Heliyon 9 (2023) e16368

Contents lists available at ScienceDirect

Heliyon

journal homepage: www.cell.com/heliyon

Research article

Potentialities and priorities for higher educational development in Saudi Arabia for the next decade: Critical reflections of the vision 2030 framework

Khalid Mohiuddin [a,*], Osman A. Nasr [a], Mohamed Nadhmi Miladi [a], Huda Fatima [b], Samreen Shahwar [a], Quadri Noorulhasan Naveed [c]

[a] King Khalid University, Department of Management Information Systems, College of Business, PO Box-3247, Abha, 61471, Saudi Arabia
[b] Jazan University, Department of Information Technology and Security, College of Computer Science & Information Technology, PO Box- 114, Jazan, 45142, Saudi Arabia
[c] King Khalid University, College of Computer Science, PO Box-3247, Abha, 61471, Saudi Arabia

ARTICLE INFO

Keywords:
Academic quality development
Education reforms
Higher education
Human capital development
Saudi vision 2030
Vision realization programs

ABSTRACT

Contributing to Vision 2030, Saudi higher educational institutions (HEIs) must reform their education system, reevaluate their potentialities, and priorities to support higher education development in achieving the Vision theme. With this goal, several educational innovation projects have been introduced to attain the vision's higher educational development strategic objectives. This study investigates the HEIs' current practices and analyses their achievements and the progress toward achieving the Vision's higher education development goals for the first review cycle (2016–2020) of the Vision. Academic expert interviews and surveys were conducted involving participants from the top ten Saudi universities to know how these institutions contribute to the Vision progress using an innovative approach. Juxtaposing HEIs' potential and priorities with the Vision's higher educational objectives to determine the development progress. The findings reveal that the most sought priorities are the new modern curriculum, industry-based academic learning outcomes, skilled graduates, faculty development, innovative research, foreign universities collaborations, accreditations, and lifelong learning focusing on future skills. The tendency of these priorities works on higher education development, improving professional competency, filling the gaps between higher education outcomes and the growing market needs, revitalizing universities, and linking to knowledge base society. The presented approach will be an effective tool for understanding how specifically these entities contribute toward achieving the vision's targets. It is a significant model for future studies, useful for analyses of higher education potentialities' performances, and enhances readers' understanding.

1. Introduction

Studies on Saudi Arabia Vision 2030 have covered several aspects of the Vision since it came into effect. These studies have enlightened the various aspects of the education system [1], such as human development [2], growth in higher education [3], environment framework [4], and Saudi universities aligned with the Vision [5]. However, there is a lack of studies that have

* Corresponding author.;
E-mail addresses: kalden@kku.edu.sa, drkhalidmk70@gmail.com (K. Mohiuddin).

https://doi.org/10.1016/j.heliyon.2023.e16368
Received 9 November 2022; Received in revised form 5 May 2023; Accepted 14 May 2023
Available online 19 May 2023

considered higher education (HE) potential in accordance with the Vision's HE development strategic goals, the progress, and the achievements [6] of HE in the Vision context. Such a study requires an approach covering a broader aspect of higher education institutions' (HEIs) potentialities, such as *educational infrastructure*, *human capital*, *technology*, and *decision-making* in the HE domain [7]. Furthermore, the approach needs to determine HEIs' key pillars [8] and their priorities - *modern curriculum*, *foreign universities collaboration*, *innovative research*, *faculty development*, *skilled graduates*, *accreditations*, and *university ranking* for improvement and following the HE objectives. Although, education development has been given significant priority in the vision realization programs (VRPs) [9]. Additionally, education development is high on the Saudi government agenda, it is evident with the leadership message "*Therefore, we will not rest until our nation is a leader in providing opportunities for all through education and training*," by His Royal Highness Prince Mohammed bin Salman bin Abdulaziz Crown Prince, Vice President of the Council of Ministers [10]. The Vision has highlighted the HE strategic goals in two of its VRPs - human capital development (HCD) and national character enrichment (NCE) that emphasize educational development [9,11] and influenced by neoliberal educational reform [12] for the brighter future of the Saudi youth. The VRPs' objectives enable a transition platform between academic learning outcomes and the job market needs [13] and to produce brightest minds.

For ages, institutions of higher learning have been producing graduates and contributing to the nation's building [7]. Following this fact, HE development has been given high priority in the Vision goals. The vision's VRPs (see Fig. 1) talk about the HE strategic goals and are the reasons for the educational reforms and the changing landscape of the Saudi HE system, e.g., collaboration with and direct entry of foreign institutions. Noticeably, Saudi Arabia owns a significant role in the entire Gulf region, and with the implementation of the Vision's HE goals, it will be a developing model for any country in the World. Besides, the country is inherited with an oil reach economy [1] and blessed with an abundance of enthusiastic youth and an emerging higher education sector. This sector comprises public universities, specialist vocational colleges, and private higher education institutions [3]. Since the Vision's HE objectives create a broader sense of accountability for HEIs regarding education development, the Saudi national qualification framework supports HEIs [14] and encourages academic excellence in the vision's framework. The HEIs must adhere to the national HE policy [15] and the Vision's HE development goals while delivering academic services. Therefore, these institutions must realize their potentialities and reevaluate their priorities to achieve the vision's objectives and signpost graduate employability [16]. They should be more responsive to the vision goals and towards linking the economy [17] by emphasizing their potentialities and priorities.

