# Digital Readiness and Cognitive Agility as Predictors of Academic Well-Being among University Students during Digital Learning

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**Abstract**

The current research aimed to reveal the predictive ability of digital readiness and cognitive agility for academic well-being among students at King Khalid University in the Kingdom of Saudi Arabia during digital learning, and to identify the nature of the relationship between academic well-being and both digital readiness and cognitive agility among university students during digital learning. The researcher used the descriptive approach. Analytically, the research sample consisted of (296) male and female students from King Khalid University in the Kingdom of Saudi Arabia, the researcher prepared a digital readiness scale, a cognitive agility scale, and an academic well-being scale. The research results found that there is a statistically significant correlation between academic well-being and both digital readiness and cognitive agility among university students. There is also a high predictive ability to Academic well-being among university students from through their digital readiness and cognitive agility.

**Keywords:** Digital Readiness - Cognitive Agility - Academic Well-Being - Digital learning

**Introduction:**

Institutions of higher learning are constantly in pursuit of ways to improve the learning experience of their students in order to effectively attend to each student's well-being. Unfortunately, most institutions approach well-being as an issue of medical care only. The definition of well-being is multidimensional and explores the concept of mental, emotional, physical, social, and psychological functioning, aspects of which are influenced by cultural and environmental contexts. The emphasis is on the absence of illness or psychopathology, the flow of life, as characterized by high spirits, health, psychological and physiological balance, and the pursuit of happiness, which is related to views on subjective well-being. This view brings in the contemplation of the effect of promoting good mental health, effective learning, and participation in early prevention efforts by promoting resiliency, which prevents later mental health problems, thus increasing academic discipline, advancement, and graduation rates. In order to direct students towards psychological, social, and environmental support for a healthier lifestyle, it is important for students to be connected to how to enlist and promote the numerous campus resources that are readily available. Understanding strategies for developing resilience can result in prevention programs that encourage the adoption of optimal and adaptive functioning (Marsh et al.2020; Ruggeri et al.2020).

There is no doubt that electronic educational programs have become an important requirement in the educational process because they may contribute to improving it and making it more effective, but attention should be paid to setting specifications and practical procedures based on appropriate educational theories and relying on them during the design and production processes, as well as providing an educational base for the student to obtain information. scientifically better By providing an active, interactive learning

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environment and setting specific controls that help choose the most appropriate methods for selecting e-learning programs, thus highlighting the importance of e-learning in providing an educational environment appropriate to the capabilities, abilities, and interests of students collectively and individually (Al-Gamal, 2009, 29).

It is helpful for students to have positive, supportive classroom and school experiences that also spur their academic learning and skill growth. Previous studies have found that systemic well-being is a stronger predictor of students' academic achievement than cognitive agility. Helping students achieve systemic well-being can promote stronger academic performance. This leads to the need for universities to establish a system to promote strong academic performance by not only paying attention to students' mental health, but also protecting and enhancing students' academic well-being. Individual conduct is influenced by the norms and the values of the broader social context. Academic institutions are, indeed, an important context for promoting student well-being and creating positive lifelong implications by providing students with vital, extensively shared experiences. (Wong et al, 2024; Kaya & Erdem, 2021)

Scholars often assume that well-being should be an important goal in education and express concern that people fail to consider long-term outcomes. The importance of promoting academic well-being during students' elementary, junior, and senior high school education has been increasingly recognized in view of the practical and educational benefits. Educational models help explain engagement in terms of positive emotional and psychological states, including a sense of meaning and work that energizes and makes them feel good. The model emphasizes the importance of specifically academic engagement. Despite the increasing understanding of the multiple benefits of academic well-being, knowledge about the development and promotion of academic well-being is still relatively scarce. Moreover, the emotional experiences of educational involvement during the transition from junior secondary school to senior secondary school have received very little attention. Consequently, we chose to explore strategies for enhancing academic well-being upon the transition from junior to senior secondary school. (Kaya & Erdem, 2021; Pulimeno et al, 2020)

The digital era is here to stay, with technologies advancing our potential at seemingly exponential growth rates. New ways of doing almost anything are popping up like mushrooms after rain, and those not ready for this new era are falling behind, time spent catching up with what can sometimes be an overwhelming pace. Ever-new disruptions make preparations for what follows vital. As such, readiness for an increasingly digital society, economy, and world is imperative. Unfortunately, many are not ready for this digital world, which brings up our topic: how to get ready for digital disruptions in our daily lives and in education, business, and industry?

Digital readiness is our targeted endpoint, but what is this readiness and what does it entail? This text is divided into two parts: the first helps us answer this question, while the second provides some implications and strategies to help us or our organizations and communities get there. In the first part, we will provide a more thorough foundation for this desired endpoint, including what should we, our businesses, or educational institutions be getting ready for? With this foundation in place, we can move on in the second part, to exploring implications and strategies that can get us there and shape future research in these areas.

