Assessing Fintech Awareness and Knowledge Among Students at Selected Universities in Somalia

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ABSTRACT

This study examines financial technology awareness among students at four Mogadishu universities (Jamhuriya University of Science and Technology, Banadir University, SIMAD University, and the University of Somalia), using a cross-sectional descriptive research design. The study utilized a structured questionnaire to evaluate 231 students' understanding and familiarity with fintech concepts, focusing on demographic factors and perceived curriculum gaps. The study's participants were diverse in gender, age, institution, major, and year of study. The majority were male (63%), with 78% aged between 20 and 25. The study reveals that students' familiarity and understanding of fintech concepts like blockchain, smart contracts, neo-banking, crowdfunding, cloud computing, big data analytics, robo-advisors, and AI are low. This highlights significant gaps in students' knowledge of critical areas digital finance, e-payments or e-banking. The study shows a moderate correlation between demographic factors and students' fintech awareness, with 13.9% of variation explained by these factors. The overall model is statistically significant (F = 7.265, P < 0.001), indicating that these factors collectively impact students' knowledge and awareness of fintech. Gender, age, and university attended do not significantly influence fintech awareness, suggesting they are not major determinants. However, the study reveals that students' awareness of fintech increases as they progress through their academic years, with certain majors showing higher levels of awareness. The study recommends universities incorporate fintech topics into their courses, develop accessible options, invest in resources, collaborate with fintech companies, strengthen industry partnerships, and offer cross-disciplinary electives.

Keywords: Fintech, Financial Services, Digitalization, Awareness, Internet of Things, Somalia
JEL Classifications: G20, O33, I23, M15

1. INTRODUCTION

Technology is the application or use of scientific knowledge to create tools, systems, or methods for problem-solving and achieving specific goals, encompassing various items from simple tools to complex systems. The advent of technology has given rise to various concepts and innovations, including e-banking, e-government, e-finance, information systems, e-health, and financial technology (Ali et al., 2018). Human life is significantly interconnected with external elements that enhance our quality of life and overall well-being (Al-Fuqaha et al. 2015), so our lives have become woven with technology, transforming every facet

of our existence. The rise of Fintech or financial technology-the use of technology in financial matters-is one notable example, playing a significant role in our financial lives, encompassing digital banking, payments, investment and wealth management, lending and borrowing, insurance, and financial planning and budgeting. It includes online and mobile banking, digital wallets, peer-to-peer payments, cardless ATMs, digital claims processing, and online insurance purchases. In essence, Fintech has made financial services more accessible, convenient, and efficient.

Fintech industry is rapidly growing, utilizing modern and advanced technologies like cloud computing, blockchain,

the internet of things (IoT), AI, and robo-advisors (Ali, et al., 2018). These technologies are accelerating banking and finance operations, including artificial intelligence, data analytics, digital currencies, peer-to-peer financing, and crowdfunding (Ali et al., 2018). So, fintech is the future of the economy, business, and information technology, despite its contemporary development (Nasir et al. (2021). For instance, blockchain technology offers a new perspective in the modern economy, addressing issues like transparency, trust, reliability and security in data processing in the industrial sphere and promising a bright future (Golosova and Romanovs, 2018). Currently, the utilization of financial technology is on the rise due to its benefits to institutions and markets (Prawirasasra, 2018). Additionally, the COVID-19 pandemic significantly sped up the adoption of technology, underscoring its crucial role in public health, economic resilience, and social connection. This increase presents new challenges for regulators and market participants in balancing innovation benefits with risks, necessitating their intervention to support financial technology development without stifling innovation pace (Prawirasasra, 2018). So, the world is considering whether fintech will be seen as an opportunity for a new era post-COVID-19 or if there are challenges ahead (Nasir et al., 2021).