There is a lack of shared understanding and studies that emphasize HEIs' potential and educate about the higher education progress and achievements that adhere to Vison's objectives. Indeed, a study [3] has raised the need for HEIs growth estimation and linked it to Saudi economic growth. Nevertheless, a few studies did consider the HE entities, such as scientific research [18] and human development [2] by ignoring the HEIs potentialities and the HE development strategic goals that have been highlighted in the Vision's two VRPs [10], questionable. The current study is the first attempt to demonstrate such a significant area of research [8] in context to the Vision's HE development perspectives.

1.1. Study's consequential aspects

This study investigates the HEIs' potentialities and priorities and determines the Vision's HE development progress for the review cycle, i.e., 2016–2020 of the Vision progress. While interpreting the impact of the Vision's objectives on the HE development and filling this knowledge gap in the empirical literature, this study takes the first attempts to educate readers about Vision's higher education progress. Noticeably, there is an interest among educators and readers in knowing the HEIs' contribution to the Vision progress. This study remarkably realizes the significant knowledge gap and the imperative need to provide HEIs insights [8] toward achieving the Vision's objectives. These objectives have been highlighted in the two VRPs, HCD and NCE and call to link with the economic growth. The current study aims to report empirical evidence of HE development based on university surveys, expert

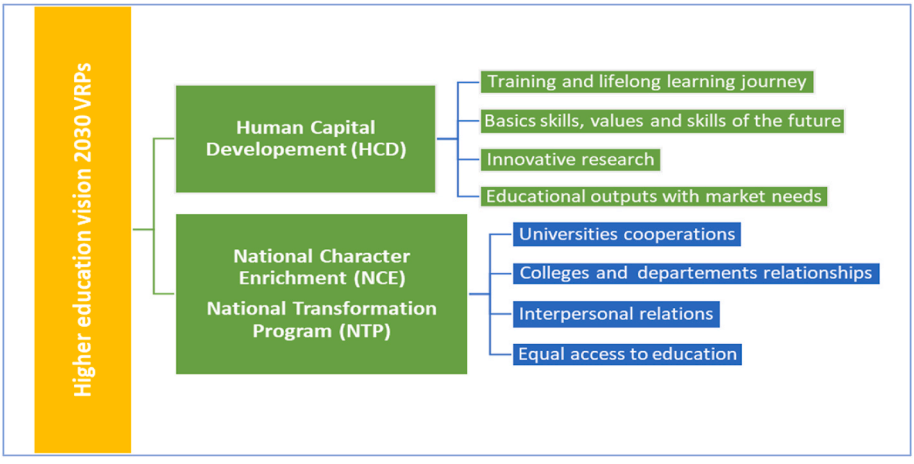

Fig. 1. Higher education VRPs outlined in Vision 2030.

interviews, and evidence from official sources [6]. The study's theoretical framework [16] section provides a detailed understanding of the HE entities to guide readers about the achievements and progress in the result and discussion section. Therefore, the HEIs' stakeholders – university higher administration, deans of colleges, program chairs, and faculty members have already realized their responsibilities. Hence, they effectively contribute to the Vision's achievements, such as increased scientific research, modern curriculum, Saudi students' enrollment in top universities, and national and international accreditations [6]. The findings will be a potential cue for higher education stakeholders to emulate the current approach in determining HE progress in the Vision context.

Ambiguities: The study's authors did experience several ambiguities during the investigation of the Vision goals, objectives, and the vision progress from different authentic platforms. For instance, 13 VRPs initially were announced and later, one was inactive [9]. Presently, the Vision moves to the next stage, and the VRPs have been restructured into ten programs. A few programs are incorporated into existing programs, and new programs have been introduced, e.g., the Health Sector Transformation Program. Additionally, discovering the validity of HE information progress from the tones of documents face possible perils. Determining the HE objectives from these VRPs was challenging since a few higher education priorities conflict with the initial mentioned. Indeed, there is a difference in HE priorities, e.g., five universities among the top 200 in the Vision document, page 39 and later, six universities were mentioned in the document [6]. Finally, the HE development objectives hinder under the three Vision's themes – a vibrant society, a thriving economy, and an ambitious nation.

2. Literature, theoretical framework, and the scope

2.1. Saudi Vision 2030

Saudi Vision 2030 is an ambitious project introduced by the Saudi crown prince, and it is the paramount goal of the present government. The project was launched on April 25, 2016 with a strong commitment to economic and human development associated with creating opportunities to improve the well-being of Saudi residents. Noticeably, His Royal Highness King Salman Bin Abdulaziz Al-Saud says about Vision 2030, "*My primary goal is to be an exemplary and leading nation in all aspects, and I will work with you in achieving this endeavor.*" [10] The Vision themes are based on a groundbreaking agenda and building on the three pillars – "a vibrant society, a thriving economy, and an ambitious nation." These pillars fascinate the stakeholders and the decision-making authorities of public and private sectors to integrate the diversified country's intrinsic strengths to achieve the Vision themes and help the citizens realize their aspirations. These pillars are classified into 96 strategic objectives governed by a certain number of KPIs that will be executed and measured by governmental entities, non-profit and private organizations within the respective ecosystems.

