and resources [11]. The

academic performance and learning outcomes of students are improved by mobile smart terminals, digital learning resources, and intelligent educational environments [11]. The development of an advanced technology-based E-learning environment provides greater support to address the unique demands of students [46], boosts their learning satisfaction, and advances their academic performance [11]. High-quality support for remote learning is provided by intelligent physical sensing characteristics, individualized recommendations, and other pertinent elements [47].

Since the development of digital technology in the 21st century, human–computer interaction in a virtual educational environment has helped learners’ experience great teaching and learning methodologies [48]. Learner satisfaction and learning effectiveness are closely tied to intelligent engagement, an essential factor that influences the quality of online courses [48]. Therefore, an E-learning environment is necessary to foster online learning competence and obtain exceptional academic results. In such a digital age, research, however, rarely focuses on intelligent learning environments.

1.3. Background Problems of E-Learning in Saudi Arabia

More recently, the COVID-19 epidemic and its several waves have compelled several educational institutions to switch from in-person instruction to distance learning. The transition to distance learning has presented challenges for some students, including a lack of technical help, family support, technological and internet issues, high internet fees, and the need to buy digital gadgets [49–51]. The many OL styles have ultimately resulted in various mental health issues, hazards, and threats because of their isolation and tensions around their futures [52,53].

Additionally, the kids’ eyesight issues and lack of achievement motivation from spending so much time staring at displays up close have a severe impact on their academic performance [54]. Saudi Arabian secondary school students suffered modest levels of stress, whereas university students had significantly higher levels of achievement during the COVID-19 pandemic [55].

Achievement is quite prevalent among college students, especially among females, and it affects their entire performance, as well as their mental and physical health. Furthermore, the COVID-19 epidemic has impacted every part of their everyday lives by causing severe levels of psychological suffering. Junior Saudi Arabian pupils typically face greater achievement risk [56]. However, first-year students, both male and female, have suffered the most from low achievement motivation [57].

One of these novel and difficult emerging approaches was E-learning, which was a combination of various methods. Adopting online learning can alleviate the academic staff deficit, scale pedagogical reform, and increase graduate career possibilities, among other advantages [58]. The absence of a single definition for E-learning presents another difficulty for academia in general. This problem may be seen in defining most E-learning terminologies and concepts, as well as in determining their levels [59].

The basic tenet of open and E-learning, which is currently recognized as an overarching concept [60], is the use of technologies to increase the design, production, delivery, and assessment of learning systems and curriculum items. The issue at hand is not just one of jargon or an intellectual puzzle; it is also linked to a number of other problems and difficulties that relate to the knowledge base, the culture of E-learning, and practice, such as determining the degree of development made toward a way away from having to learn about environment and organization. To achieve desired learning and teaching quality, there is undeniable interest in systemic change and E-learning processes [61]. The most recent incident has led many higher education institution (HEI) stakeholders to see implementing an E-learning method in their organizations as a necessary option and a tactic that has changed and is still changing the educational paradigm.

To progress and be effective in all of its phases and activities, the institution’s senior administrative and academic staff must actively promote this shift in thinking, like in any other company [62]. The latter circumstance forced and still forces the majority, if

not all, HEI to invest in their operations and equip their educational systems with E-learning technologies. Although E-learning was initially used as a teaching aid, over time the situation became more than adequate. It is clear from the foregoing that there are difficulties in the adoption of remote learning that must be effectively overcome throughout the implementation and administration of such projects [63]. The measurement of how adoption influences HEI results, or the performance of graduates, continues to be one of the most fundamental issues.

This demonstrates how crucial it is to take financial factors into account when putting E-learning into practice [64], especially when there are one-time expenditures and various continuing, recurring costs involved in running, securing, maintaining, and updating such systems. There are a number of questions as to whether implementing E-learning will satisfy end users, students, or academic staff. Additionally, in relation to specific remote learning techniques [65] and from the perspectives of various stakeholders, the degree of overall adoption and general satisfaction could be analyzed and evaluated. Together, these problems tested us and assisted us in designing the appropriate research to assess the state of distance education in Saudi Arabia and move to higher levels.

2. Theoretical Model and Hypotheses

This study has highlighted six key aspects of online learning: aptitude, perseverance, responsibilities, the teacher's viewpoint, tasks, and achievement incentives. We approach motivation from a social cognitive perspective [66–68]. This method places a strong emphasis on the significance of students' ideas and how they understand actual occurrences, as well as the significance of the achievement environment for motivating factors [66,68,69]. A variety of incentive constructs can be grouped into two general categories in social cognitive models of academic achievement, such as expectancy-value theory [68] and the hierarchical model of academic achievement [67]. These constructs include students' "beliefs regarding their capacity to perform a task," also known as expectancy components (such as capacity self-concepts and self-efficacy), and their "learning motivation about one's rationale for selecting to do a task," also known as v (e.g., task values).

There is a wealth of research on motivation structures that falls under these categories [68]. The ability self-concepts of students (which fall under the category of "expectancy components of motivation"), as well as their task values and goal orientations, are the main topics of this article (from the category "value components of motivation"). The socially cognitive perspective asserts that students' motivation is mostly situational or contextual [66]. We also consider a classic personality theory of human motivation, the idea of achievement motivation [66], which conceptualizes students' motivation as a generally stable attribute, in order to obtain a complete picture of the relationship between students' encouragement and their academic achievement. In this paper, we therefore take into account students' capability self-concepts, task values, and achievement goals in addition to the achievement motivations of hope for achievement and fear of failure. We go into greater detail about the incentive constructs in the sections that follow, see Figure 1.

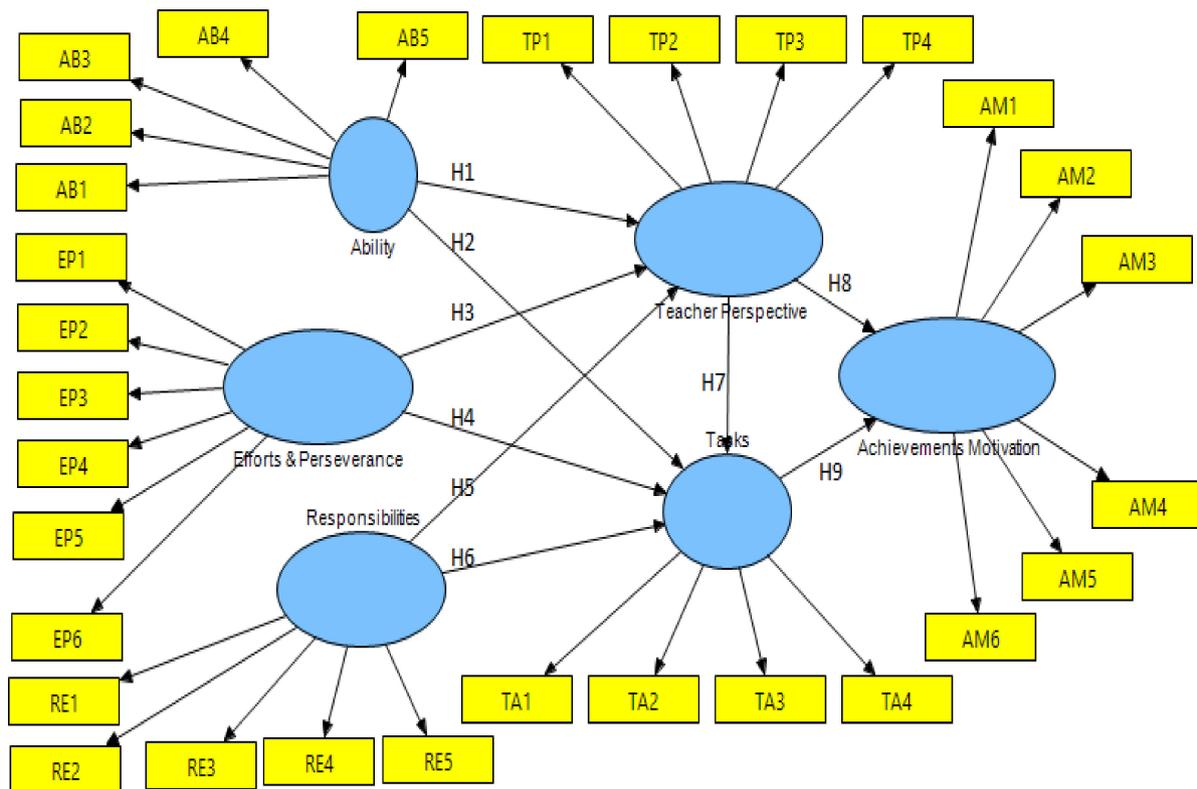


Figure 1. Research model.

2.1. Ability

The definition of students' ability self-concepts is related to their level of ability [70,71]. As early as kindergarten, ability self-concepts were shown to be domain-specific [72]. The relative supremacy of ability is consistent with the literature on the subject that is currently available [73] and with innumerable studies that have examined the relationships between students' ability and their achievement [74]. The proportional weights of ability self-concepts were much larger than those of the comparable intelligence scores. While several earlier studies [75,76] revealed that IQ and ability are at most equally significant for predicting students' grades, conceptually, motivation for success and perceptions of one's own abilities are intimately intertwined. People who are confident in their abilities frequently exhibit a stronger expectation of success than dread of failure, and the opposite is also true [76].

According to [77], it is now more crucial than ever for an E-learning system to be able to recognize a student's preferred learning style. The development of E-learning has given students more online opportunities for learning events. Similarly, investing in necessary ICT infrastructure and equipment to improve the institution's ability to provide students with E-learning education is a successful strategy [78]. On the basis of that, this study puts forth the following hypotheses:

Hypothesis 1 (H1). *The viewpoint of the teacher is positively influenced by ability.*

Hypothesis 2 (H2). *Tasks are positively impacted by ability.*

2.2. Perseverance of Efforts

Long-term goals must be pursued with persistence and consistency [79]. Consistency of interest reflects enthusiasm and dedication toward long-term goals, whereas persistence of effort represents persistent work toward long-term objectives despite the existence of setbacks. The association between the strong mentality of educational motivation and job

involvement may be moderated by persistence of effort. Numerous studies have found a connection between a growth mindset and effort and persistence. According to research from [80,81], a growth mindset in having to learn motivations predicted grit as well as self-motivation, which mediated this connection among many Chinese students.

For example, ref. [80] discovered a link between strong mentality and effort, and they defined growth mindset as “related to a preference for progress signals emphasizing learning and improvement.” The meta-analysis conducted by Burnette et al. [82] also showed that theories influenced the self-regulatory mechanism, which in turn predicted persistence in effort and goal attainment. It was claimed that the growth mindset of students’ learning motives was positively associated with their school engagement because they considered effort as one of the most efficient ways to increase their ability, intelligence, motivation, and experiences.