Agility is typically characterized by quickness, ease of movement, and the gracefulness of execution. In the case of cognition, agility refers to how effectively and efficiently we learn, reason, and solve problems. Theoretical Framework of Cognitive Agility: Intelligence has traditionally been defined within a framework of skills and abilities that have relied heavily on verbal and non-verbal reasoning. The underlying construct for these factors is general intelligence, which is typically derived from abilities such as inductive and deductive reasoning, speed of processing, as well as working memory, verbal comprehension, and spatial visualization. (Dong et al., 2020; Tsarava et al, 2022)

Theories of intelligence, however, have not addressed other important cognitive skills, such as the ability to adapt to novelty, regulate processing in order to focus attention on the task at hand, shift flexibly between tasks, imagine and visualize future scenarios, and process information about the external environment for

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use by the self or others. These abilities are conceptually separable from abilities that enter traditional models of intelligence and interact with them in unique and meaningful ways. Despite the fact that these abilities are central to human cognition, there has been little agreement about what to call them or how to measure them. Theoretical Foundations of Cognitive Agility: To address these issues, we use a multimethod approach for developing a hierarchical model of cognitive agility that includes definitions of what components make up cognitive agility, expert-generated and score-based prototype measures, and then we explore how these abilities intersect with traditional forms of reasoning and visualization. (Poláková et al, 2023; Sternberg, 2021)

As young people mature, they need to balance challenges. For students, this may mean a variety of conceptual changes. Academic well-being reflects adopting a proactive stance on learning, possessing a growth mindset, but also entails cognitive skills, academic behaviour's, and responses to social assessment and emotionally laden experiences. Increasingly, it is recognized that academic well-being matters because it directly links to student performance and optimization of resources. Too often, this is self-evident. Schools can be a font of energy and beauty, but also bring challenges for slow learners, nonconformists, and those experiencing cognitive overload. (Bladek, 2021; Phan & Ngu, 2020)

From the above, it becomes evident that digital readiness can contribute to enhancing academic well-being by providing a flexible learning environment that relies on advanced digital tools, enabling students to learn more effectively. Additionally, it encourages the development of academic resilience and Cognitive Agility among students, allowing them to handle digital challenges and adapt to new learning methods more swiftly and efficiently. Consequently, these factors help create an educational environment focused on students' academic well-being by empowering them to use technology productively and enhancing their ability to adapt to digital changes. This, in turn, leads to improved academic outcomes and provides appropriate psychological and social support throughout the educational process. The current research aims to explore the potential of predicting academic well-being through digital readiness and Cognitive Agility among university students.

**Literature review**

**1.1 Contextualization and characterization of Digital Readiness:**

Digital readiness is an indispensable characteristic for personal and organizational success. Highly digitally ready organizations lead the technological business world; they are dynamically oriented and at the forefront. Employability and employee readiness are personal characteristics that are important for people who want to remain competitive in the labor market and feel more secure and happy regarding their professional position. The importance of companies in employing IT-proficient employees is related to the benefits derived from positive contributions in terms of the quality of people, turnover, diversity, and customer relationship management. In the academic environment, digital readiness can be associated with an increase in the quality of student learning, satisfaction, and performance, as well as the success of an educational institution. Furthermore, digital readiness is considered a success determinant when evaluating strategic implementation and digital technology projects.

The importance of preparing for e-learning:

E-learning is beneficial for educational institutions, as studies: Mahmoud (Brodley, 2012) (McConnell, 2008) (Kaur, Abas, 2004), and Marai (2022) agreed that assessing readiness for e-learning (Bate, Day & Machish, 2013), (2013) As follows:

1- E-learning requires the student to use modern tools and technologies, which makes qualification imperative and the rapid transfer of information via information and communications technology.
2- Evaluating readiness for e-learning allows the design of comprehensive strategies for e-learning and the effective achievement of ICT goals.
3- The application of e-learning faces many problems for which appropriate solutions must be developed before starting to implement it, in addition to the lack of the necessary skills and experience to deal with e-learning techniques.

4- Education using technology requires possession of technical skills and the desire to develop towards change for the better.

There are studies that aimed to measure digital readiness for e-learning, including studies that demonstrated a low level of readiness, namely the study of Wattakiecharoen & Nilssok, 2013), and the study of Aydin & Tasci (2005), and among the studies whose results confirmed the presence of high readiness, including the study of (Ouma, 2012), and the study ( 2011, Tubaishat Lasari); Marei's study (2022) indicated that open source electronic courses increase students' interaction and motivation for achievement, and also develop their perseverance and level of self-efficacy. From another angle, it is clear how important it is to measure the level of students' readiness to enroll in open-source electronic courses, as understanding this readiness will help in the design. It considered the effectiveness of these courses, and recommended developing appropriate plans and programs to develop readiness for e-learning among teachers and students.