The Saudi government launched the National Transformation Program (NTP) to achieve the Vision goals, involving twenty-four government agencies. It aims to achieve the specific objectives and agencies' operational excellence and emphasizes stakeholders' responsibilities in identifying challenges and potential solutions. It activates the government agencies to develop necessary infrastructures and establishes profound cohesiveness among the responsible agencies. It helps determine the capabilities required to achieve the Vision goals that involve operational excellence, economic partnerships, digital transformation, encouraging social development, and the sustainability of vital resources [19]. Notably, this program is assessed periodically to accommodate Vision's evolving and progressive entities, such as re-arranging activities required for the VRPs delivery plan. The program's first phase (2016–2020) has contributed significantly and achieved myriad noteworthy accomplishments, and the next stage (2021–2025) will follow with the same potentialities.

2.2. Higher education and vision 2030

Higher education development is one of the topmost priorities for the Saudi Ministry of Education (ME) to contribute to the Vision goals [19]. Since the vision came into effect, the ME has been facilitating private institutions to expand their accessibility across the nation. Further, the ministry is encouraging 29 public sector universities with approximately 140 campuses [3] to determine their educational potentialities and prioritize their goals according to the Vision's HE development expectations. These public sector HEIs share a substantial portion of the education budget annually that is mainly utilized to develop - physical infrastructure, academic and cognitive operations, and technological infrastructure. To meet the Vision objectives, almost all the HEIs reevaluate their potentialities

Fig. 2. The HE development hierarchy following Vision 2030.

and prioritize their development goals with specific targets [9]. The HEIs operate within national and global dimensions that are heterogenous in offering academic programs [7]. The HEIs are considered vital for promoting continuous improvement, producing skilled graduates, a knowledge-based society, and future professionals [16] that can contribute to the Vision themes. Besides, the Saudi HEIs have an incredible advantage over other organizations because enough ministers and government advisors have been associated with these public universities. Optimistically, the HEIs have great potential indicators that the government keeps on increasing the education and training budget, e.g., US $53.9 billion, US$ 55.5 billion, and US$ 57.3 billion in successive years since 2014 [3]. Hence, it is high time HEIs determine their potential and execute their priorities with a focused approach to economic development [17]. Further, such institutions should implement their development policies and adopt new strategies coherently with the Vision objectives. Noticeably, the finding of this study will compile and enumerate the HEIs' potentialities and priorities that must be implemented effectively. The current study is embedded within the Vision's VRPs strategic objectives and will evaluate how the HEIs have responded in achieving these objectives. Fig. 2 illustrates the HE development following the hierarchy in the Vision framework.

2.3. Higher education and VRPs

Educational development support institutions [20] to promote quality, whereas HEIs offer great potential [7] and produce skilled graduates. Saudi HEIs follow the same practices more precisely after the Vision launch. Under the Vision pillars, the Saudi Council of Economic and Development Affairs established initially 13 VRPs and framed 96 strategic objectives across the Vision pillars [9]. These objectives are thoughtfully distributed into VRPs [9]. These VRPs were announced in the first five years of the vision's launch and designed to transform the Vision's theme into action. They outlined the Vision objectives and are redesigned in a five-year cycle. The VRPs that include education development are identical to the HE development frameworks discussed by the study [16]. The VRP Human Capital Development Program (HCDP) is a crucial contributor to the development of Saudi HE. It covers several entities that explicitly talk about education development and training systems, such as modern curriculums, faculty development programs, emphasizes alignment of educational outputs with market needs, and the expansion of educational training to improve the readiness of youth [11]. Noticeably, this VRP was designed to determine measurable objectives, translate these objectives into action plans, and measure the performance indicators against the set targets. Further, the outcomes of the measurement of these indicators facilitate the leaders in tracking the progress of the VRP [6].

The National Character Enrichment (NCE) is another realization program laden with HE improvement objectives and improves Saudi's image worldwide [9]. The policies of the NEC program are youth-centric and aim to strengthen the youths' understanding of responsibilities toward achieving national goals. These policies will help in expanding Saudi students' intellectual abilities and behavior. Further, strengthen the values of hard work, generosity, ambition, optimism, and excellence [19].

2.4. Human capital development program

This study has referred to the glonacal (global/national/local) heuristic [7] to learn how higher education contributes to the nation's development. The Vision's HCDP seeks to develop citizens' competitiveness and aims for educational development in strategic partnerships with all the potential entities. Its strategic objectives are split into direct and indirect categories across three levels. Level one direct objective number 4 talks about HE development since it enhances students' intellectual and social attributes and prepares them for lifelong learning. It emphasizes improving citizens' capabilities and facilitates citizens acquiring the required skills, values, and knowledge to compete professionally in the global market [11]. It focuses on three strategic core pillars – "Develop a resilient and strong educational base for everyone," "Preparing for the future labor market locally and globally," and "Provide lifelong learning opportunities." It emphasizes a solid educational base that helps prepare the youth for future jobs and enables lifelong learning opportunities or simply preparing for the future. Its target segment comprises education, training, and employers; it motivates innovative approaches in modern education and introduces new educational and training policies that encourage Saudi citizens to participate efficiently. The education and training segment [17] targets diversified career paths, learning outcomes, and tools for new learning methods. Finally, the HCDP emphasizes developing a resilient and robust educational base that will enhance the professional competence of higher education students.

2.5. Higher education potentialities and priorities

The HE potentialities such as academic infrastructures, human capital/workforce, and technology are almost identical for all the HEIs in Saudi Arabia. Indeed, every HEI has a set of goals and well-defined objectives. These institutions attain goals following their objectives and priorities. For instance, all HEIs came on the same page for contributing to the Vision's HE objectives by reevaluating their potentialities and applying their talent goals. However, these institutions' potentialities facilitate prioritizing their educational development objectives to align with the Vision goals. The study [21] highlights that an educational system is crucial in society's evolution and nation-building. It further emphasizes the benefits of cohesiveness between educational policies and the practices in educational institutions. Some experts believe that effective implementation of the educational system's potentialities enables opportunities, improves citizens' future, produces quality leadership, and contributes to developing cultures and economies [17].