Fintech, or financial technology, is a novel financial sector that merges technological and financial functions. Fintech does not relate to any definitions related to payments, finance, or institutions (Prawirasasra, 2018). Nonetheless, the connection between information technology and finance has existed for a considerable amount of time and has developed over the course of three different eras (Prawirasasra, 2018). Historically, in the late 19th century, finance and technology experienced the first phase of financial globalization, which lasted until the start of World War I. This period is termed Financial Technology 1.0 (1866-1987), which is from analogue to digital. During World War I, advancements in information technology and communications led to the rise of technology-based companies like IBM in 1967 (Nolan, 1998; Prawirasasra, 2018). In 1967, ATM machines revolutionized the financial industry by enabling companies to connect domestic payments across borders and transition from analogue to digital (Prawirasasra, 2018). From 1987 to 2008, the implementation of Financial Technology 2.0 led to the growth of traditional digital financial services (Arner et al., 2015; Singh et al., 2024). Financial institutions, according to Prawirasasra, (2018), increasingly utilize IT for internal corporate activities, replacing paper-based mechanisms since 1970. Technology growth in the 1970s, 1980s, and 1990s led to new business models, and in the 1990s, the internet enabled these business models in the financial technology sector, replacing phone-driven stock brokering and ATMs. In 1995, the bank's innovation was influenced by the internet, which enabled customers to maintain virtual communication. The Financial Technology 3.0 initiative, launched from 2009 to present, aims to democratize digital financial services.

The growth of financial technology is significantly facilitated by the support of banks, governments (Prawirasasra, 2018), and universities. The digital revolution challenges conventional finance by introducing fintech innovation and widening job opportunities, so universities must incorporate fintech into their curricula to remain competitive and competent (Shino et al., 2022). The advanced education systems recently focused on competency-based curricula (Shino et al., 2022). Fintech is increasingly incorporated into universities' curricula in developed countries like Singapore and America, highlighting its rapid growth and role in the financial industry through special courses, teaching materials, undergraduate programs, bootcamps, and entrepreneurial incubation (Shino et al., 2022). For an improved quality of education and an efficient curriculum, understanding student perception is crucial for universities to align their curriculum with industry demands, ensuring graduates possess relevant Fintech knowledge and skills. Several works on financial technology among students were conducted in many countries, like Pakistan (Ali et al., 2018), the United Kingdom (Dasilas and Karanović, 2023), and Brazil (Mascarenhas et al., 2021).

For example, Ali et al. (2018) looked at the awareness and knowledge of fintech among Islamic banking and finance students in Pakistan. They discovered that the majority of respondents (48%) had no idea what fintech was, that 58% were unaware of smart contracts and block chains and how they are used in the banking and finance industry, and that 64% were unaware of cloud computing and how it is used in the financial service industry. So, Ali, et al. (2018) and others suggest that educational institutions should revise curriculum, design comprehensive Fintech courses, offer training programs, and organize workshops to increase awareness and prepare graduates for the emerging Fintech industry. Besides, there is no well-organized study on students' fintech awareness and knowledge level in Somalia; therefore, this study, replicating Ali et al. (2018), will assess fintech awareness and knowledge among students at selected universities in Somalia. The study has three specific objectives: first, to assess the awareness levels of finance students regarding various fintech innovations and concepts; second, to identify and analyze gaps within the current finance curriculum concerning fintech education; and third, to investigate the variations in fintech awareness and knowledge among students across different demographics, including gender, university, major, and year of study.

2. LITERATURE REVIEW

2.1. Concept of Financial Technology

The word "fintech" refers to the application of technology to enhance and automate financial services, processes, and operations (Puschmann, 2017). The financial industry has been involved in FinTech, a technology that focuses on developing financial services and products using intense information technology (Legowo et al., 2020). The term "fintech" has been defined in various ways, but it remains ambiguous for most people, despite being a topic of public debate in business, finance, and innovations (Legowo et al., 2020). However, fintech can be considered both a concept and an industry. According to Chuen and Teo (2015), fintech is the term for cutting-edge financial services that are provided through new technologies and are fueled by developments in internet and mobile technologies, leading to changing consumer expectations and major disruptions in financial services for many companies and startups. It's a broad term that covers a wide range of innovations,

from mobile banking and digital payments to complex algorithms for trading and risk management (Jalal et al., 2023).

The financial industry began its history of technological advancement in 1945, when checks became a widely accepted method of payment (Suryono et al. 2020). The first credit card was developed by Bank of America in 1958. The first ATMs to aid with financial dealings appeared in 1967. Next came the introduction of the debit card as a means of payment. The introduction of online banking in the 1990s was facilitated by the growth of the Internet. The 2000s saw the introduction of mobile payments and crowdsourcing as fintech innovations (Suryono et al., 2020). Currently, fintech is an innovative and new business in finance that attracts public attention (Legowo et al., 2020). So, it is clear that the fintech industry's development has led to a significant transformation in the concept of fintech, bringing several issues like disruptive business models and customer-centric solutions. The primary drivers behind the fintech evolution include technological improvements, changes in consumer expectations, global economic situations, and regulatory changes.