Students with a “growing” persistence believe that they can improve their ability via hard work and effort, whereas kids with a “fixed” persistence believe that their performance is present and changeable regardless of ability or perseverance [83,84]. Additionally, teachers can subtly utilize language to influence students’ perceptions of their own skills and further spur them on to success [81]. Particularly, teachers with a fixed mindset tend to provide more praise to students’ fundamental qualities [85], which has a detrimental effect on students’ motivation for learning and persistence in their efforts [86]. Based on that, this study puts forth the following theories:

Hypothesis 3 (H3). *Persistence in effort has a positive impact on teacher perception.*

Hypothesis 4 (H4). *Perseverance in effort has a positive effect on tasks.*

2.3. Responsibilities

An individual’s need (the desire to accomplish something), activity (thinking about and accepting responsibility for achieving excellence), anticipation of success (envisioning achievement before starting a task), and fear of failure all reflect achievement thoughts [87] (worry about failing). Higher levels of achievement motivation in relation to achievement thoughts and behaviors are present in students who take responsibility for their actions and rely on their sources. The results are in line with earlier studies on locus of control and motivation for achievement [88].

Pupils should be inspired to accomplish achievements in behavior and needs that are directed toward worthwhile and specific goals. People who are highly motivated to achieve make an effort to perform better and exhibit high levels of self-efficacy and confidence. They enjoy having personal duties as a result, and they also want to be conscious of their output and performance [89]. However, by looking at teachers’ perceptions of their responsibility for students’ learning, teachers’ expectations can also be investigated organizationally [90]. The organizational indicator of instructors’ expectations is a shared responsibility for students’ learning [90].

The political circumstances (teachers’ perceptions of students’ skills and sense of responsibility in student learning) and the student makeup of schools and colleges are intricately linked [91]. Perfectionism and self-efficacy in a wider sense of character are recognized to affect learning in contrast to the Big Five definitions of personality [92–94]. According to one definition, perfectionism is a “multidimensional personality trait with both adaptive and maladaptive characteristics.” When it comes to learning, the adaptive aspect might motivate someone to go toward superior results. The maladaptive component, for instance, can have the exact opposite effect and cause procrastination [95]. Procrastination was found to be inversely correlated with academic achievement, self-efficacy, and adaptive perfectionism but positively correlated with maladaptive perfectionism. It is crucial to take this trait into account as a result. On the basis of that, this study puts forth the following theories:

Hypothesis 5 (H5). *The impact of responsibilities on teachers is positive.*

Hypothesis 6 (H6). *Responsibilities have a positive effect on tasks.*

2.4. Teacher Perspective

Because it focuses solely on the cognitive process in understanding strengths and weaknesses in achievement contexts, attribution theory serves as a bridge to cognitive views on motivation [96,97]. This point of view is rooted in the notion that gender could be studied or comprehended with the exception of context, such as the context of ethnic background or social class, and that contextual understandings are much more integral to research on encouragement today, mirroring the general shift in academic research toward situated and social points of views on learning.

Similar to this, Turner and Nolen [98] stated that a situated view on research is “one that understands individuals’ beliefs and practices as deriving from their engaging in community, economic, and sociocultural contexts or systems.” These paradigms can also be used in research on academic motivation and gender. Ref. [99] provides an illustration of a situational perspective on gender and motivation.

Researchers conducted this study to obtain insight into STs’ professional identities over their longer time teaching students in universities and to understand more about universities from a teacher’s perspective [100,101]. According to [102], research has shown that teachers’ participation in the planning of technology integration improved students’ learning. Therefore, this research aims to contribute to the continuing conversation about the advancement of technology integration in education by considering the viewpoints of teachers and the impact of their setting. However, as [103] noted, constructivism primarily characterizes the perspective on learning, and as such, the current study finds it appropriate for explaining the difficulties that teachers encounter while incorporating technology. Based on that, this study proposes the following hypotheses:

Hypothesis 7 (H7). *Teacher perspective has a positive effect on tasks.*

Hypothesis 8 (H8). *Teacher perspective has a positive effect on achievement motivation.*

2.5. Tasks

Examining the achievement incentive as a potential mediator of knowledge and training effects on updating was the goal of the current study. With training improvements, high achievement motivation may be anticipated to improve task engagement and learning. Additionally, an educational and development experiment using students as participants served as the project’s foundation [104]. Additionally, the “nearest” task, also known as the task that is most closely connected to the learned task(s), is typically affected by learning and training gains [34]. However, there is currently an ongoing study on the incentive effects of learning and training, which are beneficial to tests evaluating various untrained cognitive abilities and to day-to-day functioning.

A variety of motivating elements were used by Katz, Jaeggi, Buschkuhl, Stegman, and Shah [105] in an effort to increase task engagement by making the learning and training work more appealing. Goal-setting, task-strategy, and time-management strategies are included in the category of task-specific strategies since various learning activities call for students to choose their learning objectives and task strategies and frequently result in adjusted time on task [106,107]. Help seeking and self-evaluation fall under the category of general methods since they are ingrained behaviors that occur in all learning environments and tasks. Help seeking is a pro-active social learning activity that shows a high level of agency, which is necessary to finish online learning tasks [108], and self-evaluation guides the individual’s choice of learning objectives, approaches, and time [109]. Based on that, this study proposes the following hypothesis:

Hypothesis 9 (H9). *Tasks have a positive effect on motivation to achieve.*

2.6. Achievement Motivation

Generally speaking, motivation can be described as a patchwork of many different forces, propensities, intents, desires, and influences [110]. From the standpoint of social cognitive theories, motivation is referred to as “the psychological condition that arouses, guides, and maintains goal-oriented behaviour” [52]. It is feasible to think of it as a system of numerous intrapersonal decision-making occasions regarding a person’s future course and behaviors and as a dynamic intrapsychic process. The first issue is the matter of causality because “to motivate means to induce” [111]. It also emphasizes the importance of retaining cultivated desire at the appropriate level and maintaining its positively growing dynamic. This highlights the difficulties of acting on desire and determining its substance. Students’ motivation is largely situation- or context-specific, according to the social cognitive perspective [64,66].

To obtain a clearer picture of the connection between students’ motivation and academic achievement, take a look at a standard personality theory of motivation, the concept of achievement motivation [16,87], which conceptualizes students’ inspiration as a relatively stable attribute. This study takes into account students’ ability self-concepts, goal orientations, and the achievement motives of optimism for success and fear of failure. We give a more thorough explanation of the motivational constructions in the next section. According to studies, the switch from in-person instruction to online delivery has a significant effect on evaluations and assessments [112,113].

Although technology was utilized earlier to help with teaching and learning, [114] demonstrated how the assessment component was frequently underdeveloped. It was difficult to apply assessments made for face-to-face learning to online courses. Both students and teachers were unsure of how to administer unfinished assignments, projects, and other continuous assessments [115].

To meet the online format, faculty members must modify the assessment types [116]. It is challenging to keep an eye on how they are taking the test online and to make sure that students are not faking answers. Again, online testing was not an option for lab, practical, or performance exams. Additionally, participating in the evaluation process will clearly put students without access to the Internet at a disadvantage, which will have a negative impact on their grade point averages (GPAs) [117,118].

3. Research Methodology

Students’ desire to succeed is increased by E-learning at several universities, including King Faisal University (KFU). In order to analyze the relationship between aptitude, effort, perseverance, obligations, the viewpoint of the teacher, and tasks, the research attempts to create a model. As a result, students were given the questionnaires on achievement motivation and E-learning as part of a quantitative strategy. There are three primary sets of criteria in the questionnaire. The independent elements in one of these sets are aptitude (AB), perseverance and efforts (EP), and responsibility (RE), whereas the model’s second mediator component is the teacher’s perspective (TP) and tasks (TA). Motivation for success is the model’s third dependent variable (AM).

Undergraduate students who participated in the current study were utilized to develop a questionnaire method with a five-point score that would be given to a wider sample (30 items), with the population selected using a straightforward random selection technique [119]. Statistical Package for the Social Sciences (SPSS), the primary tool used to analyze these same responses of the students to the various questionnaire items, was used to enter and tabulate 248 questionnaires. The Likert scale of five points was used in the current study to measure students’ ratings of the different items: “disagree strongly (1), take issue (2), uncommitted (3), agree (4), and strongly agree (5).” For the purpose of analysis, this study used structural equation modeling (SEM-Smart-PLS). The major goal of the concept item adaptation was to produce a good outcome in terms of content validity.

3.1. Data Collection and Analysis

In this research, we gathered information from undergraduate students at a Saudi Arabian public institution who were taking part in our study during the first semester of 2022–2023. The data was collected from students at King Faisal University (KFU) in Saudi Arabia.

A questionnaire survey was used to obtain the necessary data. Approval for ethical clearance was obtained for this study (Ref. No. KFU-REC-2022-DEC-ETHICS395). A total of 260 students were chosen to take part in the survey. The study required a sample size of 248 individuals. As a result, the sample size in this study is appropriate as an exploratory study for portraying undergraduate students at the College of Education in King Faisal University in terms of E-learning acceptance. About 12 survey responses were discarded due to missing information. From a total of 248 surveys, the data were analyzed using SPSS.

The students who took part in the survey came from the college of education. The researcher discussed the study's objectives and the description of online meetings such as E-learning at the start of the data collecting procedure, and the students then answered the survey.

Table 1 shows the gender, age, and academic level rates among the respondents. According to the survey's demographics, a total of 157 men and 91 women responded to the 248 question samples. In this survey, there were 112 participants between the ages of 18 and 20 and 72 participants between the ages of 21 and 24. There were also 30 participants beyond the age of 30. According to respondents' academic backgrounds, 189 were level one undergraduate students and 59 were postgraduate level students. According to demographic specialization considerations, 117 respondents came from the social sciences, 90 from engineering, and 41 from science and technology.

Table 1. Factors loading and Cross-Loading of items.