Since the early developments, Saudi HEIs have been pioneers in contributing to the national development goals. The World Economic Forum publishes the Global Competitiveness Index 2017–2018 edition; this report indicates that the Saudi higher education and training ranks 43 out of 137 [22]. Further, the report highlights the various aspects of education and the quality of the Saudi education system's performance. Another study [23] identifies that Saudi Arabia is at 34th rank among 187 countries under the World

Index of Education. Additionally, many world-ranking organizations acknowledge the Saudi educational system's potential and contribution to nation-building. The Saudi HEIs have significant potential and are determined to achieve the Vision's higher education goals.

The transition of HE development requires approaches that align with the Vision goals [2], and they should comply with the HE development framework. Therefore, HE development potentialities and priorities should be considered thoroughly and analyze the progress that matches the Vision's HE development framework (see Fig. 3). With this study, the authors aim to determine the HE development progress by zooming in on two significant aspects of the HEIs development: potentialities and priorities that need much attention. This study, therefore, formulates the research question based on the knowledge gaps and has adopted the methodology (Section 3) to answer the following four questions.

RQ1. What potentialities exist in Saudi higher education, and how do the associated priorities contribute to the Vision 2030 goals?

RQ2. How do the higher educational potentialities and priorities influence the desirable development in the context of Vision 2030?

RQ3. How does the higher educational development contribute to the Vision progress and the achievements?

RQ4. Have the higher educational potentialities been explored in the right direction since Vision 2030 came into effect?

3. Methodology

This study has adopted a cross-sectional approach conducted academic expert interviews (open and five closed-ended questions) and surveys (four closed-ended questions) to collect information and data [8]; have cited several such frameworks. The participants' questions were designed by involving experts from the universities mentioned in Table 1, and the research questions were developed on the knowledge gaps. Tables 2 and 3 delineate the interviews and survey's particulars that helped to determine the HE potentialities and priorities in the framework of the Saudi Vision. Similar methods were followed by other studies [1,23] to develop the science curriculum and show the Saudi educational system's need to shift by following the Vision's education development objectives. Specifically, this study did emphasize evidence from authentic sources [9,11] and analyzed stakeholders' responses [24] to achieve the study's objectives. Notably, the authors were aware of the ethical approval of such a study. Therefore, the authors sought ethics approval from the academic development and quality committee with the approval number MIS/ED/09200321 and included the data collection protocols in Section 3.2 in conveying the study's approach.

3.1. The researchers and the study's context

The authors of this study are academicians, senior faculty, and vice dean of academic affairs from a reputed Saudi public university having a deep understanding of higher educational affairs. Currently, they are members of several academic committees at the university, such as academic quality development, accreditations, scientific research, and student affairs. They have a long experience in improving teaching-learning quality by practicing academic research activities through innovative ideas [15]; such practices will be expected to improve the HE system. Besides, they actively participate in academic practices [20] and hold rich experience in educational development in HEIs. Remarkably, the author's experiences in the field help the current study to achieve its objectives. Noticeably, the authors were impartial during the data collection process and precise in interpreting the collected data.

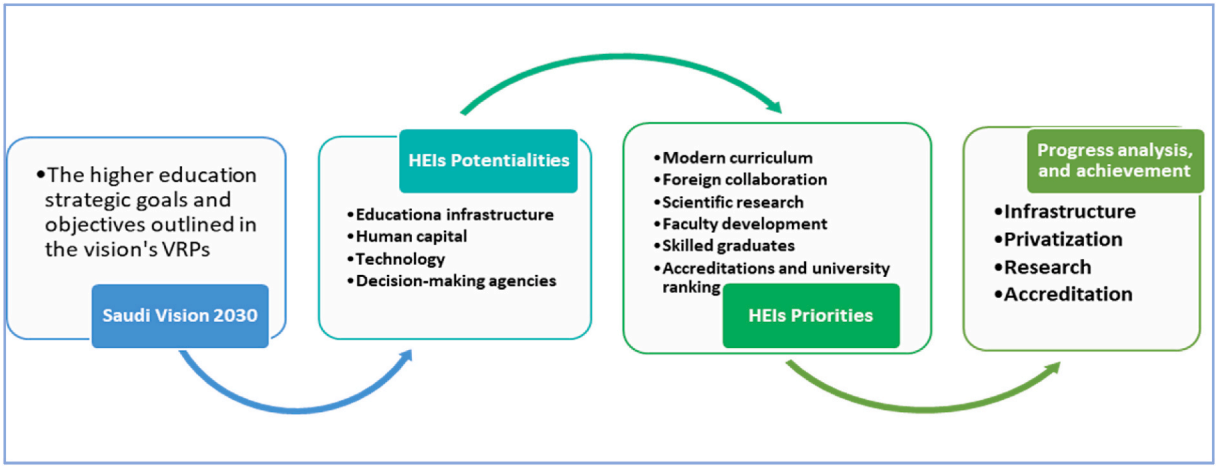

Fig. 3. The study's theoretical framework.

Table 1
Top ten Saudi Universities with QS-Arab Region University Rankings 2020.