Understanding students' readiness for e-learning in general and learning through open source electronic courses in particular is one of the critical success factors for implementing these courses and for the learner to obtain a better educational experience, as Sharifa (Hajat, 2015) confirmed that success in an open source course requires higher than usual motivation in Traditional courses, and the learner must acquire self-learning skills and have great knowledge of using technology and familiarity with using educational content systems "Mental activity," which Descartes wanted to study, is presented in the form of cognitive activity, which studies a person mainly in connection with reality. This activity has always existed and influenced society, but it is only now, due to developments in communication equipment and a certain economic situation, that the existence of public problems seems to be the most important characteristic and topic in the philosophical sciences (Katona, 2021; Martingano et al., 2021); In this regard, the study (Fadzil, Abd elLatif& Abu Kassim, 2016) emphasized the importance of understanding the factors that affect the readiness to learn through open source electronic courses, which in turn helps service providers to effectively design open source electronic courses. This study aimed to measure the level of Readiness of adult learners studying in higher education institutions in Malaysia, In doing so, it relied on five competencies, and the results concluded that self-efficacy and self-direction play an important role in preparing for learning through open source electronic courses. The study (Arnavut, Bicen, 2017) also developed a scale to determine the level of preparedness of teachers as learners for open-source electronic courses, as well as their perceptions about them.

Readiness for e-learning is one of the important indicators of the success of e-learning, and the success of e-learning requires good planning and the learners' possession of the necessary competencies for the purposes of application (Brodley, 2012); explained that education using technology requires possession of technical skills and the desire to develop towards change for the better. In light of this, everyone (Alem, Plaisent, Zuccaro& Bernard, 2016) knew Readiness for e-learning to the extent that learners are prepared to enroll in online training courses, so learners must have prior characteristics, behaviours, skills, and attitudes that will prepare them to enrol in these online courses.

**1.2 Contextualization and characterization of Cognitive Agility:**

Cognitive agility is an umbrella term that includes a set of cognitive skills that allow us to think flexibly, link ideas, access a wide range of knowledge, and sculpt and reapply the knowledge into different tasks or new challenges. We note that the concept also overlaps significantly with similar constructs such as learning to learn, meta learning, open-mindedness, humility, mental alertness, and type 1 and 2 thinking. For the purposes of our discussion, we intend this to include intelligence, critical thinking, problem solving, reflexive thinking, creativity, metacognition, and the development of additional capabilities. This broad perspective acknowledges a range of skills or abilities, but also a comprehension of the levels of personal insight into how skill application varies and matures, such as moving from rigid rules to flexible heuristics and ultimately to wisdom. We stipulate that cognitive agility is specific to the experience or situational domain. For example, a person who is an expert in business finance is expected to show cognitive agility when reacting to a sudden crisis in a business meeting, but not necessarily when shifting to create music.

These specificities are conceptually underlined by understanding different constructs such as "inside view" and "outside view," and we use the words "deep" and "shallow" (about craft, skill, or domain; Young et al.2022; Dai, De2021)

Cognitive agility is defined as "the individual's ability to apply the various skills, abilities, and knowledge required to conduct assessments and make quick judgments and decisions in order to respond to changes in different situations. It is the individual's ability to work flexibly between focused attention and cognitive openness, and it appears in his level of openness to all available alternatives and the degree of Flexibility in responding to it so that he can easily change the focus of his attention, thus enabling him to make quick assessments and make correct decisions (Hutton & Turner, 2019)

cognitive agility defined as a special cognitive ability that leads to increased performance in contexts that include a series of adaptation processes, and reflects the adaptive behavior of the student in dynamic contexts. It is also a complex cognitive formation that reflects the extent to which three cognitive abilities fit together while working in environments. It includes dynamic tasks that enable the individual to adapt to every change in the requirements of responding to those tasks. These abilities are cognitive openness, cognitive flexibility, focus of attention Good (2009); and its definition Pisapia (2009) It is the student's ability to mentally adapt quickly and efficiently to changes in his environment, and Yeganeh & Good (2012) defined it as the student's ability to work flexibly, with cognitive openness, and focused attention.