Fintech is seen differently by experts and the general public according to its influence and relevance. Liudmila et al. (2016) studied how financial technology (fintech) is perceived. Fintech refers to the use of information technology in fields of finance, digital, and financial innovation, as well as in the in the financial services sector outside of banks (start-ups) (Liudmila et al. 2016). Some start-ups, such as Alibaba, Amazon, and Google, have already grown to impressive sizes (Stern et al. 2017). Although it is often believed that fintech businesses' business models are mostly focused on loan and payment services, they also include crowdfunding, virtual currencies, InsurTech, RegTech, BigData, and security (such as cyber security) (Stern et al. 2017).

2.2. Fintech Industry: Segments and Significance

Fintech can be approached from both conceptual and industrial perspectives. So, financial technology is referred to as fintech and is a business and banking enterprise (AlMomani and Alomari, 2021). It is a new financial industry that uses technology to enhance financial activities. It emerged after the 2008 global financial crisis, integrating e-finance, internet technology, social networking services, social media, artificial intelligence, and big analytic data (Suryono et al. 2020). This has challenged traditional financial institutions like banks to develop practical business models and provided start-ups with an opportunity to enter the financial services industry. The development of fintech solutions addresses various business situations and aims to improve financial service processes (Suryono et al., 2020). Fintech, on the other hand, refers to products and services that use technology to raise the quality of traditional financial services and transactions (AlMomani and Alomari, 2021). These financial products are often created by startup companies, aiming to advance retail and corporate banking (AlMomani and Alomari, 2021).

Digitalization has significantly impacted the financial industry, leading to the emergence of FinTech (Legowo et al. 2020) with different offerings; so fintech is one of the significant innovations in the financial services industry, driven by economic sharing,

regulation, policy, and information technology (Lee and Shin 2018). As a unique and innovative sector, fintech has six fintech business models: insurance services, crowdfunding, payment, lending, wealth management, and capital markets (Stern et al. 2017). The models and products of fintech startups are growing due to technological advancements in infrastructure, big data, data analytics, and mobile devices, which enable fintech startups to offer unique, personalized services, disintermediating traditional financial firms (Lee and Shin 2018). As noted by Jalal et al. (2023), fintech has evolved from being vague and unreliable to becoming a necessity for financial institutions and small and medium enterprises. Its importance is growing rapidly, with investments in financial technology companies increasing from 1200 million USD in 2008 to 12,200 million USD in 2014, with analysts predicting continued growth.

PwC (2016) reports that 83% of financial institutions perceive their businesses as at risk by fintech startups, highlighting the need for financial institutions to develop and invest in fintech to maintain competitiveness in the financial industry. So, Fintech is a tangible reality on the ground, existing as a separate sector with its own nature and sub-segments. The fintech industry can be categorized into four main groups based on their business models, namely, financing, asset management, and payments, as well as other fintechs (AlMomani and Alomari, 2021). The finance sector comprises a fintech segment that provides financing for both private individuals and businesses. This segment can be further divided into crowdfunding subsegments, which involve a large number of contributors, and credit or factoring subsegments, which offer factoring services or credit without crowd participation. Crowdfunding can be categorized into four subsegments based on the investment consideration given to investors, namely, donation-based crowdfunding, reward-based crowdfunding, crowdinvesting and crowdlending (AlMomani and Alomari, 2021).

The asset management segment comprises fintech that provides asset advice, disposal, and management, along with aggregated personal wealth indicators, and is further subdivided. These subdivisions are social trading, robo-advice, personal financial management, and investment and banking (Dorfleitner et al. 2017). Beyond social trading, robo-advice, and PFM, there are FinTech firms that provide creative solutions for asset management. These are divided into two primary categories: Deposit brokers that offer daily or fixed-term deposits and online account opening, and online asset management, where real investment advisers actively engage with clients. The payments segment, as noted by Dorfleitner et al. (2017), encompasses fintechs that handle national and international payment transactions, including blockchain and cryptocurrency subsegments, which offer virtual currencies as an alternative to traditional fiat money. Fintechs that offer alternative payment methods are included in the alternative payment methods subsegment, such as mobile payment solutions, eWallets, and cyberwallets. These solutions enable fast, user-friendly transactions and provide innovative solutions. The other fintech segment refers to fintech businesses that are not categorized under traditional bank functions like financing, asset management, and payment transactions; these include insurtechs, search engines and comparison sites, and technology, IT, and infrastructure (Dorfleitner et al. 2017).