SL#s	University	Overall score	Arab ranking	link
1	King Abdulaziz University	100	1	https://www.kau.edu.sa/
2	King Fahd University of Petroleum & Minerals	96.6	4	http://www.kfupm.edu.sa/
3	King Saud University	93.6	6	https://ksu.edu.sa/
4	Umm Al-Qura University	59.4	17	https://uqu.edu.sa/
5	King Khalid University	55.8	31	https://kku.edu.sa/
6	King Faisal University	47.2	33	http://kfu.edu.sa/
7	Alfaisal University	45	40	https://www.alfaisal.edu/en/
8	Imam Abdulrahman Bin Faisal University	42.7	43	https://www.iau.edu.sa
9	Islamic University of Madinah	–	51–70	https://www.iu.edu.sa/
10	Prince Sultan University	–	51–60	https://www.psu.edu.sa/en

Table 2
Academic experts and the selection criteria.

Category	Specialty	Selection criteria	Frequency
Senior faculty	teaching, research, curriculum development, faculty development, carrier guidance, capstone projects	-more than 10 years -actively contributing -efficient performance	16/33
Head of the departments, head of committees	-rich experience in dealing with faculty members, students, control and monitors educational development activities and services	-more than 3 years -contributes to the department and college development	7/13
Deans and vice-deans of colleges	-senior academicians, rich experience in taking decisions about education development	-one year and above -members of institution's committees	6/09
Decision makers	-vice presidents: academic/research/faculty affairs/quality/students' registration	-working as vice-president	3/7

Table 3
Survey's questionnaire and associated particulars.

Participants and frequencies	Survey's questions	Question options
1-Teachers (176/211) 2-Educators (9/23) 3-Academic researchers (17/41) 4-Academic staff (21/33) 5-Institution's IT professionals (7/15)	1. Your preference from the existing potentialities in higher education development.	A- Educational infrastructure B- Human capital C-Technology provision D-Decision making institutions E– Others
	2. Your priority from the existing educational entities for the development of higher education.	A- Modern curriculum B-Faculty development C-Scientific research D-Foreign collaboration
	3. Your evaluation of the existing educational entities that are contributing to the Vision 2030 themes and objectives.	A- Curriculum B-Faculty development C-Scientific research D-Accreditations E-Skilled graduates F- Others
	4. Your evaluation about the performance of educational entities during the period 2016–2020.	A- University ranking B-Modern curriculum C-Foreign collaborations D-Scientific research E-Accreditations

3.2. Data collection and sources

The study's data were collected from the top Ten Saudi Universities following the QS Arab Region World University Ranking for the year 2020 [25] listed in Table 1 using the authors' professional network. The sample data were collected between January to April of 2021 after discussing the ethical concerns about the study's area from the top authorities strategically selected from the mentioned universities. Indeed, a few pilot sessions were conducted at the authors' university before the actual sessions. Additionally, one of the senior authors holds the vice dean position, and two senior authors were responsible for conducting interviews. With the authors' efforts, a validation process was done to determine the participant's types and their valid responses. Table 4 includes the interviews' key questions (IKQ) and the valid responses, whereas Table 5 shows two data sources, variables, and their values that correspond to the

Table 4
Responses to interviews key questions.

Interviews' key questions (IKQs)	Valid responses from interviews
What kind of higher education potentialities are we looking for to meet Vision 2030?	-private investment in the higher education sector. -creating effective partnerships between national and foreign universities. -cooperation with foreign universities on sharing academic talent to promote Saudi universities. -shift towards a knowledge society through the dissemination and management of knowledge. -designing interdisciplinary academic programs to meet the job market. -give State universities administrative and financial autonomy. -increase investments in innovative scientific research. -changing the educational structure to attract international students and the global job market.
What should be the priorities of HEIs to improve educational development in the context of Vision 2030?	-developing and redesigning curriculums that include emerging technologies domains. -facilitating faculty members seeking professional development. -encouraging innovative research. -emphasizing outcome-based learnings. -focusing on student training programs following their learning skills. -enabling technological infrastructure and linking it to the needs of society. -improving students' learning skills, focusing on market needs. -emphasizing the Vision's strategic planning and performance indicators for performance optimization.
What are our expectations from the Vision 2030 HE objectives?	-autonomous and re-structuring of public universities. -supporting academic scientific research on a large scale. -adoption and effective implementation of emerging technologies. -open doors for collaboration with foreign universities. -encouraging to develop informed societies.
What kind of innovations do higher education institutions need to lead Arab countries and establish a global identity?	-establishing the latest academic and scientific disciplines that have significant importance in the developing world. -emphasizing outcome-based and target-oriented teaching environment. -attract academics by creating an innovative research environment. -develop world-class academic infrastructure in every aspect of HE. -expand academic collaboration with foreign universities promoting students and faculties exchange programs. -intensify universities and business relationships. -obtaining international accreditations.
How are higher education institutions evaluated to meet the Vision realization programs' progression needs?	-the Ministry of Education should monitor the implementation of the Vision strategic objectives for HEIs. -evaluating HEIs performance by measuring the key performance indicators. -following the VRPs objectives and target performance evaluation following the Vision calendar. -assessing the contribution to the Vision theme against performance indicators targets. -regular reporting for the Vision progression review cycle.

Table 5
Data source, variables, and analysis.