Factors	Items	AB	AM	EP	RE	TA	TP
Ability	AB1	0.828928	0.581186	0.536450	0.421703	0.488313	0.465807
	AB2	0.837336	0.601101	0.505950	0.381439	0.445964	0.394338
	AB3	0.837224	0.549169	0.546551	0.380996	0.486530	0.396272
	AB4	0.843318	0.567392	0.558816	0.391474	0.511990	0.411617
	AB5	0.847019	0.590863	0.558858	0.423281	0.521776	0.407103
Achievement Motivation	AM1	0.610474	0.773205	0.487811	0.393843	0.451680	0.393157
	AM2	0.580415	0.784734	0.512422	0.416254	0.446445	0.406893
	AM3	0.584551	0.898138	0.588739	0.392371	0.544092	0.390823
	AM4	0.591224	0.896279	0.594638	0.376081	0.535591	0.377676
	AM5	0.575658	0.876595	0.577661	0.398202	0.528646	0.373651
	AM6	0.589417	0.878349	0.599241	0.392262	0.552779	0.399488
Efforts and Perseverance	EP1	0.499950	0.547673	0.807639	0.420952	0.445921	0.420244
	EP2	0.464397	0.503992	0.792595	0.321719	0.456913	0.326971
	EP3	0.503258	0.510333	0.800818	0.396039	0.464279	0.414690
	EP4	0.549860	0.518311	0.810482	0.394333	0.454246	0.429130
	EP5	0.542952	0.516428	0.806839	0.327189	0.490881	0.381058
	EP6	0.506170	0.534139	0.732639	0.318755	0.481352	0.336630
Responsibilities	RE1	0.397763	0.390012	0.388051	0.775633	0.404185	0.553851
	RE2	0.389833	0.364296	0.367956	0.827789	0.362197	0.480948
	RE3	0.325747	0.322113	0.344958	0.788049	0.309261	0.408192
	RE4	0.367389	0.360357	0.350560	0.781367	0.326407	0.408870
	RE5	0.394026	0.377259	0.354934	0.775514	0.348365	0.434294
Task	TA1	0.485335	0.498165	0.498882	0.366010	0.797413	0.369330
	TA2	0.418470	0.454598	0.416734	0.366766	0.806684	0.377657
	TA3	0.501838	0.505606	0.497327	0.365471	0.857325	0.352708
	TA4	0.519033	0.514365	0.515789	0.377211	0.832643	0.383225

Table 1. Cont.

Factors	Items	AB	AM	EP	RE	TA	TP
Teacher Perspective	TP1	0.427845	0.384057	0.442310	0.506139	0.358982	0.846621
	TP2	0.422878	0.382125	0.420236	0.487813	0.379846	0.879330
	TP3	0.444932	0.412649	0.432671	0.523716	0.397661	0.880617
	TP4	0.391931	0.375658	0.363369	0.479417	0.395639	0.798568

According to Krejcie and Morgan, the sample size for this study ($N = 248$) is appropriate based on these analyses (1970). In order to put the theoretically established model to the test, data from students at the King Faisal University (KFU) in Saudi Arabia were gathered using a systematic physical survey. The formula used to calculate the sample size was as follows:

$$SS = \frac{x^2(p)(q)}{e^2}$$

where SS = Sample Size; $Z = 1.52$ (95% confidence level); P = prevalence level (0.5 used for sample size needed); $Q = (1 - p)$; E = error term (0.05). By inserting values into the formula, the sample size would be:

$$SS = \frac{1.52^2(0.50)(0.50)}{0.05^2}$$

$$SS = \frac{2.3104(0.25)}{0.0025}$$

$$SS = \frac{0.5776}{0.0025}$$

$$SS = 231.04$$

3.2. Measurement Instruments

The adapted research included all model factors from [120–123].

Before completing the questionnaire, the participants received an overview of the study; their participation was entirely voluntary. It took roughly 10–15 min to complete the survey. Using a convenience sampling method, the participants were selected from various departments and faculties. A total of 248 randomly chosen undergraduates from King Faisal University (KFU), both domestic and international, were surveyed for data. To test the fictitiously developed model, information was gathered from currently enrolled students at King Faisal University via a structured physical survey.

A tool was created using data from earlier studies. As stated in Table 1, there are six structures and thirty indicators. The ability (AB) was proposed with the establishment of five components suggested by [75,120–122]. In order to adapt effort and perseverance (EP), six components from [82,85,120,121] were included. Five items from [89] were modified for use in responsibilities (RE). Four of the teacher perspective (TP) items that [102] suggested were modified. Four items proposed by [108,109] were included in the task (TA) proposal. Six of the achievement motivation (AM) items suggested by [112] were modified. The dissemination of the instrument was completed, leaving thirty indicators for the primary data collection (see Appendix A).

4. Result and Data Analysis

Four evaluations of measurement models for PLSEM were supported by Hair et al. [124] and included consistency reliability, discriminant validity, convergent validity, and indicator loadings. For the variables self-efficacy, uncertain control, anxiousness, student–teacher relationship, and classroom motivation, the Cronbach’s alpha reliability correlation was 0.832.

The assessment of discriminant validity (DV) used three criteria: the index among factors, which should be below 0.80 [124], the average (Edgewood) value of each construct,

which must be equal to or above 0.50, and the square of the threshold. Additionally, factor loading (FL) findings from crematory factor analysis (CFA) should be 0.70 or above, while the findings of Cronbach's alpha (CA) are generally accepted to be 0.70 [124]. Additionally, the researchers state that the composite reliability (CR) value should be 0.70.

4.1. Measurement Model and Instrumentation

The application of the ordinary least squares approach is the first step in the justification of the legitimacy and dependability of the model. Before the hypotheses were put to the test, two phases were employed to confirm the integrity of the fitness model. Basic equations modeling (PLS-SEM), Intelligent PLS 2.0 Cronbach's alpha, composite unshakable quality, building legitimacy, which spreads component loadings, and merging legality were also identified. It was suggested by [125] to take the standard test into account while confirming the legitimacy of discrimination.

4.2. Internal Consistency Reliability

ICR is used to assess how well outcomes are consistent across indicators. CA and CR were reported in the current method. ICR values ought to range from 0 to 1. According to Hair et al. [124], CA and CR should be > 0.7. The CA and CR reports are shown in Table 2. All constructs have sufficient composite reliability and CA values that are above acceptable levels. AB's CA was 0.894704 and the CR was 0.922278; AM's CA was 0.924116 and the CR was 0.940967; and EP's CA was 0.881081 and the CR was 0.909957, as well. Tasks had a CA of 0.842083 and a CR of 0.894109, while the teacher's perspective had a CA of 0.873411 and a CR of 0.913581. RE had a CA of 0.850000 and a CR of 0.892375, refer to Table 2.

Table 2. Convergent Validity.

Factors	Items	Factors Loading	Cronbach's Alpha	Composite Reliability	AVE	R-Square
Ability	AB1	0.828928	0.894704	0.922278	0.703564	0.000000
	AB2	0.837336				
	AB3	0.837224				
	AB4	0.843318				
	AB5	0.847019				
Achievement Motivation	AM1	0.773205	0.924116	0.940967	0.727256	0.403703
	AM2	0.784734				
	AM3	0.898138				
	AM4	0.896279				
	AM5	0.876595				
	AM6	0.878349				
Efforts and Perseverance	EP1	0.807639	0.881081	0.909957	0.627738	0.000000
	EP2	0.792595				
	EP3	0.800818				
	EP4	0.810482				
	EP5	0.806839				
	EP6	0.732639				
Responsibilities	RE1	0.775633	0.850000	0.892375	0.623964	0.000000
	RE2	0.827789				
	RE3	0.788049				
	RE4	0.781367				
	RE5	0.775514				
Tasks	TA1	0.797413	0.842083	0.894109	0.678727	0.440886
	TA2	0.806684				
	TA3	0.857325				
	TA4	0.832643				

Table 2. Cont.

Factors	Items	Factors Loading	Cronbach's Alpha	Composite Reliability	AVE	R-Square
Teacher Perspective	TP1	0.846621	0.873411	0.913581	0.725797	0.421910
	TP2	0.879330				
	TP3	0.880617				
	TP4	0.798568				

4.3. Construct Validity of the Measurements

The degree to which the things employed to evaluate a component can accurately quantify the concept they were designed to quantify is referred to as “legitimacy” [124]. Instead of comparing different builds, the entire mechanism for rating builds should basically stack up to each player’s specific build. This was ensured by organizing an organized audit of writing with the goal of delivering items that had already been established and tested by earlier writers. Things were appropriately labeled based on the component analysis because they displayed large loadings and stood out from diverse advances (see Table 1).

4.4. Convergent Validity of the Measurements

With Cronbach values ranging from 0.924116 to 0.842083, well over the prescribed cut-off estimate of 0.60, the composite reliability varied from 0.940967 to 0.892375 and was present all the way through the prescribed cut-off estimate of 0.70. Additionally, the critical element loadings above 0.50 and the average change removed (AVE) figures vary from 0.727256 to 0.623964 (all exceeding the cut-off estimate of 0.5). All of these traits exceeded the required motivation by [124,125]. The CFA outcomes of the measuring model are shown in Table 2.

4.5. Discriminant Validity of Measures

Discriminant validity measures how far one notion and its pointers diverge from another concept and its pointers [126]. The AVE value is substantially over 0.50 and significant at $p = 0.001$, demonstrating that the legitimacy of discrimination is supported across the board [125]. Ref. [124] made it clear that relationships between objects in two developments ought not to be greater than the sum of the squares of the normal variation held by the objects in a single growth (see Table 3).

Table 3. Latent Variable Correlations.

Factors	Items	AB	AM	EP	RE	TA	TP
Ability	AB	1.000000					
Achievement Motivation	AM	0.688865	1.000000				
Efforts and Perseverance	EP	0.646132	0.658669	1.000000			
Responsibilities	RE	0.477428	0.461790	0.459595	1.000000		
Tasks	TA	0.586392	0.599960	0.587639	0.447731	1.000000	
Teacher Perspective	TP	0.495790	0.456630	0.487360	0.586568	0.449708	1.000000

In this work, the discriminant validity was investigated using three different methods: cross-loadings (see Table 2), HTMT (see Table 4), and the Larcker criterion (refer to Table 5). A construct’s AVE must be higher than the shared variance of other constructs in order to meet the Fornell–Larcker criterion [125]. The construct values are higher than the shared variances of each construct, as seen in Table 4. As an illustration, the value of EP (0.869) is greater than all of its shared variances, including RE (0.614), tasks (TA) (0.575), and teacher perspective (TP) (0.648). Based on the Fornell–Larcker criterion, discriminant validity was proven. Additionally, if an indicator loading on a cross-loading is lower than its construct, discriminant validity emerges [124].

Table 4. Fornell–Larcker criterion.

	AB	AM	EP	RE	TA	TP
Ability	0.781					
Achievement Motivation	0.573	0.809				
Efforts and Perseverance	0.633	0.721	0.869			
Responsibilities	0.476	0.542	0.614	0.857		
Tasks	0.648	0.647	0.575	0.587	0.828	
Teacher Perspective	0.732	0.689	0.648	0.659	0.679	0.837

Table 5. Heterotrait–monotrait (HTMT).

	AB	AM	EP	RE	TA	TP
Ability						
Achievement Motivation	0.772001					
Efforts and Perseverance	0.689785	0.671423				
Responsibilities	0.742566	0.692456	0.574800			
Tasks	0.840157	0.848967	0.888007	0.725015		
Teacher Perspective	0.798770	0.828304	0.715547	0.758012	0.842746	

4.6. Structural Model

4.6.1. Collinearity

Examining the model's prediction skills was part of the structural model's evaluation. However, the collinearity value should be acknowledged by reporting the variance inflation factor (VIF) values before presenting the structural model. Efforts and perseverance as predictors of TA, TP, and achievement motivation are a predictor of tasks, and teacher perspective is a noteworthy set of predictors that was evaluated for collinearity [124] (Table 6). VIF levels should not exceed 3; values above 3 are frequently thought to have multicollinearity issues. Table 6 demonstrates that all VIFs are lower than 3.