Financial technology is gaining importance, promoting financial inclusion, growth, and diversification of economic activity. So, fintech has attracted a broad user base, encompassing individuals, businesses, and other financial institutions. Fintech is being utilized by SMEs for various financial management tasks (Lontchi et al., 2023), large corporations for treasury management, risk management, and supply chain finance, and financial institutions for process optimization, customer engagement, and compliance. In Cameroon, Lontchi et al. (2023) examined the effect of fintech on SMEs performance during COVID-19 and found a positive and significant relationship between fintech and SMEs performance. So, the authors emphasized that fintech is a significant paradigm shift in the financial and business sectors, adding that fintech facilitates alternative financing sources for small and medium enterprises and achieves financial stability through technology for regulatory compliance and risk management. Similarly, Dudu-Eniola (2023) asserted that fintech facilitates foreign trade and remittances by workers abroad, increasing government efficiency through electronic payment methods. For example, migrant remittances are crucial for developing countries, improving living conditions, and supporting economies; so, high costs and high fees impact migrant populations (Flore, 2018). Blockchain technology, coupled with improved banking infrastructure, could revolutionize digital payments (Flore, 2018).

The literature presents fintech as a vibrant sector that is changing as digital entrepreneurs enter the market and adjust to meet societal demands and needs (Liudmila et al. 2016). The fundamental question from societal perspectives is whether fintech matters. Experts like Qamruzzaman (2023) argue that fintech and financial innovations, including new delivery channels, products, and intermediaries, have significantly accelerated the growth of financial inclusion in various countries over the past decade. So, fintech provides financial services to those who don't interact with the banking system. However, further reforms are needed to bridge gaps in regulations, consumer protection, and information security. Financial technology's potential benefits are significant and warrant further development.

2.3. Previous Studies
The fintech literature has been thoroughly examined by scholars in a variety of fields, focusing on fintech concepts, significance, role, and awareness. One important issue is setting boundaries or providing a clear and concise definition of fintech. Leong and Sung (2018) define fintech as an interdisciplinary field that combines finance, technology management, and innovation management. This definition has been given to a variety of groups, including business executives and students, and it has been observed that the term helps people comprehend fintech and its possibilities. This demonstrates that simple and clear definitions enhance people's comprehension of a subject. However, Leong and Sung (2018) stated that the lack of a universally accepted definition of fintech and a weak public understanding of the term are significant issues. Other writers assessed the awareness level of fintech-related concepts, companies, services, and products. A study by Kramer (2019) provides an in-depth analysis of public awareness regarding blockchain technology, revealing a significant lack of understanding about blockchain technology itself.

Similarly, in Pakistan, Ali et al. (2018) explored the understanding of fintech concepts among Islamic banking and finance students, examining the influence of demographics on their knowledge and understanding of fintech terms. The findings revealed that only 2% of respondents are very familiar with the term Fintech, and 68% are totally unaware of the concept and practice of crowd funding. A study in Indonesia by Leong and Sung (2018) surveyed 154 respondents, including students (46.1%), freelancers (5.3%), workers in the business sector (30.3%), and public sector employees (18.4%), and found that 53.2% of them were quite familiar with Fintech.

Fintech studies also explore the adoption of fintech by students in higher education. Traif et al. (2021) examined the use of fintech by university students and found that risk negatively impacts the intention to continue using fintech, with convenience being the most positive effect. One of the key issues that influences students' adoption of fintech is their level of financial literacy. Mulyono (2022) investigated the effect of financial literacy and fintech knowledge on fintech service usage. The study indicates that financial literacy significantly enhances the knowledge and usage of fintech services, thereby fostering a positive impact on the industry. Ghazali and Yasuoka (2018) examined the awareness and perception of Malaysian small and medium enterprises and start-ups about alternative financing channels like peer-to-peer lending and crowdfunding. It found that most respondents are insufficiently aware of these alternatives, but a majority have a slightly positive perception of fintech development. The results suggest a need for increased awareness among these enterprises by authorized government bodies, highlighting the potential for future business growth and expansion.