Historical Development of the Concept:

The problems of human intelligence and the development of the intellect were the subject of research in ancient Eastern civilizations. In the West, the first systematic views were developed in ancient Greece. The word "cognitive" was introduced into circulation in the context of philosophical problems. The development of science and technology has led to the condition of modern society, in which the development and actualization of the cognitive abilities of an individual become an urgent problem. The theory and practice of the organization of learning and education are changing; the concept of intelligence has become obsolete. Scientific and philosophical interest is directed to problems completely unrelated to learning, development, and education. The issue of what knowledge is, how the thinking process is built, how to measure thinking and thinking abilities, and what the relationship between perception, memory, and thinking is — all of this is again included in the orbit of cognitive psychology, logic, epistemology, and, in a broad interpretation, knowledge theory. (Cohen et al.2021; Iijima et al, 2021)

Dimensions of cognitive agility:

1- Cognitive Openness: This means the expansion of awareness, the student's acceptance of everything new, the tendency toward ambiguity, and the expansion of experience.

2- Cognitive Flexibility: This means the student's ability to accept different ideas, experiences, and points of view, and to change fixed responses when moving between different tasks.

Focused Attention: This means the student's ability to filter information so that the mental focus is on the stimuli related to the topic, and the exclusion of distracting stimuli over long periods of time. (Al-Khatib, 2022)

Cognitive openness is associated in the psychological literature with many terms such as: creativity, openness to experience, curiosity, and mental agility, and refers to the acceptance of new ideas, experiences, and points of view, and is represented by openness, depth, permeability of awareness, the frequent need for expansion and experience, and the desire to engage in exploratory behavior, which leads to the acquisition of knowledge. New McCrae & Costa, 1997).

The study of Lusting May & Hasher (2001) and the study of Good & Yeganeh (2012) combined, and the study (Haupt, et al., 2017), that there are three dimensions of tourism agility, which are: openness inspired, flexibility inspired by art, and Scott's focus, as well as Colors (Ross et al., 2018), that agility is the philosophy of paradise's passion for moving easily between the passion of the soul, and focused focus.

We aim for entrepreneurship and cognitive openness, accepting new experiences, ideas, and viewpoints. It also includes breadth, penetration, and depth of awareness. and the recurring need to expand experience, and the tendency to expand experience and try new things, which results in the acquisition of new knowledge. (Haupt, et al., 2017); He added that cognitive openness is the individual's ability to notice new information and constantly search for it from by expanding the scope of perceptual attention and conceptual attention, the individual can select any indicators that lead to new information that can be integrated into his processing processes. LePine, Colquitt & Erez (2000) believe that individuals who are characterized by cognitive openness tend to be ambiguous, accept new ideas and experiences, and search for creative solutions, which makes them adapt appropriately to different changes.

Cognitive agility the ability to think flexibly in diverse situations and to change rapidly from one mode of thinking to another also plays a key role in personal success. It facilitates learning, creativity, and entrepreneurship. In many situations, only a small advantage is sufficient to ensure success; in such cases, higher efficiency and better creative potential can lead to a significant difference in the level of functioning. Cognitive agility is therefore worth developing. With this in mind, the present paper examines the concept of cognitive agility, describing its foundations, the main theoretical schools, and typical methods of evaluating this construct (Ataullayeva, 2024).

### 1.3 Contextualization and characterization of Academic Wellbeing:

Student well-being has significant impacts on their cognitive abilities, learning experiences, and academic success. Despite the growing interest in this area, few studies specifically address well-being from the academic perspective. In dealing with well-being in the higher education domain, academic well-being research has tended to focus on negative features, such as stress, anxiety, and burnout. However, despite the leading role of negative indicators, it is understood that theories of well-being should be informed by positive appraisals since a complete well-being policy ought to emphasize and promote the role of protective factors, such as the dimensions of self-efficacy or academic resilience that enable students to face academic challenges. It is particularly important to explore this area in higher education students, who are in a period of their life full of changes and psychological adjustments related to their transition. It is an especially important stage since more tangible consequences of mental health problems can arise, such as dropout and negative future educational planning, which will affect the students and society as a whole. The studies carried out with university students have reported moderate to high levels of perceived stress due to situations related to academic activities. Moreover, a growing number of students have needed help with their studies, and many have suffered the consequences of excessive work or felt dissatisfied with their academic performance. (Wong et al, 2024; Kaya & Erdem, 2021)

The concept of academic well-being has its roots in the well-being literature, which generally refers to an individual's satisfaction, happiness, and quality of life, rather than merely whether an individual is in a good mood, feels happy, or is able to function well psychologically. Initially, studies on student well-being revolved around psychological health, such as whether a student experiences depression, anxiety, high levels of stress, or low self-esteem. More recent studies have also turned towards studying the social aspect of a student's life, such as their feelings of social integration and how they perceive their peer and teacher relationships. However, other variables related to student survival and learning experience, such as academic performance, academic motivation and engagement, risk behavior, and physical health, as well as students' perceptions and expectations of their ability to succeed at school, are still predominantly examined in discrete, separate studies. (Hernández-Torrano et al, 2020; Hook et al, 2023)

The concept of academic well-being includes four sub-dimensions (Renshaw (2016)):

1 - Academic Satisfaction: The student's feeling of positive experiences and emotions when he engages in academic tasks.