Table 6. Variance inflation factor (VIF).

	AM	TA	TP
Ability		2.4902525	2.51655
Achievement Motivation			
Efforts and Perseverance		1.38300	2.003525
Responsibilities		1.299405	2.16703
Tasks	2.29902		
Teacher Perspective	2.95900	2.82721	

4.6.2. Analysis of the Structural Model

Testing the proposed links between the builds was the next stage once the exhibited estimation's accuracy was confirmed. The expert used Smart-PLS 2.0, in which the models were examined after the PLS computation. Figure 2 illustrates how the coefficients were then distributed. Figure 3 and Table 7 present the theories.

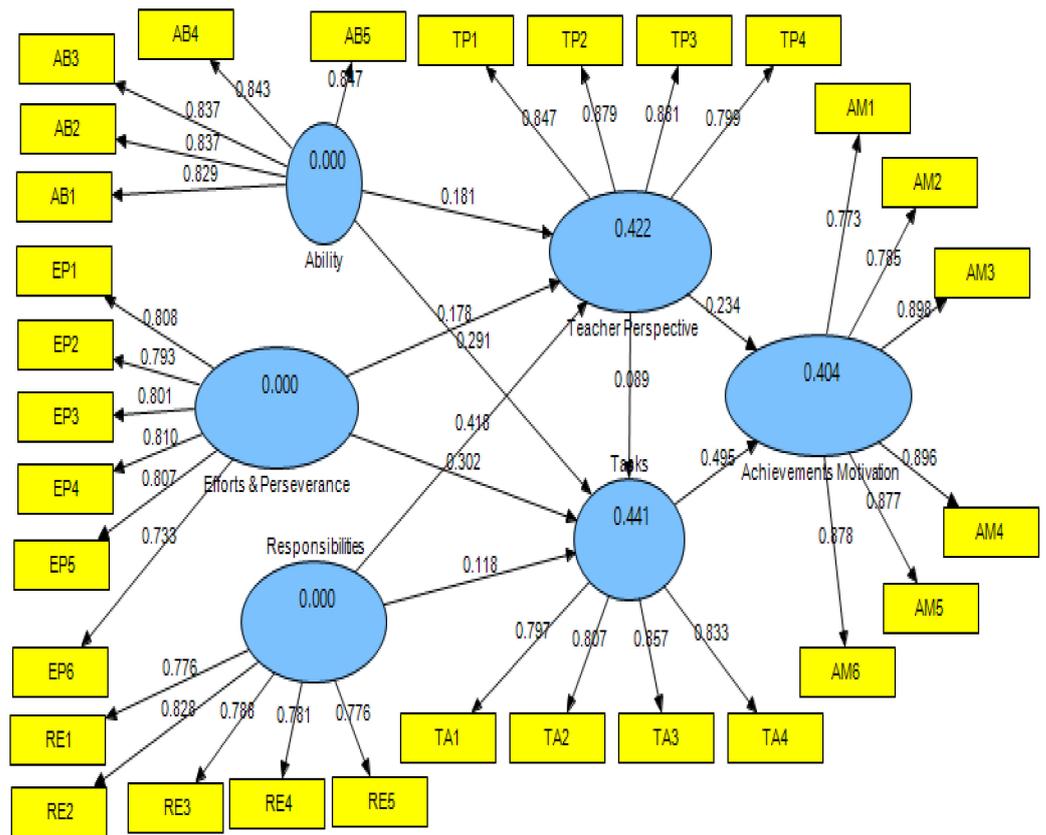


Figure 2. Path Coefficient Results.

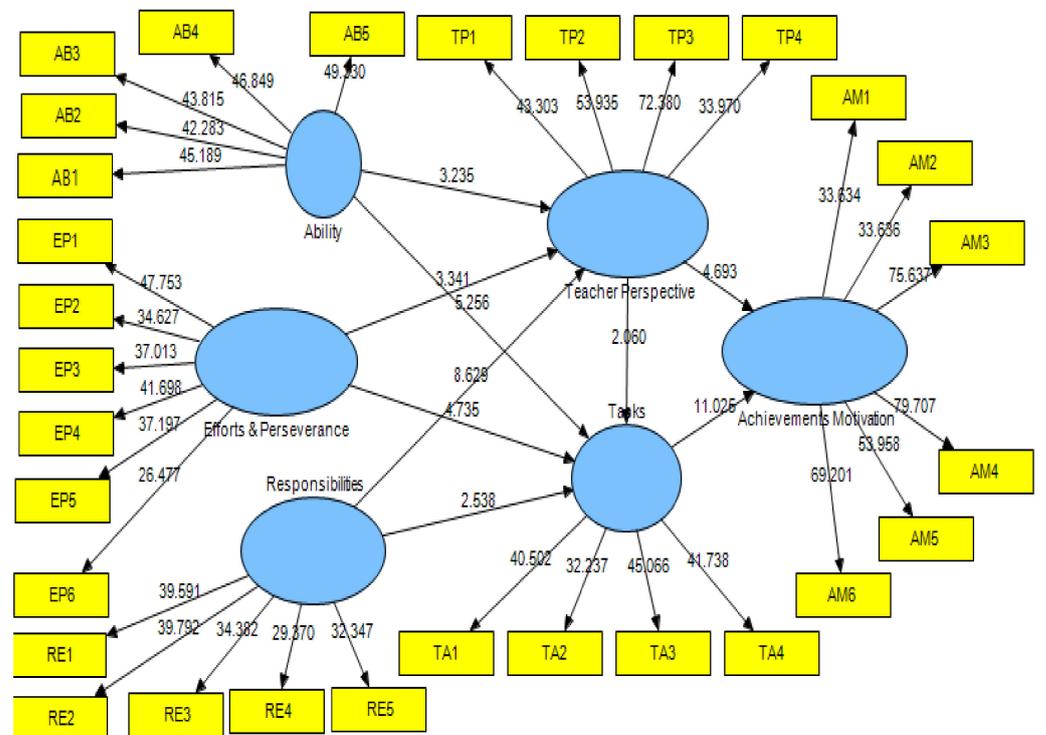


Figure 3. Path Coefficient T Values.

Table 7. Hypotheses testing.

H	Independent	Relationship	Dependent	Path Coefficient	95%	Standard. E	T. Value	Result
1	AB	→	TP	0.180948	0.219256	0.055931	3.235205	Accepted
2	AB	→	TA	0.290656	0.412647	0.055300	5.256023	Accepted
3	EP	→	TP	0.178206	0.210475	0.053343	3.340749	Accepted
4	EP	→	TA	0.302238	0.422003	0.063825	4.735426	Accepted
5	RE	→	TP	0.418276	0.462725	0.048473	8.629090	Accepted
6	RE	→	TA	0.117694	0.201662	0.046373	2.537985	Accepted
7	TP	→	TA	0.089270	0.200062	0.043337	2.059898	Accepted
8	TP	→	AM	0.234184	0.409635	0.049902	4.692849	Accepted
9	TA	→	AM	0.494646	0.499695	0.044868	11.024577	Accepted

Regarding the first hypothesis, it was a positive and significant predictor of ability and teacher perspective. Thus, H1 ($p = 0.180948$; $t = 3.235205$) was accepted. The second hypothesis, the relationship between ability and tasks, was supported ($p = 0.290656$; $t = 5.256023$). Furthermore, ability predicted task acceptance positively and significantly. The third hypothesis (H3) predicted both efforts and perseverance, as well as the teacher's point of view ($p = 0.178206$, $t = 3.340749$). Hence, H3 was accepted. The fourth hypothesis (H4), the relationship between efforts and perseverance and tasks ($p = 0.302238$, $t = 4.735426$), was supported. Furthermore, efforts and perseverance positively and significantly predicted task acceptance. The next hypothesis, number five (H5), was a positive and significant predictor of responsibilities and teacher perspective. Therefore, H5 ($p = 0.418276$, $t = 8.629090$) was accepted. The sixth hypothesis (H6), the relationship between responsibilities and tasks, was supported ($p = 0.117694$, $t = 2.537985$). Furthermore, responsibilities also positively and significantly predicted tasks and were supported. The next hypothesis (H7) was a positive and significant predictor of teacher perspective and tasks. H7 ($p = 0.089270$, $t = 2.059898$) was approved as a result. The eighth hypothesis (H8) indicated a significant and positive link between achievement motivation and instructor viewpoint ($p = 0.2341$, $t = 4.692849$). The idea is therefore supported. The next direct effect found that tasks and achievement were positively and significantly correlated ($p = 0.494646$, $t = 11.024577$). Therefore, the ninth hypothesis (H9) is supported. See Table 6.

4.6.3. Coefficient of Determination (R2)

The output of the analysis of regression, the significance level (R2), is defined as the variance percentage in endogenous latent variables that may be predicted by the independent factor. It assesses how well a proposed model predicts the future. It is calculated using the square of the relationship construct. On the R2 scale, which ranges from 0 to 1, a higher value denotes a greater level of R2. A value of 0.25 is regarded as a weak value, 0.50 as moderate, and 0.75 as substantial [124]. Based on the results of the investigation, Table 8 displays the R2 result. Considered are the tasks (0.441, moderate), educator attitude (0.422, moderate), and achievement motivation (0.404, moderate). Table 8 displays the outcomes.

Table 8. Coefficient of determination (R2).

Factors	R2	Results
Achievement Motivation	0.404	Moderate
Teacher Perspective	0.422	Moderate
Tasks	0.441	Moderate

4.6.4. Effect Size (F2)

The correlation value, also known as F2, is a statistical measure of how closely a predictor construct relates to a given variable. Alternatively, F2 is employed to evaluate the influence of external constructs on endogenous constructs. F2 looks into how removing

an external component from the model affects the R2 value. Ref. [102] states that an inconsequential influence is one with an F2 value of 0.02; a medium impact is one with an F2 value of 0.15; and a major effect is one with an F2 value of 0.35. The study's findings revealed the effect sizes of seven confirmatory factors. The greatest F2 was discovered when tasks to achievement motivation received the most motivation, with a value of 0.219, while teacher perspective tasks had the least influence (See Table 9).

Table 9. F2 results.