Manikandan and Chandramohan (2016) studied the awareness level of mobile wallet services among management students at the Alagappa Institute of Management, which is located in Karaikudi, Tamil Nadu, India. The study revealed that the primary reason for poor practice of mobile wallet services is a lack of awareness. It is also revealed that students who stay at home or come as day scholars have more awareness about mobile wallet services. Female respondents have more awareness of various services when compared to male respondents. More interestingly, a study on fintech education by Pramawati et al. (2023) asked respondents, "Do you use fintech?" 56.3% of respondents said they often used it, 8.1% said they used it very often every day, and 35.6% said they never used fintech. More than 50% of these respondents are known among students. When asked about the sources of fintech information, "Where did you find out about fintech?" 60.9% of respondents stated that they knew fintech information sources through social media and the internet. 20.7% got learning material, 17.2% from friends and family.

A recent study on fintech education by Alshraifa and Sanad (2024) stated that global universities, in recent years, have begun creating courses that promote financial technology (FinTech) innovation in higher education institutions, but this process is still in the preliminary stage in the developing region. Through the use of a questionnaire distributed to undergraduate business students at universities in the Kingdom of Bahrain, the study discovered that

students support the inclusion of fintech in accounting curricula and express dissatisfaction with the existing level of its inclusion. As previously mentioned by Pramawati et al. (2023), literacy education is crucial for students amidst rapid digital financial transaction innovations, yet it has not been extensively integrated into campus curricula. With this increased understanding, students are becoming more aware of financial technology and are expected to exercise caution in its use to prevent fraud and theft of personal identity data. Therefore, the study suggests incorporating fintech learning material into the business curriculum due to its high interest and acceptance among undergraduate business students.

Mhlanga (2023) emphasizes the importance of collaboration between policymakers, legislators, educators, and financial service providers to harness the potential of fintech in education and ensure access to high-quality education in the digital age. So, the digital revolution in commercial sectors like e-commerce and financial technology has significantly impacted the financial industry globally. Fintech, an innovation in various sectors, challenges conventional (traditional) finance in the industrial era of 4.0. While fintech offers wider job opportunities, it requires human resources to support its implementation. (Shino et al., 2022). As noted by Shino et al. (2022), universities are competitive and skilled human resource makers in the financial and banking sector, integrating financial technology into their curricula. The authors added that the bachelor's program should include a fintech education plan, specifically in the Digital Business Department, which focuses on business digitization and marketing. The reason behind this is that fintech is a new wave of technological innovations, accelerating change in the financial sector (He et al., 2017). So, Badwan and Awad (2022) emphasize the need for partnership among financial, banking, academic, technology, and business organizations to foster a conducive fintech environment.

3. METHODOLOGY

3.1. Research Design and Participants
This study employs a quantitative cross-sectional descriptive research approach to investigate the awareness and knowledge of financial technology (fintech) among economics, finance, banking, accounting, business, and management sciences students at selected universities in Mogadishu, Somalia. The cross-sectional design is well-suited for this research as it allows for the collection of data at a single point in time, providing an accurate snapshot of the current levels of fintech awareness and knowledge among students (Wang and Cheng, 2020). Participants for this study were drawn from undergraduate students studying these programs across four universities in Mogadishu, Somalia: Banadir University, Jamhuriya University, SIMAD University, and the University of Somalia. A total of 231 students were purposively selected to ensure a diverse representation of different years of study, majors, and demographic backgrounds. This purposive sampling approach was chosen to capture a comprehensive understanding of fintech awareness and knowledge among students from various academic and demographic groups.

3.2. Research Instrument
Data collection was conducted using a structured questionnaire specifically designed to assess students' awareness and knowledge

of fintech. The questionnaire was adapted from existing validated instruments (Ali et al., 2018) and modified to fit the specific context of this study. The questionnaire was divided into three main sections. The first section focuses on demographics to gather essential information about the respondents, including their gender, age, university, major, and year of study. This data was crucial for analyzing how different demographic factors might influence fintech awareness and knowledge. The second part concerned awareness and knowledge of fintech. This section contained questions designed to assess students' familiarity with various Fintech concepts, such as blockchain, smart contracts, neo-banking, crowdfunding, cloud computing, big data analytics, robo-advisors, artificial intelligence (AI), and the Internet of Things (IoT). Additionally, it evaluated the students' understanding of how these fintech innovations are applied in the financial industry. The third section. The final section aimed to identify perceived gaps in the current curriculum related to fintech education. It also assessed whether students felt adequately prepared for careers in the fintech industry based on their current academic experiences.