Data source	Variables	Values	Responses share
Interviews	Senior faculty = I_{SF}	$I_{SF} = 16$	50%
	Head department = I_{HD}	$I_{HD} = 7$	21.8%
	Deans = I_D	$I_D = 6$	18.7%
	Decision makers = I_{DM}	$I_{DM} = 3$	9.3%
	Total	32	100%
Survey	Students = S_S	$S_S = 176$	76.5%
	Educators = S_E	$S_E = 9$	3.9%
	Academic researchers = S_{AR}	$S_{AR} = 17$	7.3%
	Academic staff = S_{AS}	$S_{AS} = 21$	9.1%
	IT professionals = S_{ITP}	$S_{ITP} = 7$	3.0%
	Total	230	100%

number of participants from the survey's responses. Finally, the collected responses were evaluated to elucidate between HE development and Vision's higher education objectives.

3.2.1. Interview protocol

The interviews were either using an online video platform or face-to-face, considering the participant's convenience. At the outset,

the interview's protocols were standard for all the participants, such as open-ended questions and a list of well-structured questions, allowing participants to build their narratives while answering the questions [16]. Subsequently, the mock interview sessions were conducted prior to the scheduled interviews. Table 4 shows the IKQs that were intended to elicit information on the HE development perspectives from the experts in Table 2. The four key questions seek information about the potential of the HE development and the progress in the Vision's context. Besides, the follow-up questions were asked considering the flow of relevant information; the participants' concerns were ensured while disseminating the study's findings.

3.2.2. Survey prototype

The survey prototype has been defined in Table 3. It delineates the study's four closed-ended questions and the frequencies of participants' responses. The participants are from the top Ten Saudi Universities in Table 1, and they must select an option from the available one against each question. Survey question 1 describes the HE potentialities, question 2 highlights priorities, and questions 3 and 4 indicate the contributing entities to the Vision theme.

3.3. Study's instrument and data analysis

The survey and interviews were the primary tools for collecting contextual data [7,23] for achieving the objectives. These tools were effective in gathering the participants' concerns [24] about the HE development in context to the Vision. The survey was conducted using Google forms considering the easy accessibility and expecting maximum responses. A link was created and circulated on WhatsApp groups, emails, and the university LMS. The authors have conducted in-person interviews considering the study's significance, participants' academic rank and responsibilities (see Table 2) for collecting the interviewees' responses.

The data analysis shows that the higher education potentialities and the associated priorities (RQ1) are coherent. Figs. 4 and 5 show the participants' preferences for the HE development. The HEIs redesign their academic preferences to contribute to the Vision's HE development and promote lifelong opportunities for all [7]. Almost all the interviewees' responses agreed that the HE potentialities and priorities influence the development of societies that contribute to the Vision's framework (RQ2 and 3). Higher education institutions have started applying their potentialities a little later than the Vision came into effect (RQ4). The following sections discuss the participants' views and data for assessing the HEIs contribution to the Vision's progress.

3.3.1. Qualitative content analysis

Since the inception of the interview process, the authors' focus was on the study's objectives and the completion of the interviews with in-depth analysis [16]. Thus, initially, two qualitative data analysis software, i.e., NVivo and MaxQDA [26], were considered. Later, considering the interview transcripts and the parameters, it was decided to go with a comprehensive analysis. On some occasions, the interviewers briefed the interviewees about how crucial their responses were for the current research. Two senior authors have conducted all the interviews and have detailed understanding sessions with the other authors after each interview. These sessions were beneficial for conducting more such interviews. The initial interviews were not well time management because of the interviewees' involvement in other activities, e.g., attending calls during the interviews. The authors have discussed the interview's protocols to conduct compelling interviews without interruptions and decided to brief the interviewees about the importance of the flow of information in the context. Indeed, the presented study did consider the steps described in Refs. [2,16,27] for qualitative content analysis. Therefore, the interviews' excerpts were categorized into three essential codes "potentialities," "priorities," and "progress". The interviewers focused on these codes and classified the collected information to elicit the Vision theme, shown in Tables 4 and 6, and the core information should be retained. Table 4 shows the responses from interviewees following interviews' key questions. Of the responses, some were unstructured, and the authors have structured the textual information shown in the table.

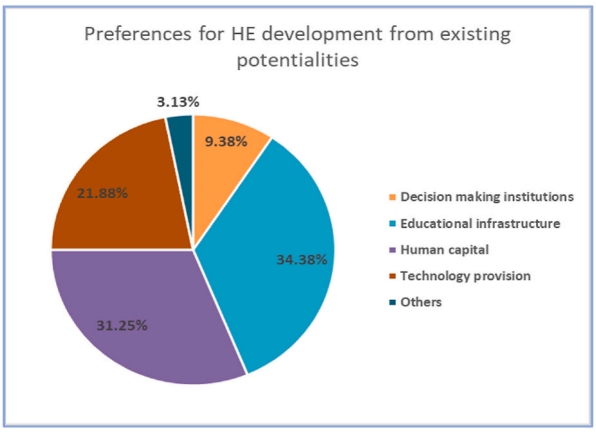

Fig. 4. The HE development preferences from existing potentialities (Table 3-Q1).

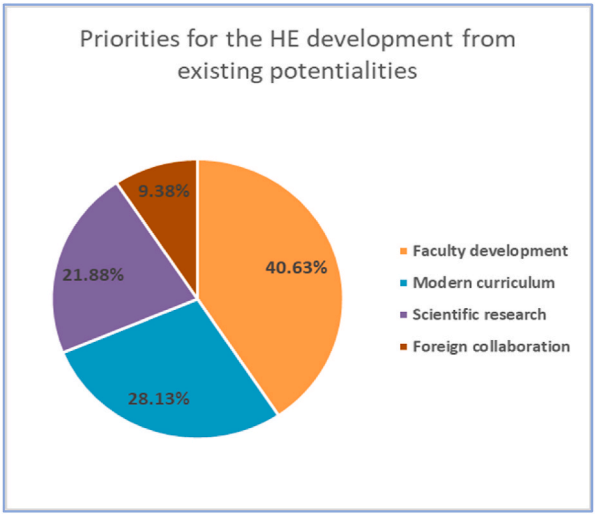

Fig. 5. The HE development priorities from existing potentialities (Table 3-Q2).