		F ²	Result
1	AB → TP	0.174	Medium
2	AB → TA	0.165	Medium
3	EP → TP	0.150	Medium
4	EP → TA	0.211	Medium
5	RE → TP	0.205	Medium
6	RE → TA	0.199	Medium
7	TP → TA	0.187	Medium
8	TP → AM	0.130	Medium
9	TA → AM	0.219	Medium

5. Discussion and Implications

This research model concentrated on the significance of teacher viewpoint, tasks, aptitude, perseverance, duties, and achievement incentive as study model determinants. The study model concludes that tasks have a more significant impact on achievement motivation when taking the teacher's perspective into account regarding educational method. As a result, the study's findings strongly support the capacity variable, validating H1 and H2, and showing how ability influences instructor perspectives and tasks in a positive way.

The purpose of this study is to provide a clear understanding of the significance of ability, efforts, perseverance, responsibilities, the instructor's point of view, and tasks in students' achievement motivation. In this regard, E-learning among university students is highlighted and discussed. As a result, students in higher education are more motivated to reach their goals thanks to E-learning [3,7,19,26,37,39]. The study's findings show that university students benefit from online learning because it increases their drive for success. The results also demonstrated that tasks, responsibilities, instructor viewpoint, ability, efforts, and perseverance have a positive impact on students' achievement motivation.

To put it differently, PE encourages the utilization of teachers' views and tasks when they are advantageous and appropriate. The importance of aptitude in the context of distance learning has drawn the attention of many scholars. The results of this study thus support prior hypotheses about the relationships between variables and demonstrate that students' perspectives on technology-enhanced education in higher education are influenced by the ability construct [70,71].

Additionally, the study's results substantially concur with H3 and H4, indicating that efforts and persistence have a significant impact on teachers' viewpoints and tasks in academic institutions. On the other side, this outcome can be attributed to the widespread use of remote learning by Saudi university students, of which there are enough to have a major influence on their peers. As a consequence, the links between the components in this study's findings are supported by earlier research [79,81,83]. Moreover, responsibilities, which contained two assumptions (H5 and H6) that had substantial positive impacts on the teacher's perspective and tasks of achievement motivation, have the following factor: this is in line with previous research, which demonstrated a positive association between responsibilities, teacher perspective, and tasks [73,90].

However, these findings contradicted those of previous studies [92]. The fourth component is teacher perspective, which had two hypotheses (H7 and H8) with substantial positive impacts on tasks and achievements and motivation for E-learning for teaching and

learning. This is in line with previous research, which revealed that teacher perspective had a positive association with tasks and achievement motivation [96,97,123]. Finally, the study's findings indicate that tasks have a significant impact on achievement motivation in educational institutions, corroborating H9 and providing strong support for the tasks component. On the other side, this outcome can be attributed to the widespread use of remote learning by Saudi university students, of which there are enough to have a major influence on their peers. As a result, the relationships between components [16,64,66,87,110] are supported by the results of this study.

Instead, it is common to strategically direct this fundamental urge toward concrete purposes that take care of the underlying want or concern. Our findings agree with those made by [46]. This study used structural equation modeling to discover student–teacher relationships based on their remote learning experiences and to increase achievement motivation. According to the suggested model, the correlations between the following components were investigated in relation to the motivation for achievement in remote learning: aptitude, perseverance, responsibilities, instructor viewpoint, and tasks (see Figures 2 and 3). As a result, the findings of this study demonstrate that all assumptions were valid. The development of student guidelines on how to increase students' achievement motivation in the teaching and learning processes should be taken into consideration for future work given that the results of all hypotheses were significant and positive, which means that the students have a positive behavioral approach to E-learning to enhance students' motivation for achievement. Future efforts should consider the opinions of both students and other higher education managers regarding the benefits of distance learning for university students in terms of their motivation and academic engagement. This can offer more information on how to approach this subject in different academic settings for higher education. Future research should also examine the constraints and enablers; having many viewpoints and perspectives from various nations and cultures will undoubtedly expand this field of study.

5.1. Implication

Politicians, educational institutions, and learners will all gain from this study. Understanding the role of E-learning in education demands comprehension of the relationship between its application and its positive impact on students' academic achievement and motivation. The findings are helpful for those looking to enhance online learning or remote learning, which are both employed in teaching and learning. This study increases our understanding of the factors that influence students' decisions to pursue their education via E-learning. A deeper understanding of intention variables, student propensity for E-learning, and practical technology may be achieved to make informed policy decisions for the deployment of educational technology at tertiary institutions.

The findings of this study will improve educational administrators' comprehension of the advantages of advanced technology at research universities, such as E-learning, and enable them to build a suitable and engaging environment for students participating in E-learning. Additionally, teachers and students can think of distance learning as a non-formal educational instrument that encourages social interaction and learning. School administrators, politicians, teachers, and students can all use distance learning as an additional learning tool to educate and learn.

Additionally, based on the findings of our study, we advise educational institutions to set up their own sites and groups on various online meeting sites, allow members to enroll in these groups and pages, and then watch how students overcome barriers in the classroom. Using the company email address, you can subscribe to organizations or websites. Such programs, regardless of location or time, may reduce the need for students to seek help, which is a limitation, and thus achieve more effective and beneficial peer engagement in class.

5.2. Limitation

The next stage is to create an adequate item pool to operationalize the determined E-learning readiness parameters. As a result, we will assess our conclusions in relation to the theoretical framework before conducting a statistical test of our model. Our study does, however, have certain shortcomings. As our sample only includes students from one continuing university, it would be advantageous to consider a larger selection of universities in future research to more broadly apply our findings. Finally, it is important to investigate the fundamental factors, such as aptitude, perseverance, and responsibilities, as well as how these affect students' acceptance of remote learning in the classroom. It would be extremely beneficial to consider these digital learning applications in the KSA to better comprehend the factors that affect future technology acceptability and plan for future technology deployment.

6. Conclusions and Future Work

The goal of this study was to investigate a model that would highlight crucial elements that are anticipated to continue to be important in teachers' perspectives and tasks for distance learning in higher education and may be utilized to boost motivation for achievement. The outcomes showed that enhancing teacher perspectives and tasks for remote learning objectives as well as student ability, perseverance, and responsibilities had an impact on motivation and achievement.

The statistics also demonstrated that tasks and perspectives from the teacher had a positive impact on students' motivation for achievement. Additionally, the results showed that tasks appropriate for online learning had a positive impact on achievement motivation. The results also showed that raising the teacher's perspectives and tasks to use distance learning for learning goals, as well as their abilities, efforts, perseverance, and responsibilities, had an impact on achievement motivation. In Saudi Arabia, at King Faisal University, we distributed 248 surveys to postgraduate students studying statistics. PLS-SEM was employed to evaluate the data.

In conclusion, assignments for using distance learning and teacher perspectives can aid students in their peer discussions, knowledge sharing, and learning activities. Even though this study used a careful research procedure, certain potential weaknesses could be found and investigated in further studies. The numeric results might not accurately reflect how well each respondent understood the research question.

The study's conclusions would be greatly strengthened with a qualitative approach. Future research would need to include more participants who are pursuing other degrees because every respondent in our sample attended the same university. The sample was compelled to rely on students' expectations, which may differ from professors' expectations, because it lacked qualitative data. Due to the differences in the environments, future studies are advised to collect more information from college or high school students in other states or to repeat the research in other provinces as opposed to Saudi Arabia.

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Data Availability Statement: Not applicable.

Conflicts of Interest: The author declares no conflict of interest.

Appendix A

Ability (AB)	
1.	I feel teachers' standards are too high for me.
2.	I do well in my courses given the amount of time I dedicate to studying.
3.	Most of my instructors think that I am a good student.
4.	I feel capable of helping others with their class work.
5.	All in all, I feel I am a capable student.
Perseverance of Efforts (PE)	
6.	Even after a course is over, I continue to spend time learning about the topic.
7.	I often collect additional information about interesting topics even after the course has ended.
8.	Most of the work I do in my courses is personally enjoyable or seems relevant to my reasons for attending college.
9.	The primary reason I complete course requirements is to obtain the grade that is expected of me.
10.	I always rely on the instructor to tell me what I need to do in the course to succeed.
11.	I always effectively organize my study time.
Responsibilities (RP)	
12.	I completely note the homework assigned by my lecturer
13.	I do my homework on time.
14.	I show willingness to participate in group homework
15.	I carefully listen to what my lecturer and friends tell
16.	I follow and read the news and information announced in classroom and university bulletin board
Teacher Perspective (TP)	
17.	My instructor was fully committed to the delivery of the course.
18.	My instructor was available during office hours to help me.
19.	My instructor had thorough knowledge of the content of the course.
20.	My instructor cared about my progress and was helpful to me.
Tasks (TA)	
21.	E-learning are fit for my learning requirements
22.	Using E-learning fits with my educational practice
23.	It is easy to understand which tool to use in E-learning
24.	E-learning are suitable for helping me complete online courses
Achievements Motivation (PU)	
25.	I always ask the lecturer about problems that I don't understand yet.
26.	I always do the assignments given by the lecturer myself.
27.	I was able to give an argument about the problem that was given by the lecturer when discussing it with other friends.
28.	Trying to find the cause of the problems that exist in Indonesia related to economic material.
29.	Feeling excited when the lecturer starts to give any topic that will be discussed.
30.	Looking for the latest information in accordance with the material provided by the teacher.