3.3. Data Collection and Analysis
The questionnaire survey was conducted online using Google Forms and distributed via WhatsApp groups of students. This method was chosen for its convenience and ability to reach a broad audience quickly. Upon collection, the data were analyzed using the Statistical Package for Social Sciences (SPSS) software, version 24. Descriptive statistics, including frequencies and percentages, were employed to summarize the demographic data and assess the overall levels of fintech awareness and knowledge among the students. To investigate the influence of demographic factors (such as age, gender, university, major, and year of study) on fintech awareness and knowledge, regression analysis was conducted. This statistical approach allowed for the identification of significant predictors of fintech awareness and provided insights into how different demographic groups might experience fintech education differently.

4. RESULTS AND DISCUSSIONS

This section presents the study's findings on the knowledge and awareness of financial technology (fintech) among students studying economics and management sciences at selected universities in Somalia. The results are analyzed in relation to demographic characteristics, students' familiarity with fintech concepts, and gaps in the current curriculum. This discussion aims to assess how well students are prepared for the fintech industry and identify areas for potential curriculum enhancement.

4.1. Demographics Characteristics
This section presents the demographic characteristics of the study participants, offering insights into the sample composition and providing context for interpreting the findings on fintech awareness and knowledge. The demographic profile, including gender, age, institution, major, and year of study, is detailed in Table 1.

The demographic analysis of the study's participants reveals a diverse composition in terms of gender, age, institution, major, and year of study. Among the 231 students surveyed, the majority were

Table 1: Demographics characteristics

Variables	Category	Frequency	Percentage (%)
Gender	Male	146	63
	Female	85	37
Age	<20	26	11
	20-25	181	78
	26-30	20	9
	Above 40	4	2
Institution	Banadir University	58	25
	Jamhuriya University	62	27
	SIMAD University	56	24
	University of Somalia	55	24
Major/Area of Study	Banking and Finance	91	39
	Accounting	57	25
	Business Administration	44	19
	Economics	39	17
Year of study	1st year	14	6
	2nd year	28	12
	3rd year	63	27
	4th year	127	55

male (63%), with 146 male participants compared to 85 female participants (37%). In terms of age distribution, a significant portion of the students were aged between 20 and 25, comprising 78% of the sample (181 students). A smaller group was <20 years old, representing 11% (26 students), while 9% (20 students) were aged between 26 and 30 years. Only 2% (4 students) were over 40 years old. Institutionally, the participants were evenly distributed across four universities. Jamhuriya University had the largest representation with 62 students (27%), followed closely by Banadir University with 58 students (25%). SIMAD University and the University of Somalia each contributed 56 (24%) and 55 students (24%), respectively. Regarding their academic focus, the largest group of students were majoring in Finance, making up 39% (91 students) of the total sample. Accounting majors followed at 25% (57 students), with Business Administration and Economics majors representing 19% (44 students) and 17% (39 students), respectively. In terms of academic year, the majority of students were in their fourth year, accounting for 55% (127 students) of the participants. Third-year students made up 27% (63 students), while 2nd-year and 1st-year students represented 12% (28 students) and 6% (14 students), respectively.

4.2. Awareness and Knowledge of Fintech among Students

This section explores the students' familiarity with various Fintech concepts, including blockchain, smart contracts, neo-banking, crowdfunding, cloud computing, big data analytics, robo-advisors, artificial intelligence (AI), and the Internet of Things (IoT) in finance. The following table provides a summary of the results, highlighting the varying levels of familiarity across these key fintech topics.

According to Table 2, the analysis of students' familiarity with various fintech concepts reveals a diverse range of awareness and understanding. A significant portion of students (38%) are not familiar with the term "Fintech," while 27% have only a little familiarity, and 17% are somewhat familiar. Moreover, only 10% are moderately familiar, and a small minority (8%) are extremely familiar, indicating that while some students are

aware of fintech, a large number still lack basic knowledge. Similarly, awareness of specific technologies like blockchain and smart contracts is limited, with 42% of students having a little familiarity and 23% not familiar at all. The understanding of neo-banking is even less widespread, as 56% of students report no familiarity, highlighting a substantial knowledge gap in this area. Crowdfunding is slightly better known; however, 43% of students still indicate no familiarity, and only 5% are extremely familiar. On the other hand, cloud computing stands out with relatively higher awareness, as 62% of students have at least some familiarity, and 33% are either moderately or extremely familiar. In contrast, big data analytics in finance remains an area where most students have limited knowledge, with 32% not familiar at all and 46% having only a little familiarity. Additionally, robo-advisors are not well-known, with 58% of students indicating no familiarity and only 8% having moderate to high familiarity. Artificial intelligence (AI) in finance shows a slightly better level of awareness, with 33% of students not familiar but 21% being moderately or extremely familiar.