Table 6
Potentialities and priorities obtain from interviews' responses.

Responses from interviews	Potentialities	Priorities
We have sufficient HE infrastructure that contributes significantly to the Vision	Educational infrastructure	-restructuring public universities- power sharing -relationships with foreign universities -modern curriculum and innovative research
Redesigning the development programs focusing on the job market and global competence.	Human capital	-faculty and student development programs -skilled graduates and professional training -target-oriented teaching environment -focus on market needs and empowerment
We must develop and redesign curriculums that include emerging technologies domains.	Technology	-adoption and implementation of emerging technologies -use artificial intelligence promoting Arabic language
Decision-making agencies must consider the higher education development emphasizing HE VRPs' strategic objectives	Government agencies	-the decision on private investment for HEIs -public universities' automation -allowing international students in all academic disciplines

3.3.2. Quantitative data analysis

The SPSS academic edition was initially considered for data analysis and numeral outcome predictions. The study's scope and objectives do not require complex statistical analysis, and the participants must choose one from the provided options against each question (see Table 3). Therefore, MS Excel software was used for classifying data and the numeric outcomes into graphical forms. Table 5 shows the collected data sources [24], the participants' values, and the share of participants' responses.

3.4. Validity of the study's context

Notably, the study's authors have vast experience in Saudi public universities with key academic development responsibilities. Such experiences make them most suitable to realize the study's scope and the HE development in the Vision framework. The surveys and interview questions were designed considering the information available inside the VRPs [9,11] for HE development. The study's idea and the questions were discussed with thirteen experts from the universities (see Table 1), and they were requested to provide their expertise. The authors considered their suggestions and showed them the final proposal ahead of the data collection process. The participants' feedback was adopted, and the interviews' textual information was made concise, considering the emphasis points during the interviews.

3.5. The study's initial limitations

The authors have limited the study's objectives to the three VRPs highlighting HE development and strategic objectives. The study's participants were Saudi nationals or Saudi residents and have been associated with Saudi public universities. They have provided the

data and information based on their university experiences, understanding, and expectations considering the vision's objectives. The findings are based on the data provided by the participants' contributions. The readers are requested to be aware of these points before obtaining any conclusion from the findings.

4. Result and findings

Vision 2030 theme brings several transformational changes to the higher education system, and education has been an incredible reflection [7] of these changes across HE entities. While the academics reemphasized that a strong outcome-based learning platform is crucial, followed by a quality teaching-learning culture [16]. The HEIs must have a clear blueprint reflecting Vision's objectives and for sustainable development. Justifications such as different educational pathways, modern curriculum, professional development practices, a sophisticated range of education outcomes [13], and equal access to educational facilities, especially in rural areas, resulted in achieving the Vision HE development objectives [1,6]. The presented model illustrates in Fig. 6, which carefully delineates HEIs' potentialities, priorities, and the progress of the Vision's HE's objectives. The findings show the impact of the Vision objectives on HEIs reforms, the unshakable commitment to the HE system development, and the progress of HE potentialities moved into the nation's journey toward achieving the Vision's theme.

4.1. Vision 2030 as a reason for HEIs reforms (RQ1)

One of the Vision's strategic objectives is to continue investing in education and training to equip young minds with professional skills to meet market demands [9]. The outcomes of the HE system must be coherent with market needs [13] and in line with the Vision realization programs [9,11]. Besides, the vision is one reason behind shifting HEIs' approaches to "learning for working" and allowing foreign universities. Although, 98.02% of participants added that the Vision impacts the HEIs' approaches toward modernization of academic practices, job-centered academic outcomes, and emerging technologies adoption [2]. These approaches help achieve one of the Vision goals, i.e., lowering the unemployment rate and women's participation in the workforce [3] by shifting the Saudi education system [1]. As a result, the changes in the education system, HEIs approaches, and enormous efforts made by the Saudi government for education bring a range of reforms and brought education system development in tandem with economic development [17] to contribute to the Vision theme.

4.2. The HE potentialities influencing development (RQ2)

For HE development, four significant entities have been emphasized: *educational infrastructure*, *human capital*, *technology*, and *relevant government entities* [9,11]. Each of these entities has potentialities that facilitate educational development for future needs [28] and link to the Vision's HE development objectives. Since the Vision came into practice, these entities have pushed to prioritize their potentialities toward achieving these objectives [9]. These entities are further classified into sub-fields, such as *modern curriculum*, *foreign collaboration*, *scientific research*, *faculty development*, *skilled graduates*, *accreditations*, *and university ranking,* which are the inclusive influencing factors [17] that precisely influence HE development and contributing to the Vision theme (see Fig. 7). Besides, 42.31% of interviewees in academic roles (23.08% and 19.23%) suggest that modern curriculum, scientific research, and innovative teaching enhance educational programs' quality and attractiveness of students [8]. However, three interviewees in leadership roles felt the need to educate university stakeholders, create cultures, and ensure accountability that reflects the growth [16] towards the