References

1. Yan, Z. Self-assessment in the process of self-regulated learning and its relationship with academic achievement. *Assess. Eval. High. Educ.* **2020**, *45*, 224–238. [[CrossRef](#)]
2. Corpuz, J.T.; Sullano Peña, G.; Dela Torre Bacongus, R. Achievement, affiliation, power and academic performance of business management students of a state university in Cavite, Philippines. *Cogent Soc. Sci.* **2022**, *8*, 2060538. [[CrossRef](#)]
3. Aguilar, S.J.; Karabenick, S.A.; Teasley, S.D.; Baek, C. Associations between learning analytics dashboard exposure and motivation and self-regulated learning. *Comput. Educ.* **2021**, *162*, 104085. [[CrossRef](#)]
4. Petričević, E.; Putarek, V.; Pavlin-Bernardić, N. Engagement in learning mathematics: The role of need for cognition and achievement goals. *Educ. Psychol.* **2022**, *42*, 1045–1064. [[CrossRef](#)]
5. Karaman, M.A.; Watson, J.C. Examining associations among achievement motivation, locus of control, academic stress, and life satisfaction: A comparison of U.S. and international undergraduate students. *Pers. Individ. Dif.* **2017**, *111*, 106–110. [[CrossRef](#)]
6. Tong, F. Psychological and pedagogical effects on engagement and achievement: Implications for literacy and maths learning. *Educ. Psychol.* **2022**, *42*, 931–933. [[CrossRef](#)]
7. Yang, J.; Zhang, Y.; Pi, Z.; Xie, Y. Students' achievement motivation moderates the effects of interpolated pre-questions on attention and learning from video lectures. *Learn. Individ. Differ.* **2021**, *91*, 102055. [[CrossRef](#)]
8. Krou, M.R.; Fong, C.J.; Hoff, M.A. Achievement Motivation and Academic Dishonesty: A Meta-Analytic Investigation. *Educ. Psychol. Rev.* **2021**, *33*, 427–458. [[CrossRef](#)]
9. Xu, K.M.; Cunha-Harvey, A.R.; King, R.B.; de Koning, B.B.; Paas, F.; Baars, M.; Zhang, J.; de Groot, R. A cross-cultural investigation on perseverance, self-regulated learning, motivation, and achievement. *Compare* **2021**. [[CrossRef](#)]
10. Al-Rahmi, A.M.; Shamsuddin, A.; Alturki, U.; Aldraiweesh, A.; Yusof, F.M.; Al-Rahmi, W.M.; Aljeraiwi, A.A. The influence of information system success and technology acceptance model on social media factors in education. *Sustainability* **2021**, *13*, 7770. [[CrossRef](#)]
11. Al-Adwan, A.S.; Albelbisi, N.A.; Hujran, O.; Al-Rahmi, W.M.; Alkhalifah, A. Developing a holistic success model for sustainable e-learning: A structural equation modeling approach. *Sustainability* **2021**, *13*, 9453. [[CrossRef](#)]
12. Al-Rahmi, W.M.; Yahaya, N.; Alamri, M.M.; Aljarboa, N.A.; Kamin, Y.B.; Saud, M.S. Bin How Cyber Stalking and Cyber Bullying Affect Students' Open Learning. *IEEE Access* **2019**, *7*, 20192–20210. [[CrossRef](#)]
13. Al-Rahmi, W.M.; Yahaya, N.; Alamri, M.M.; Aljarboa, N.A.; Kamin, Y.B.; Moafa, F.A. A model of factors affecting cyber bullying behaviors among university students. *IEEE Access* **2019**, *7*, 2978–2985. [[CrossRef](#)]
14. Doménech-Betoret, F.; Abellán-Roselló, L.; Gómez-Artiga, A. Self-efficacy, satisfaction, and academic achievement: The mediator role of students' expectancy-value beliefs. *Front. Psychol.* **2017**, *8*, 1193. [[CrossRef](#)] [[PubMed](#)]
15. Murphy, P.K.; Alexander, P.A. A motivated exploration of motivation terminology. *Contemp. Educ. Psychol.* **2000**, *25*, 3–53. [[CrossRef](#)]
16. Steinmayr, R.; Weidinger, A.F.; Schwinger, M.; Spinath, B. The importance of students' motivation for their academic achievement—replicating and extending previous findings. *Front. Psychol.* **2019**, *10*, 1730. [[CrossRef](#)] [[PubMed](#)]
17. Kim, Y.; Mok, S.Y.; Seidel, T. Parental influences on immigrant students' achievement-related motivation and achievement: A meta-analysis. *Educ. Res. Rev.* **2020**, *30*, 100327. [[CrossRef](#)]
18. Tan, P.J.B. English e-learning in the virtual classroom and the factors that influence ESL (English as a Second Language): Taiwanese citizens' acceptance and use of the Modular Object-Oriented Dynamic Learning Environment. *Soc. Sci. Inf.* **2015**, *54*, 211–228. [[CrossRef](#)]
19. Alves, A.F.; Gomes, C.M.A.; Martins, A.; da Almeida, L.S. Cognitive performance and academic achievement: How do family and school converge? *Eur. J. Educ. Psychol.* **2017**, *10*, 49–56. [[CrossRef](#)]
20. Tan, P.J.B. An empirical study of how the learning attitudes of college students toward English E-Tutoring websites affect site sustainability. *Sustainability* **2019**, *11*, 1748. [[CrossRef](#)]
21. Al-Asmari, A.M.; Rabb Khan, M.S. E-learning in Saudi Arabia: Past, present and future. *Near Middle East. J. Res. Educ.* **2014**, *2014*, 1703–1958. [[CrossRef](#)]
22. Al-Rahmi, W.M.; Yahaya, N.; Alturki, U.; Alrobai, A.; Aldraiweesh, A.A.; Omar Alsayed, A.; Kamin, Y. Bin Social media-based collaborative learning: The effect on learning success with the moderating role of cyberstalking and cyberbullying. *Interact. Learn. Environ.* **2022**, *30*, 1434–1447. [[CrossRef](#)]
23. Ghamdi, A. Al Influence of Lecturer Immediacy on Students' Learning Outcomes: Evidence from a Distance Education Program at a University in Saudi Arabia. *Int. J. Inf. Educ. Technol.* **2017**, *7*, 35–39. [[CrossRef](#)]
24. Moafa, F.A.; Ahmad, K.; Al-Rahmi, W.M.; Yahaya, N.; Kamin, Y.B.; Alamri, M.M. Develop a model to measure the ethical effects of students through social media use. *IEEE Access* **2018**, *6*, 56685–56699. [[CrossRef](#)]
25. El Firdoussi, S.; Lachgar, M.; Kabaili, H.; Rochdi, A.; Goujdami, D.; El Firdoussi, L. Assessing Distance Learning in Higher Education during the COVID-19 Pandemic. *Educ. Res. Int.* **2020**, *2020*, 8890633. [[CrossRef](#)]
26. Alsmadi, M.K.; Al-Marashdeh, I.; Alzaqebah, M.; Jaradat, G.; Alghamdi, F.A.; Mustafa, A.M.R.; Alshabanah, M.; Alrajhi, D.; Alkhalidi, H.; Aldhafferi, N.; et al. Digitalization of learning in Saudi Arabia during the COVID-19 outbreak: A survey. *Informatics Med. Unlocked* **2021**, *25*, 100632. [[CrossRef](#)]
27. Alqurshi, A. Investigating the impact of COVID-19 lockdown on pharmaceutical education in Saudi Arabia—A call for a remote teaching contingency strategy. *Saudi Pharm. J.* **2020**, *28*, 1075–1083. [[CrossRef](#)] [[PubMed](#)]

28. Aladsani, H.; Al-Abdullatif, A.; Almuhanha, M.; Gameil, A. Ethnographic Reflections of K–12 Distance Education in Saudi Arabia: Shaping the Future of Post-Pandemic Digital Education. *Sustainability* **2022**, *14*, 9931. [[CrossRef](#)]
29. Al-Rahmi, W.M.; Yahaya, N.; Alamri, M.M.; Alyoussef, I.Y.; Al-Rahmi, A.M.; Kamin, Y. Bin Integrating innovation diffusion theory with technology acceptance model: Supporting students' attitude towards using a massive open online courses (MOOCs) systems. *Interact. Learn. Environ.* **2021**, *29*, 1380–1392. [[CrossRef](#)]
30. Armstrong-Mensah, E.; Ramsey-White, K.; Yankey, B.; Self-Brown, S. COVID-19 and Distance Learning: Effects on Georgia State University School of Public Health Students. *Front. Public Health* **2020**, *8*, 576227. [[CrossRef](#)]
31. Ullah, N.; Al-Rahmi, W.M.; Alzahrani, A.I.; Alfarraj, O.; Alblehai, F.M. Blockchain technology adoption in smart learning environments. *Sustainability* **2021**, *13*, 1801. [[CrossRef](#)]
32. Luppincini, R.; Walabe, E. Exploring the socio-cultural aspects of e-learning delivery in Saudi Arabia. *J. Inf. Commun. Ethics Soc.* **2021**, *19*, 560–579. [[CrossRef](#)]
33. Alqahtani, A.Y.; Rajkhan, A.A. E-learning critical success factors during the covid-19 pandemic: A comprehensive analysis of e-learning managerial perspectives. *Educ. Sci.* **2020**, *10*, 216. [[CrossRef](#)]
34. Al-Rahmi, A.M.; Al-Rahmi, W.M.; Alturki, U.; Aldraiweesh, A.; Almutairy, S.; Al-Adwan, A.S. Acceptance of mobile technologies and M-learning by university students: An empirical investigation in higher education. *Educ. Inf. Technol.* **2022**, *27*, 7805–7826. [[CrossRef](#)]
35. Ergüzen, A.; Erdal, E.; Ünver, M.; Özcan, A. Improving technological infrastructure of distance education through trustworthy platform-independent virtual software application pools. *Appl. Sci.* **2021**, *11*, 1214. [[CrossRef](#)]
36. Alshurideh, M.; Al Kurdi, B.; Salloum, S.A.; Arpacı, I.; Al-Emran, M. Predicting the actual use of m-learning systems: A comparative approach using PLS-SEM and machine learning algorithms. *Interact. Learn. Environ.* **2020**, 1–15. [[CrossRef](#)]
37. Wang, L.Y.K.; Lew, S.L.; Lau, S.H.; Leow, M.C. Usability factors predicting continuance of intention to use cloud e-learning application. *Heliyon* **2019**, *5*, e01788. [[CrossRef](#)]
38. Vasconcelos, P.; Sucupira Furtado, E.; Pinheiro, P.; Furtado, L. Multidisciplinary criteria for the quality of e-learning services design. *Comput. Human Behav.* **2020**, *107*, 105979. [[CrossRef](#)]
39. Navarrete, R.; Luján-Mora, S.; Peñafiel, M. Use of open educational resources in E-learning for higher education. In Proceedings of the 2016 3rd International Conference on eDemocracy and eGovernment, Sangolquí, Ecuador, 30 March–1 April 2016; ICEDEG 2016. pp. 164–170.
40. Moreira, J.A.; Reis-Monteiro, A.; Machado, A. Higher education distance learning and e-Learning in prisons in portugal. *Comunicar* **2017**, *25*, 39–49. [[CrossRef](#)]
41. Abdekhoda, M.; Dehnad, A.; Mirsaheed, S.J.G.; Gavgani, V.Z. Factors influencing the adoption of e-learning in tabriz university of medical sciences. *Med. J. Islam. Repub. Iran* **2016**, *30*, 457. [[PubMed](#)]
42. Rawat, B.; Dwivedi, S.K. Discovering learners' characteristics through cluster analysis for recommendation of courses in e-learning environment. *Int. J. Inf. Commun. Technol. Educ.* **2019**, *15*, 42–66. [[CrossRef](#)]
43. Violante, M.G.; Vezzetti, E. Virtual interactive E-learning application: An evaluation of the student satisfaction. *Comput. Appl. Eng. Educ.* **2015**, *23*, 72–91. [[CrossRef](#)]
44. Webster, J.; Hackley, P. Teaching Effectiveness in Technology-Mediated Distance Learning. *Acad. Manag. J.* **1997**, *40*, 1282–1309. [[CrossRef](#)]
45. Wang, S.; Shi, G.; Lu, M.; Lin, R.; Yang, J. Determinants of active online learning in the smart learning environment: An empirical study with pls-sem. *Sustainability* **2021**, *13*, 9923. [[CrossRef](#)]
46. Eom, S. Effects of interaction on students' perceived learning satisfaction in university online education: An empirical investigation. In Proceedings of the 2009 International SIGED: IAIM Conference, Amsterdam, The Netherlands, 14–16 September 2009.
47. Azeiteiro, U.M.; Bacelar-Nicolau, P.; Caetano, F.J.P.; Caeiro, S. Education for sustainable development through e-learning in higher education: Experiences from Portugal. *J. Clean. Prod.* **2015**, *106*, 308–319. [[CrossRef](#)]
48. Papanastasiou, G.; Drigas, A.; Skianis, C.; Lytras, M.; Papanastasiou, E. Virtual and augmented reality effects on K-12, higher and tertiary education students' twenty-first century skills. *Virtual Real.* **2019**, *23*, 425–436. [[CrossRef](#)]
49. Alnusairat, S.; Al Maani, D.; Al-Jokhadar, A. Architecture students' satisfaction with and perceptions of online design studios during COVID-19 lockdown: The case of Jordan universities. *Archmet-IJAR* **2021**, *15*, 219–236. [[CrossRef](#)]
50. Burgin, X.D.; Coli Coli, S.; Daniel, M.C. Ecuadorian and Uruguayan teachers' perceptions and experiences of teaching online during COVID. *Int. J. Comp. Educ. Dev.* **2022**, *24*, 54–68. [[CrossRef](#)]
51. Caga Belgica, C.; Calugan, J.A.; Dumo, J.U.; Simber, L.A. Online distance learning: Thematic study on the challenges faced by Educare College Inc. primary pupils. In Proceedings of the 3rd International Conference on Advanced Research in Education, Oxford, UK, 11–14 March; 2020; pp. 18–20.
52. Alismaiel, O.A.; Cifuentes-Faura, J.; Al-Rahmi, W.M. Social Media Technologies Used for Education: An Empirical Study on TAM Model During the COVID-19 Pandemic. *Front. Educ.* **2022**, *7*, 882831. [[CrossRef](#)]
53. Basri, S.; Hawaldar, I.T.; Nayak, R.; Rahiman, H.U. Do Academic Stress, Burnout and Problematic Internet Use Affect Perceived Learning? Evidence from India during the COVID-19 Pandemic. *Sustainability* **2022**, *14*, 1409. [[CrossRef](#)]
54. Alqahtani, M.A.; Alamri, M.M.; Sayaf, A.M.; Al-Rahmi, W.M. Investigating Students' Perceptions of Online Learning Use as a Digital Tool for Educational Sustainability During the COVID-19 Pandemic. *Front. Psychol.* **2022**, *13*, 886272. [[CrossRef](#)] [[PubMed](#)]