2- University Connectedness: The student's feeling of belonging to the university, and of interest and acceptance from others there.

3- Academic Gratitude: College Gratitude is a tendency to recognize and respond to positive emotions, appreciation and gratitude for the giving role that others provide to the student in college.

Based on the empirical results obtained from university students, this study supports the notion that students' academic well-being is positively associated with what they perceive about their learning environments. Among other findings, we stress the importance of evidence on the relationship between student academic well-being and quality aspects of teaching support services, especially student counselling services and support from fellow students. Students who perceive higher quality services in these areas tend to have keen attitudes toward coursework, which might lead to several positive individual consequences. With the aim of contributing to a fuller and more comprehensive understanding of the relationships between students' academic study environment and academic well-being, in the next section we present a literature review to help outline our ideas. (Capone et al., 2020; Han et al., 2021).

There is growing concern for the mental health and well-being of college students. Becoming a successful academic person is challenging, which indeed should enhance academic well-being. The concept of academic well-being is different from the perspective of subjective well-being. In spite of ambiguity, it is argued that academic well-being may mean "you must suffer to do well." Suffering is an integral part of the developmental and learning processes. The good suffer because it is worth doing, and succeed as a reward. Such a view of academic well-being is normative and prescriptive. There are some strategies for enhancing academic well-being. The use of findings will not only help the efficient accomplishment of college tasks, thus showing higher grades and better performance, but also maintain physical and mental health. (Salimi et al, 2023; Hernández-Torrano et al, 2020).

E-learning skills are considered the basis of the modern learning process. It is represented in the learning process that is based on the use of computers, modern communication mechanisms, the electronic world, the World Wide Web (the Internet), and the multimedia it includes, whether sound, images, electronic libraries, or drawings, in order to conduct the educational process in the desired manner and to accomplish the greatest possible amount. Benefit from learning within a level of competence and effectiveness (Suhail & Musleh, 2016).

From the above, it is evident that E-learning is an essential component of higher education, and digital readiness has become a necessary standard to enable students to maximize the benefits of these modern methods. Consequently, students need technical skills and prior behaviours that enhance their ability to adapt to E-learning. Cognitive agility plays a crucial role in helping students think flexibly, adapt quickly to new circumstances, and handle the complexities and continuous changes they face, both academically and personally. Academic well-being often requires confronting challenges and enduring hardships to achieve success. This highlights the need to understand the relationship between academic well-being, digital readiness, and Cognitive Agility within the context of E-learning.

**Hypotheses:** From the above, the hypotheses of the current research are as follows:

1- There is a statistically significant relationship between the mean scores of university students on the digital readiness scale and the academic well-being scale.

2- There is a statistically significant relationship between the means scores of university students on the cognitive agility scale and the academic well-being scale.

3- There is a high predictive ability to predict academic well-being among university students through their scores on the digital readiness scale.

   5-   There is a high predictive ability to predict the academic well-being of university students through their scores on the cognitive agility scale.

**Methodology:**

**Participants:**

The research involved sample consisted of (152) male and (144) female students, with a total of (296) male and female students from King Khalid University in the Kingdom of Saudi Arabia.

**Instruments:**

1) **Digital readiness Scale:**

The researcher prepared a digital readiness scale for university students. The scale consists of 25 items and includes five dimensions into which the items are distributed as follows: using digital devices, which includes items (1-5); Using digital applications, including items (6-10); The skills of searching for information, including items (11-15), and the behaviour of sharing information, including vocabulary (16-20). Awareness of digital media, including items (21-25). The researcher evaluated the answer to the scale's items using the five-point rating scale as follows (to a very large degree - to a large degree - to a moderate degree - to a low degree - to a very low degree), and the scale is corrected as follows, in order: For previous responses (5-4-3-2-1) score.

The researcher applied the scale to (30) male and female students at King Khalid University in the Kingdom of Saudi Arabia, and calculated the correlation coefficient between each item in the scale and the dimension to which it belongs to verify the internal consistency of the scale, and the correlation coefficients ranged between (0.435-0.879). All of them are statistically significant correlation coefficients at the significance level (0.01), which confirms the internal consistency of the scale.

The researcher calculated the differences between the lowest and highest quartiles in students' scores on the scale, and there were statistically significant differences between the lowest and highest quartiles on the digital readiness scale, where the Z value for the dimensions of the scale ranged between (3.123 - 3.302), and it also reached (3.371) for the scale as a whole, and all values were statistically significant at the significance level (0.01), which indicates the validity of the scale.