Finally, the Internet of Things (IoT) in finance is the least familiar concept, with 65% of students reporting no familiarity and very few having a deeper understanding. Overall, the analysis indicates that while some Fintech concepts like cloud computing and AI are somewhat understood, significant gaps remain in the knowledge of other critical areas such as neo-banking, robo-advisors, and IoT in finance. The results of students' familiarity with Fintech concepts reveal significant gaps in awareness, aligning with trends observed in previous studies, like Ali et al. (2018), who found limited Fintech knowledge among students in Pakistan, showing that 38% of students are unfamiliar with the term "Fintech," with only 8% being extremely familiar. Others concluded the same results. Nasution et al. (2023) stated that fintech usage in Labuhanbatu is still infrequent. Rajkumar et al. (2020) studied the awareness of fin-tech among the millennial generation, a technology-savvy generation known for their 3C traits: Creativity, connectivity, and confidence. The study aimed to identify the factors affecting this generation's awareness of fintech, as they will play a crucial role in shaping and building businesses and industries. However,

there are several factors that affect the generation's awareness of fintech, as noted by Hettiarachchi and Wijekumara (2023). In their study, the authors reveal that perceived usefulness, ease of use, and relative advantage significantly impact fintech awareness among Sri Lankan management undergraduates, with gender and academic year playing moderating roles. The findings suggest that educational institutions should incorporate fintech-related courses and workshops into management undergraduate programs to equip students with the necessary skills to navigate the evolving financial landscape.

4.3. The Current Curriculum Concerning Fintech Education

This section examines the alignment of the current curriculum with the needs of fintech education based on student responses regarding the inclusion of fintech topics in their courses, the adequacy of resources, and how well-prepared they feel for the fintech industry. Table 3 provides the results.

The results of Table 3 highlight significant gaps in the current curriculum related to fintech education. Only 34% of students reported that Fintech is included in their courses, leaving many without exposure to these essential topics. A strong 77% believe a dedicated Fintech course is necessary, emphasizing its importance. However, just 39% feel prepared for the fintech industry, indicating a mismatch between the curriculum and industry needs. Additionally, 67% of students believe there are insufficient resources to support fintech learning. Only 42% feel their courses align with market demands, suggesting that curricula require updates. These findings highlight the need for curriculum reform, consistent with gaps identified in studies like Ali et al. (2018). The significant demand for fintech education, as emphasized by Shino et al. (2022), highlights the need for universities to update curricula to better prepare students for the evolving financial landscape and industry requirements. According to Abdulle et al. (2023), higher education is vital for a nation's advancement, transforming society through quality academic programs, achieving societal goals, and contributing to the Sustainable Development Goals of 2030. Therefore, universities and educational institutions are encouraged

to implement training programs to enhance young individuals' employability by providing market-relevant skills (Kulmie et al., 2023). In their study, Hettiarachchi and Wijekumara (2023) suggest that educational institutions should incorporate fintech-related courses and workshops into management undergraduate programs to equip students with the necessary skills to navigate the evolving financial landscape.

4.4. Impact of Demographics on Awareness and Knowledge on Fintech

This section examines the effect of demographic elements—such as age, gender, year of study, university, and major—on students' awareness and knowledge of fintech concepts. The analysis was conducted using a regression analysis, and the results are provided in the table below.

According to Table 4, the model indicates a moderate correlation (R = 0.373), with 13.9% of the variation in fintech awareness explained by the demographic factors considered. The overall model is statistically significant (F = 7.265, P < 0.001), demonstrating that these demographics collectively have a meaningful impact on students' knowledge and awareness of fintech. Gender (P = 0.740), age (P = 0.488), and university attended (P = 0.326) do not significantly influence Fintech awareness, suggesting that these factors are not major determinants in students' understanding of Fintech concepts. However, the year of study (P = 0.036) and major (P = 0.003) are significant predictors. This indicates that students' awareness of fintech tends to increase as they advance through their academic years, and those enrolled in certain majors show higher levels of awareness. These findings support with previous studies. Shino et al. (2022) and Ali et al. (2018) highlight the importance of integrating fintech education into students' advancement, particularly in related fields. Rai and Sharma (2019) investigated the awareness of digital banking and financial services among students. The findings indicate a statistically significant disparity in the level of awareness regarding digital financial services between female and male students studying in higher educational institutions. Significant variations in awareness have also been discovered based on stream of study, non-business, and business.