55. AlAteeq, D.A.; Aljhani, S.; AlEesa, D. Perceived stress among students in virtual classrooms during the COVID-19 outbreak in KSA. *J. Taibah Univ. Med. Sci.* **2020**, *15*, 398–403. [[CrossRef](#)]
56. Alshammari, T.; Alseraye, S.; Alqasim, R.; Rogowska, A.; Alrasheed, N.; Alshammari, M. Examining anxiety and stress regarding virtual learning in colleges of health sciences: A cross-sectional study in the era of the COVID-19 pandemic in Saudi Arabia. *Saudi Pharm. J.* **2022**, *30*, 256–264. [[CrossRef](#)]
57. Aristovnik, A.; Keržič, D.; Ravšelj, D.; Tomaževič, N.; Umek, L. Impacts of the COVID-19 pandemic on life of higher education students: A global perspective. *Sustainability* **2020**, *12*, 8438. [[CrossRef](#)]
58. Awan, R.K.; Afshan, G.; Memon, A.B. Adoption of E-Learning at Higher Education Institutions: A Systematic Literature Review. *Multidiscip. J. Educ. Soc. Technol. Sci.* **2021**, *8*, 74. [[CrossRef](#)]
59. Yamaguchi, S.; Kondo, H.; Ohnishi, Y.; Nishino, K. Analysis of learning activities and effects on blended lectures. *Procedia Comput. Sci.* **2019**, *159*, 1568–1575. [[CrossRef](#)]
60. Al Shamari, D. Challenges and barriers to e-learning experienced by trainers and training coordinators in the Ministry of Health in Saudi Arabia during the COVID-19 crisis. *PLoS ONE* **2022**, *17*, e0274816. [[CrossRef](#)] [[PubMed](#)]
61. Banday, M.T.; Ahmed, M.; Jan, T.R. Applications of e-Learning in Engineering Education: A Case Study. *Procedia Soc. Behav. Sci.* **2014**, *123*, 406–413. [[CrossRef](#)]
62. Kohtamäki, V. Academic leadership and university reform-guided management changes in Finland. *J. High. Educ. Policy Manag.* **2019**, *41*, 70–85. [[CrossRef](#)]
63. Vershitskaya, E.R.; Mikhaylova, A.V.; Gilmanshina, S.I.; Dorozhkin, E.M.; Epaneshnikov, V.V. Present-day management of universities in Russia: Prospects and challenges of e-learning. *Educ. Inf. Technol.* **2020**, *25*, 611–621. [[CrossRef](#)]
64. Al-Rahmi, A.M.; Shamsuddin, A.; Wahab, E.; Al-Rahmi, W.M.; Alyoussef, I.Y.; Crawford, J. Social media use in higher education: Building a structural equation model for student satisfaction and performance. *Front. Public Health* **2022**, *10*, 1003007. [[CrossRef](#)]
65. Al-Rahmi, A.M.; Al-rahmi, W.M.; Alturki, U.; Aldraiweesh, A.; Almutairy, S.; Al-adwan, A.S. Exploring the factors affecting mobile learning for sustainability in higher education. *Sustainability* **2021**, *13*, 7893. [[CrossRef](#)]
66. Pintrich, P.R.; Marx, R.W.; Boyle, R.A. Beyond Cold Conceptual Change: The Role of Motivational Beliefs and Classroom Contextual Factors in the Process of Conceptual Change. *Rev. Educ. Res.* **1993**, *63*, 167–199. [[CrossRef](#)]
67. Elliot, A.J.; Church, M.A. A Hierarchical Model of Approach and Avoidance Achievement Motivation. *J. Pers. Soc. Psychol.* **1997**, *72*, 218–232. [[CrossRef](#)]
68. Wigfield, A.; Cambria, J. Students' achievement values, goal orientations, and interest: Definitions, development, and relations to achievement outcomes. *Dev. Rev.* **2010**, *30*, 1–35. [[CrossRef](#)]
69. Wigfield, A.; Tonks, S.; Klauda, S.L. Expectancy-value theory. In *Handbook of Motivation at School*; Wenzel, K.R., Wigfield, A., Eds.; Routledge/Taylor & Francis Group: Oxfordshire, UK, 2009; pp. 55–75.
70. Gaspard, H.; Lauermann, F.; Rose, N.; Wigfield, A.; Eccles, J.S. Cross-Domain Trajectories of Students' Ability Self-Concepts and Intrinsic Values in Math and Language Arts. *Child Dev.* **2020**, *91*, 1800–1818. [[CrossRef](#)] [[PubMed](#)]
71. Wan, S.; Lauermann, F.; Bailey, D.H.; Eccles, J.S. Developmental changes in students' use of dimensional comparisons to form ability self-concepts in math and verbal domains. *Child Dev.* **2022**, *94*, 272–287. [[CrossRef](#)]
72. Sagone, E.; Caroli, M.E. De Locus of Control and Academic Self-efficacy in University Students: The Effects of Self-concepts. *Procedia Soc. Behav. Sci.* **2014**, *114*, 222–228. [[CrossRef](#)]
73. Steinmayr, R.; Weidinger, A.F.; Wigfield, A. Does students' grit predict their school achievement above and beyond their personality, motivation, and engagement? *Contemp. Educ. Psychol.* **2018**, *53*, 106–122. [[CrossRef](#)]
74. Alamri, M.M. Students' academic achievement performance and satisfaction in a flipped classroom in Saudi Arabia. *Int. J. Technol. Enhanc. Learn.* **2019**, *11*, 103–119. [[CrossRef](#)]
75. Flowers, L.O.; Raynor, J.E.; White, E.N. Investigation of academic self-concept of undergraduates in STEM courses. *J. Stud. Soc. Sci.* **2013**, 142740798.
76. Schneider, R.; Lotz, C.; Sparfeldt, J.R. Smart, confident, interested: Contributions of intelligence, self-concept, and interest to elementary school achievement. *Learn. Individ. Differ.* **2018**, *62*, 23–35. [[CrossRef](#)]
77. Alshmrany, S. Adaptive learning style prediction in e-learning environment using levy flight distribution based CNN model. *Cluster Comput.* **2022**, *25*, 523–536. [[CrossRef](#)]
78. Nikou, S.; Maslov, I. Finnish university students' satisfaction with e-learning outcomes during the COVID-19 pandemic. *Int. J. Educ. Manag.* **2022**. [[CrossRef](#)]
79. Xu, K.M.; Meijs, C.; Gijsselaers, H.J.M.; Neroni, J.; de Groot, R.H.M. Measuring Perseverance and Passion in Distance Education Students: Psychometric Properties of the Grit Questionnaire and Associations with Academic Performance. *Front. Psychol.* **2020**, *11*, 563585. [[CrossRef](#)]
80. Halperin, O.; Eldar Regev, O. Predicting academic success based on perseverance and passion for long-term goals (grit) among nursing students: Is there a cultural context? *Nurse Educ. Today* **2021**, *100*, 104844. [[CrossRef](#)] [[PubMed](#)]
81. Zeng, G.; Chen, X.; Cheung, H.Y.; Peng, K. Teachers' growth mindset and work engagement in the Chinese educational context: Well-being and perseverance of effort as mediators. *Front. Psychol.* **2019**, *10*, 839. [[CrossRef](#)] [[PubMed](#)]
82. Ruttencutter, G.S. Getting Gritty with It: An Examination of Self-Directed Learning and Grit among Doctoral Students. Ph.D. Thesis, University of Tennessee, Knoxville, TN, USA, August 2018.