The researcher verified the stability of the scale by finding Cronbach's alpha coefficient. and The results are proven that the scale has a high level of reliability, as the Cronbach's alpha reliability coefficients ranged between (0.567-0.825), which are high and acceptable values; and the test-retest method was used to verify the stability of the scale and the correlation coefficients between the first and second applications of the scale are all statistically significant at the level of (0.01). Which indicates the stability of the scale.

2)- **Cognitive agility scale:**

The researcher prepared a measure of cognitive agility for university students. The measure consists of (18) items and includes three dimensions in which the items are distributed as follows: cognitive openness, which includes items (1-6); Cognitive flexibility includes vocabulary (7-13); Focusing attention and including vocabulary (14-18), The researcher evaluated the response to the scale items using a five-point rating scale as follows (to a very large degree - to a large degree - to a moderate degree - to a low degree - to a very low degree), and the scale is corrected as follows in the order of the previous responses (5-4-3-2-1) Degree.

The researcher calculated the correlation coefficient between each item of the scale and the dimension to which it belongs to verify the internal consistency of the scale, and calculated the correlation coefficient between each item in the scale and the dimension to which it belongs to verify the internal consistency of the scale, and the correlation coefficients ranged between (0. 0,484-0.851). All of them are statistically significant correlation coefficients at the significance level (0.01), which confirms the internal consistency of the scale.

The researcher calculated the differences between the lowest and highest quartiles in students' scores on the scale, and there were statistically significant differences between the lowest and highest quartiles on the digital readiness scale, where the Z value for the dimensions of the scale ranged between (2.912 - 3.401),

and it also reached (3.373) for the scale as a whole, and all values were statistically significant at the significance level (0.01), which indicates the validity of the scale.

The researcher verified the stability of the scale by finding Cronbach's alpha coefficient. and The results are proven that the scale has a high level of reliability, as the Cronbach's alpha reliability coefficients ranged between (0.786-0.956), which are high and acceptable values; and the test-retest method was used to verify the stability of the scale and the correlation coefficients between the first and second applications of the scale are all statistically significant at the level of (0.01). Which indicates the stability of the scale.

**3) Academic well-being scale:**

The researcher prepared a measure of academic well-being for university students. The measure consists of (23) items, and includes four dimensions into which the items are distributed as follows: academic satisfaction, which includes items (1-6); University cohesion includes vocabulary (7-12); Academic gratitude includes items (13-17), and academic effectiveness includes items (18-23). The researcher estimated the answer to the scale items using the five-point rating scale as follows:

(To a very great extent - to a large extent - to a moderate degree - to a low degree - to a very low degree), and the scale is corrected as follows in the order of the previous responses (5-4-3-2-1) degree.

The researcher calculated the correlation coefficient between each item of the scale and the dimension to which it belongs to verify the internal consistency of the scale, and calculated the correlation coefficient between each item in the scale and the dimension to which it belongs to verify the internal consistency of the scale, and the correlation coefficients ranged between (0.544-0.948). and the correlation coefficients between each item and the dimension to which it belongs are all statistically significant, which indicates that the scale has internal consistency.

The researcher calculated the differences between the lowest and highest quartiles in students' scores on the scale, and there were statistically significant differences between the lowest and highest quartiles on the digital readiness scale, where the Z value for the dimensions of the scale ranged between ( 3.401 - 3.467), and it reached (3.371) for the scale as a whole, and all values were statistically significant at the significance level (0.01), which indicates the validity of the scale.

The researcher verified the stability of the scale by finding Cronbach's alpha coefficient. and The results are proven that the scale has a high level of reliability, as the Cronbach's alpha reliability coefficients ranged between (0.754 - 0.923), which are high and acceptable values; and the test-retest method was used to verify the stability of the scale and the correlation coefficients between the first and second applications of the scale are all statistically significant at the level of (0.01). Which indicates the stability of the scale.

**Results and Discussion:**

**Table (1) Descriptive statistics for the Scales used (n = 296)**

| Variables | Minimum | Maximum | Mean | Standard deviation | Skewness | Kurtosis |
|---|---|---|---|---|---|---|
| **Digital Readiness** | 32.00 | 79.00 | 54.16 | 15.06 | 0.107 | 1.55 |
| **Cognitive Agility** | 23.00 | 57.00 | 39.22 | 10.96 | 0.088 | 1.54 |
| **Academic well-being** | 30.00 | 71.00 | 50.24 | 14.06 | 0.055 | 1.56 |

After calculating descriptive statistics for the variables, the researcher calculated correlation coefficients to verify the validity of the research hypotheses as follows:

To verify the first hypothesis of the research, which states: "There is a statistically significant relationship between the means scores of university students on the digital readiness scale and the academic well-being scale." The researcher used the Pearson Correlation equation to find the correlation coefficients between the two variables, and Table (2) shows the results.