Table 2: Awareness and knowledge of fintech among students

No	Items	Not at all (%)	A little (%)	Somewhat (%)	Moderately (%)	Extremely (%)	Total (%)
1	Familiarity with Fintech	38	27	17	10	8	100
2	Blockchain and Smart Contracts	23	42	23	8	4	100
3	Neo-Banking	56	19	18	5	2	100
4	Crowdfunding	43	24	16	12	5	100
5	Cloud Computing	18	25	24	20	13	100
6	Big Data Analytics in Finance	32	46	12	3	7	100
7	Robo-Advisors	58	19	15	5	3	100
8	Artificial Intelligence (AI) in Finance	33	27	19	10	11	100
9	Internet of Things (IoT) in Finance	65	19	7	6	3	100

Table 3: Student Views on the current Fintech Education

No	Items	Yes (%)	No (%)	Total (%)
1.	Is Fintech included in your courses?	34	66	100
2.	Do you think students should take a course on Fintech?	77	23	100
3.	Do your current courses prepare you for the fintech industry?	39	61	100
4.	Are there enough resources (e.g., books, online courses) to learn about fintech?	33	67	100
5.	Do you think university courses are aligned with market needs and developments?	42	58	100

Table 4: Regression results for Impact of demographics on awareness and knowledge

Model	Coefficients	SE	t	Sig.
(Constant)	1.379	0.097	14.198	0.000
Gender	0.077	0.030	0.333	0.740
Age	0.019	0.028	0.695	0.488
Year of Study	0.033	0.016	0.111	0.036
University	0.036	0.013	0.769	0.326
Major	0.039	0.013	0.027	0.003
R		0.373		
R Square		0.139		
Adjusted R Square		0.120		
F-value		7.265		
Sig		0.000		

Dependent variable: Knowledge and awareness score (Significance level at 5%)

However, there have been no discernible variations based on their qualifications and age.

5. CONCLUSION AND RECOMMENDATIONS

This study revealed significant gaps in fintech awareness and education among economics and management sciences students. The findings showed that many students lacked familiarity with key Fintech concepts such as blockchain, neo-banking, and the Internet of Things (IoT) in finance, with a considerable percentage of students having little to no knowledge of these critical areas. While cloud computing and AI in finance were somewhat better understood, the overall awareness levels indicated a need for more comprehensive education on fintech. The findings of the current curriculum further highlighted these gaps, with only a minority of students reporting that fintech was included in their courses. A large majority believed that a dedicated Fintech course was necessary, and many felt unprepared for the Fintech industry due to insufficient resources and a misalignment between their courses and market needs. The impact of demographic factors on Fintech awareness also highlighted the importance of academic progression and specialized education, with the year of study and major being significant predictors of Fintech knowledge. Based on the findings of this study, several recommendations can be made to enhance fintech education among economics and management sciences students. Universities should first integrate fintech topics across courses. Furthermore, developing dedicated fintech courses that are accessible to various disciplines is crucial. Additionally, investing in comprehensive resources and collaborating with fintech companies for real-world experiences are essential. Moreover, stronger industry partnerships and regular curriculum updates will help align education with market needs. Finally, offering cross-disciplinary electives will further broaden students' Fintech knowledge. By implementing these recommendations, universities can better prepare students for the evolving fintech industry.

This study provides valuable insights into the state of fintech education among economics and management sciences students; however, it is important to acknowledge several limitations that may affect the generalizability and interpretation of the findings. The sample was limited to specific universities, which may not represent the broader student population. The reliance on self-reported data introduces potential biases. Additionally, the study did not cover the full range of emerging fintech technologies, potentially limiting its comprehensiveness. So, future research should consider expanding the scope to include more universities and disciplines, which would help validate the findings across different contexts. Incorporating qualitative methods, such as interviews or focus groups, could provide deeper insights into students' perceptions. Additionally, exploring the effectiveness of dedicated Fintech courses and investigating newer Fintech technologies will ensure education remains aligned with industry trends. Addressing these areas will enhance the understanding and development of fintech education.

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