83. Gutshall, C.A. Student Perceptions of Teachers' Mindset Beliefs in the Classroom Setting. *J. Educ. Dev. Psychol.* **2016**, *6*, 135. [[CrossRef](#)]
84. Rahman, A.H.A.; Samad, N.S.A.; Abdullah, A.; Yaso'a, M.R.; Muhamad, S.F.; Bahari, N.; Mohamad, S.R. E-Learning and Sustainability of Pondok Schools: A Case Study on Post-COVID-19 E-Learning Implementation among Students of Pondok Sungai Durian, Kelantan, Malaysia. *Sustainability* **2022**, *14*, 1385. [[CrossRef](#)]
85. Aparicio, M.; Bacao, F.; Oliveira, T. Grit in the path to e-learning success. *Comput. Human Behav.* **2017**, *66*, 388–399. [[CrossRef](#)]
86. Alhadabi, A.; Karpinski, A.C. Grit, self-efficacy, achievement orientation goals, and academic performance in University students. *Int. J. Adolesc. Youth* **2020**, *25*, 519–535. [[CrossRef](#)]
87. Smith, R.L.; Karaman, M.A.; Balkin, R.S.; Talwar, S. Psychometric properties and factor analyses of the achievement motivation measure. *Br. J. Guid. Couns.* **2020**, *48*, 418–429. [[CrossRef](#)]
88. Çelik, İ.; Sarıçam, H. The relationships between positive thinking skills, academic locus of control and grit in adolescents. *Univers. J. Educ. Res.* **2018**, *6*, 392–398. [[CrossRef](#)]
89. Yeşil, R. School Learning Responsibility Scale's Validity and Reliability Study (For Primary School Students). *Mevlana Int. J. Educ.* **2013**, *3*, 1–14. [[CrossRef](#)]
90. Salem, S.F.; Al-Jubari, I.; Aldholay, A.; Jalal, A.N.; Mutahar, A.M. Covid-19 and Online Learning Engagement: Effects of Internal Crisis Communication, Technology and Social Responsibility. In *Proceedings of the Lecture Notes in Networks and Systems*; Springer Science and Business Media Deutschland GmbH: Berlin/Heidelberg, Germany, 2022; Volume 299, pp. 276–289.
91. Ali, J.; Yousuf, M.; Marri, K. University Social Responsibility and Self Efficacy as Antecedents of Intention to use E-Learning: Examining Mediating Role of Student Satisfaction. *Psychol. Educ.* **2021**, *58*, 4219–4230.
92. Kurtovic, A.; Vrdoljak, G.; Idzanovic, A. Predicting procrastination: The role of academic achievement, self-efficacy and perfectionism. *Int. J. Educ. Psychol.* **2019**, *8*, 1–26. [[CrossRef](#)]
93. Güngör, A.Y. The relationship between academic procrastination, academic self-efficacy, and academic achievement among undergraduates. *Oltu Beşeri ve Sos. Bilim. Fakültesi Derg.* **2020**, *1*, 57–68.
94. Shaked, L.; Altarac, H. The possible contribution of procrastination and perception of self-efficacy to academic achievement. *J. Furth. High. Educ.* **2022**, *8*, 1–18. [[CrossRef](#)]
95. Çapan, B.E. Relationship among perfectionism, academic procrastination and life satisfaction of university students. In *Proceedings of the Procedia—Social and Behavioral Sciences*; Elsevier: Amsterdam, The Netherlands, 2010; Volume 5, pp. 1665–1671.
96. Gopal, R.; Singh, V.; Aggarwal, A. Impact of online classes on the satisfaction and performance of students during the pandemic period of COVID 19. *Educ. Inf. Technol.* **2021**, *26*, 6923–6947. [[CrossRef](#)] [[PubMed](#)]
97. Segbenya, M.; Bervell, B.; Minadzi, V.M.; Somuah, B.A. Modelling the perspectives of distance education students towards online learning during COVID-19 pandemic. *Smart Learn. Environ.* **2022**, *9*, 13. [[CrossRef](#)]
98. Turner, J.C.; Nolen, S.B. Introduction: The Relevance of the Situative Perspective in Educational Psychology. *Educ. Psychol.* **2015**, *50*, 167–172. [[CrossRef](#)]
99. Gómez-Rey, P.; Barbera, E.; Fernández-Navarro, F. Measuring teachers and learners' perceptions of the quality of their online learning experience. *Distance Educ.* **2016**, *37*, 146–163. [[CrossRef](#)]
100. Tatto, M.T.; Burn, K.; Menter, I.; Mutton, T.; Thompson, I. *Learning to Teach in England and the United States*; Routledge: Oxfordshire, UK, 2017.
101. Zhu, G.; Rice, M.; Li, G.; Zhu, J. EFL Student Teachers' Professional Identity Construction: A Study of Student-Generated Metaphors Before and After Student Teaching. *J. Lang. Identity Educ.* **2020**, *21*, 83–98. [[CrossRef](#)]
102. Abdalla Mohammed, T.; Muhammed Pandhiani, S. Analysis of Factors Affecting Student Evaluation of Teaching Effectiveness in Saudi Higher Education: The Case of Jubail University College. *Am. J. Educ. Res.* **2017**, *5*, 464–475. [[CrossRef](#)]
103. Veletsianos, G. *Emergence and Innovation in Digital Learning: Foundations and Applications*; Athabasca University Press: Athabasca, AB, Canada, 2016; ISBN 9781771991490.
104. Jaeggi, S.M.; Buschkuhl, M.; Jonides, J.; Shah, P. Short- and long-term benefits of cognitive training. *Proc. Natl. Acad. Sci. USA* **2011**, *108*, 10081–10086. [[CrossRef](#)]
105. Melby-Lervåg, M.; Hulme, C. Is working memory training effective? A meta-analytic review. *Dev. Psychol.* **2013**, *49*, 270–291. [[CrossRef](#)] [[PubMed](#)]
106. Li, G.; Luo, H.; Lei, J.; Xu, S.; Chen, T. Effects of First-Time Experiences and Self-Regulation on College Students' Online Learning Motivation: Based on a National Survey during COVID-19. *Educ. Sci.* **2022**, *12*, 245. [[CrossRef](#)]
107. Al-Rahmi, A.M.; Shamsuddin, A.; Wahab, E.; Al-Rahmi, W.M.; Alturki, U.; Aldraiweesh, A.; Almutairy, S. Integrating the Role of UTAUT and TTF Model to Evaluate Social Media Use for Teaching and Learning in Higher Education. *Front. Public Health* **2022**, *10*, 905968. [[CrossRef](#)]
108. Kim, R.; Song, H.D. Examining the Influence of Teaching Presence and Task-Technology Fit on Continuance Intention to Use MOOCs. *Asia-Pac. Educ. Res.* **2022**, *31*, 395–408. [[CrossRef](#)]
109. Cheng, Y.M. How does task-technology fit influence cloud-based e-learning continuance and impact? *Educ. Train.* **2019**, *61*, 480–499. [[CrossRef](#)]
110. Blašková, M.; Majchrzak-Lepczyk, J.; Hriníková, D.; Blaško, R. Sustainable academic motivation. *Sustainability* **2019**, *11*, 5934. [[CrossRef](#)]

111. Abuhassna, H.; Al-Rahmi, W.M.; Yahya, N.; Zakaria, M.A.Z.M.; Kosnin, A.B.M.; Darwish, M. Development of a new model on utilizing online learning platforms to improve students' academic achievements and satisfaction. *Int. J. Educ. Technol. High. Educ.* **2020**, *17*, 38. [[CrossRef](#)]
112. Lastri, L.; Kartikowati, S.; Sumarno, S. Analysis of Factors that Influence Student Learning Achievement. *J. Educ. Sci.* **2020**, *4*, 679. [[CrossRef](#)]
113. Xu, D.; Jaggars, S.S. The impact of online learning on students' course outcomes: Evidence from a large community and technical college system. *Econ. Educ. Rev.* **2013**, *37*, 46–57. [[CrossRef](#)]
114. Kim, J. Learning and Teaching Online During Covid-19: Experiences of Student Teachers in an Early Childhood Education Practicum. *Int. J. Early Child.* **2020**, *52*, 145–158. [[CrossRef](#)]
115. Meccawy, Z.; Meccawy, M.; Alsobhi, A. Assessment in 'survival mode': Student and faculty perceptions of online assessment practices in HE during Covid-19 pandemic. *Int. J. Educ. Integr.* **2021**, *17*, 16. [[CrossRef](#)]
116. Abd Elgalil, H.M.; Abd El-Hakam, F.E.Z.; Farrag, I.M.; Abdelmohsen, S.R.; Elkolaly, H. Undergraduate Students' perceptions of online assessment during COVID-19 pandemic at faculty of medicine for girls, Al-Azhar University, Cairo, Egypt. *Innov. Educ. Teach. Int.* **2022**. [[CrossRef](#)]
117. Alalwan, N.; Al-Rahmi, W.M.; Alfarraj, O.; Alzahrani, A.; Yahaya, N.; Al-Rahmi, A.M. Integrated three theories to develop a model of factors affecting students' academic performance in higher education. *IEEE Access* **2019**, *7*, 98725–98742. [[CrossRef](#)]
118. Al-Maatouk, Q.; Othman, M.S.; Aldraiweesh, A.; Alturki, U.; Al-Rahmi, W.M.; Aljeraiwi, A.A. Task-technology fit and technology acceptance model application to structure and evaluate the adoption of social media in academia. *IEEE Access* **2020**, *8*, 78427–78440. [[CrossRef](#)]
119. Krejcie, R.V.; Morgan, D.W. Determining Sample Size for Research Activities. *Educ. Psychol. Meas.* **1970**, *30*, 607–610. [[CrossRef](#)]
120. Peiffer, H.; Ellwart, T.; Preckel, F. Ability self-concept and self-efficacy in higher education: An empirical differentiation based on their factorial structure. *PLoS ONE* **2020**, *15*, e0234604. [[CrossRef](#)]
121. Wang, R.; Shirvan, M.E.; Taherian, T. Perseverance of Effort and Consistency of Interest: A Longitudinal Perspective. *Front. Psychol.* **2021**, *12*, 743414. [[CrossRef](#)] [[PubMed](#)]
122. Teimouri, Y.; Plonsky, L.; Tabandeh, F. L2 grit: Passion and perseverance for second-language learning. *Lang. Teach. Res.* **2022**, *26*, 893–918. [[CrossRef](#)]
123. Craig, A.; Goold, A.; Coldwell-Neilson, J.; Mustar, J. Perceptions of Roles and Responsibilities in Online Learning: A Case Study. *Interdiscip. J. e-Skills Lifelong Learn.* **2008**, *4*, 205–223. [[CrossRef](#)] [[PubMed](#)]
124. Hair, J.; Hollingsworth, C.L.; Randolph, A.B.; Chong, A.Y.L. An updated and expanded assessment of PLS-SEM in information systems research. *Ind. Manag. Data Syst.* **2017**, *117*, 442–458. [[CrossRef](#)]
125. Fornell, C.; Larcker, D.F. Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *J. Mark. Res.* **1981**, *18*, 39–50. [[CrossRef](#)]
126. Bagozzi, R.P.; Yi, Y.; Nassen, K.D. Representation of measurement error in marketing variables: Review of approaches and extension to three-facet designs. *J. Econom.* **1998**, *89*, 393–421. [[CrossRef](#)]

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