**Table (2): Correlation coefficients between the means scores of digital readiness and academic well-being among university students**

| Academic well-being | Academic effectiveness | Academic gratitude | University connectivity | Academic satisfaction | Academic well-being |
|---|---|---|---|---|---|
| 0.745** | 0.753** | 0.734** | 0.602** | 0.510** | **Digital readiness** |

Table (2) shows that the correlation coefficients between the means scores of university students on the dimensions of the digital readiness scale and the dimensions of the academic well-being scale ranged between (0.510 - 0.753), and there is also a statistically significant correlation between digital readiness and the total score of academic well-being, and the correlation coefficient reached (0.745) and all The correlation coefficients are high and statistically significant at the significance level (0.01), which indicates the existence of a statistically significant correlation at the significance level. (0,01) between digital readiness and academic well-being among university students, which indicates that the first hypothesis of the research has been achieved.

To verify the second hypothesis of the research, which states: "There is a statistically significant relationship between the means scores of university students on the cognitive agility scale and the academic well-being scale." The researcher used the Pearson Correlation equation to find the correlation coefficients between the two variables, and Table (3) shows the results:

**Table (3): Correlation coefficients between the means scores of cognitive agility and academic well-being among university students**

| Academic well-being | Academic effectiveness | Academic gratitude | University connectivity | Academic satisfaction | Academic well-being |
|---|---|---|---|---|---|
| 0.888** | 0.758** | 0.809** | 0.805** | 0.750** | **Cognitive agility** |

Table (3) shows that the correlation coefficients between the means scores of university students on the dimensions of the cognitive agility scale and the dimensions of the academic well-being scale ranged between (0.809 - 0.750). There is also a statistically significant correlation between cognitive agility and the total degree of academic well-being, and the correlation coefficient reached (0.888) and all The correlation coefficients are high and statistically significant at the significance level (0.01), which indicates the existence of a statistically significant correlation at the significance level. (0,01) Between cognitive agility and academic well-being among university students.

To verify the third hypothesis of the research, which states: "There is a high predictive ability to predict the academic well-being of university students through their scores on the digital readiness scale," and the fourth hypothesis, which states: "There is a high predictive ability to predict the academic well-being of university students through their scores on the agility scale." Cognitive. The researcher verified the predictive value using multiple linear regression analysis Table (4) shows the results.

**Table (4) Results of multiple linear regression analysis**

| VIF | Sig T | T | B | Sig F | F | R² | R | Variables |
|---|---|---|---|---|---|---|---|---|

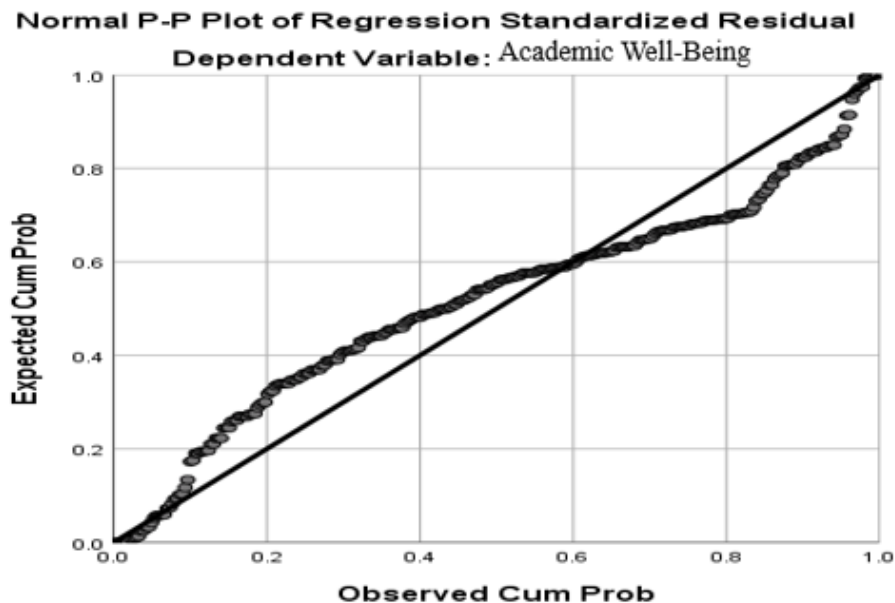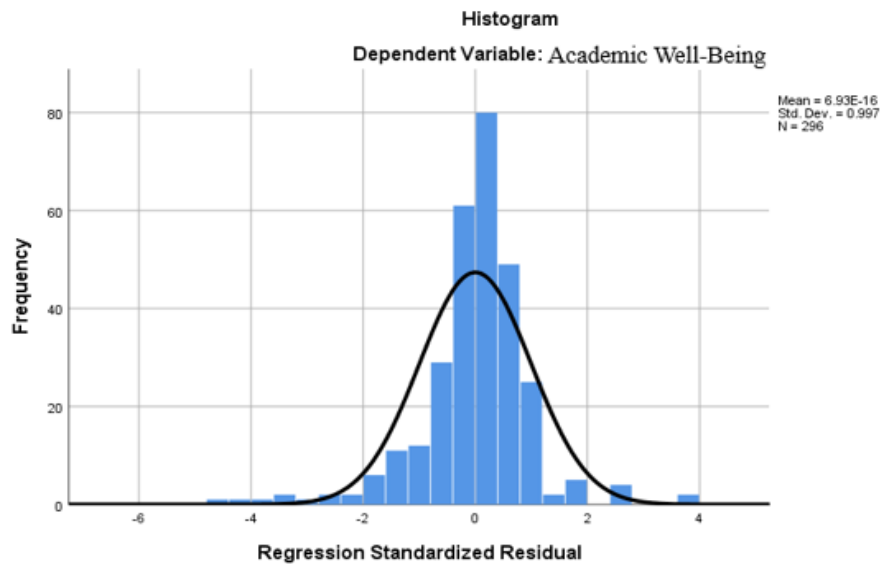| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1.580 | 0.01 | 11.77 | 0.306 | 0.01 | 872.23 | 0.856 | 0.925 | **Digital readiness** |
| | 0.01 | 24.74 | 0.884 | | | | | **Cognitive agility** |





**Figure (1) Distribution of multiple regression analysis scores**

Table (4) shows that the value of (F) of (872.23) is statistically significant at (0.01) and the value of significance is smaller than the value of (0.01) which is significant. Also, the value of the coefficient of determination (R2) for the explanatory variable (digital readiness and agility) is Cognitive), reached (0.855), meaning that the explanatory variable explains (85%) of the dependent variable (academic well-being), and the value of (B) was (0.306) for digital readiness, which is statistically significant by looking at the value of (T), where its value is (11.773), and the value of (B) was (0.884) for cognitive agility, which is statistically significant by looking at the value of (T), where its value is (24.744). The significance level of T for the two variables is (0.01), which indicates that the linear regression between the dependent variable

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and the two independent variables is significant, meaning that there is a predictive relationship with academic well-being through digital readiness and cognitive agility among university students, meaning that the higher the level of digital readiness and cognitive agility High This indicates high academic well-being among university students. The variance inflation factor for the model was (1.580). Its value is less than (3), which indicates that there is no multicollinearity problem among the model variables.

From the above, it is clear that the third and fourth hypothesis are correct, which indicate that there is a high predictive ability for digital readiness and cognitive agility to predict academic well-being among university students. The results of the current research are consistent with the study of Abdel Aziz (2022), which indicated a statistically significant correlation between academic well-being and cognitive agility among students. University students, and cognitive agility enhances students' cognitive flexibility and creative thinking, which supports their academic well-being, Some studies indicate this, including (Ross, 2108), and a study (Demirtas, 2020); The results of the study (Ghazala, et al, 2018) also indicated that there is a relationship between students' orientation to e-learning and the use of some of its tools with academic well-being, which confirms the results of the current study, as e-learning and digital readiness generate in students a sense of curiosity and academic passion.

Which prompts students to do more research, learning, and knowledge, and this is closely related to academic well-being. Cognitive flexibility, also as part of cognitive agility, supports academic well-being and is one of the variables explaining it, according to the results of the study (Ibrahim, 2021), which resulted in the relative contribution of positive thinking and cognitive flexibility in Academic well-being among university students. The researcher summarizes the results of the current research in that digital readiness and cognitive agility are variables that explain academic well-being, and have a high predictive ability for academic well-being.

### Conclusion and Recommendations:

Based on the results of the current research, the following can be recommended: Necessity to Working to develop digital readiness and cognitive agility among university students for its effective role in supporting academic well-being; Providing programs that aim to develop academic well-being among university students, taking into account digital readiness and cognitive agility due to their close and strong relationship with academic well-being, Drawing the attention of university students to the important variables that are related to and affect their academic well-being, such as (digital readiness and cognitive agility). The need for university faculty members to focus on supporting students' digital readiness by training them in digital skills, assigning them work that includes specialized tasks in e-learning, and participating in activities using digital tools; Conducting many field research on university students examining students' cognitive agility in light of e-learning and its development requirements due to its importance and contribution to students' academic well-being; Building and presenting many programs designed with the aim of developing digital readiness and cognitive agility among university students in light of e-learning.

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