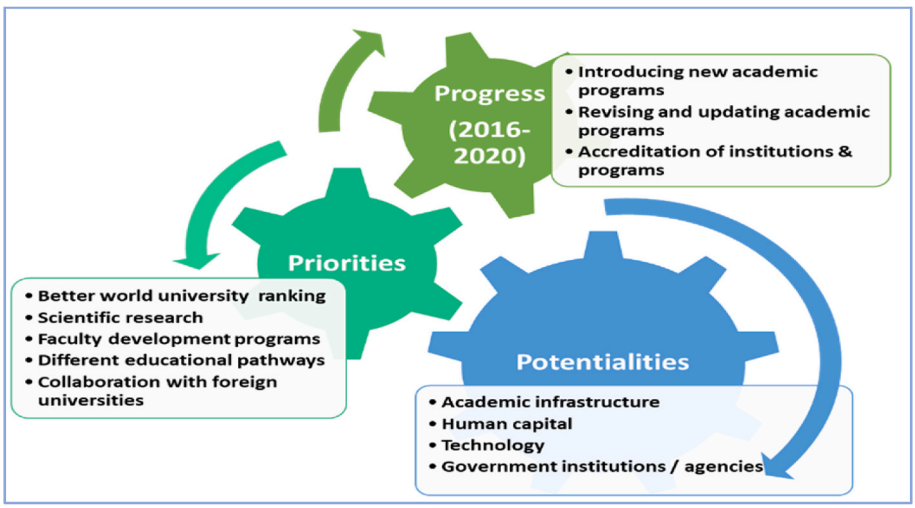

Fig. 6. The study's approach and model.

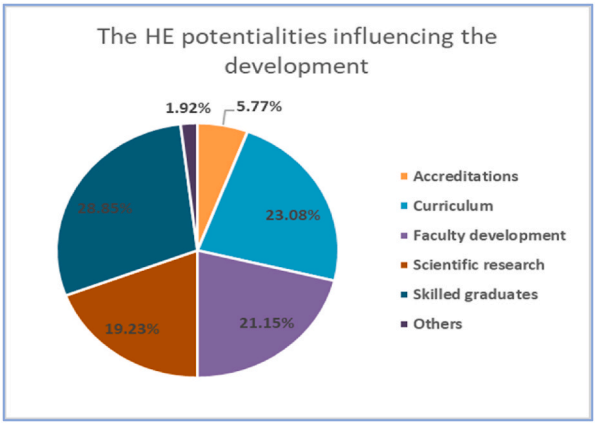

Fig. 7. The HE potentialities influencing the development (Table 3-Q4).

Vision's HE objectives.

4.3. *The HEIs potentialities contributing to the Vision's goals (RQ3)*

The HEIs entities are incontrovertible and facilitate acquiring knowledge, skills, and credentials. As HEIs implement flexible and dynamic strategies to put forward their potentialities for achieving the vision's targets. The obtained results are based on the analysis of data collected from the participants, and the evidence from the authentic sources [6,11] indicates the significance of such potentialities in the Vision contribution. In accordance by the results, the HE development efforts are underway towards achieving excellence and finding growth in the Saudi higher education sector [3]. Fig. 8 illustrates the HE entities that are constantly improving on achieving the VRP-HCDP objectives. Almost 50% of the participants have commented that scientific research and foreign collaborations are the key sources of students' attraction, whereas education and training have tremendous potential to contribute to economic growth [17]. While the researchers' interpretation of the collected responses regarded university rankings (28.13%), accreditations (12.5%), and modern curriculum (9.38%), sharing the other 50%. Here, accreditations have more impact [26] than the curriculum [23] in light of the participants' responses. Fig. 9 shows the HE development performance evaluation by the participants across the potential entities. Table 7 shows the HE entities, progress, and achievements contributing to the Vision's HE development theme [6].

4.4. *HE development vs. the Vision's VRPs progress (RQ4)*

As discussed in Section 1, the Vision's two VRPs, HCD and NCE, include the HE strategic goals and development objectives [9,11]. The official sources describe the Vision's progress and achievements across its pillars [6]. The HCD is recently refreshed as the Human Capability Development Program (HCDP), which emphasizes preparing citizens for the future and enhancing their knowledge in various fields [11]. It has seen incredible momentum by implementing technological integration in educational services, despite the Covid-19 pandemic. The innovation ecosystem output has also shown significant growth in collaboration with foreign universities and research publications. Notably, the Saudi research publication on the COVID-19 pandemic achieved 14th rank globally [11]. In continuation, Table 7 describes the HE achievements and progress after the first review cycle. In the face of following the VRPs

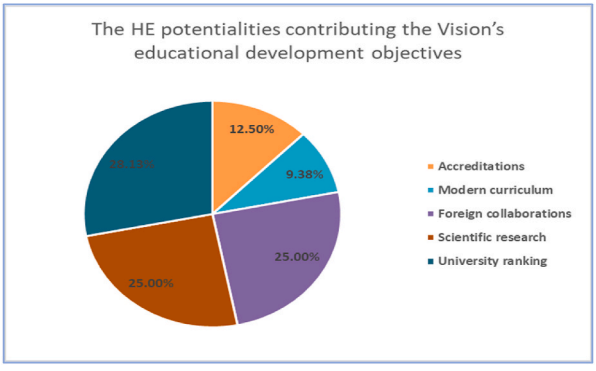

Fig. 8. The HE potentialities contributing the Vision's objectives (Table 3-Q3).

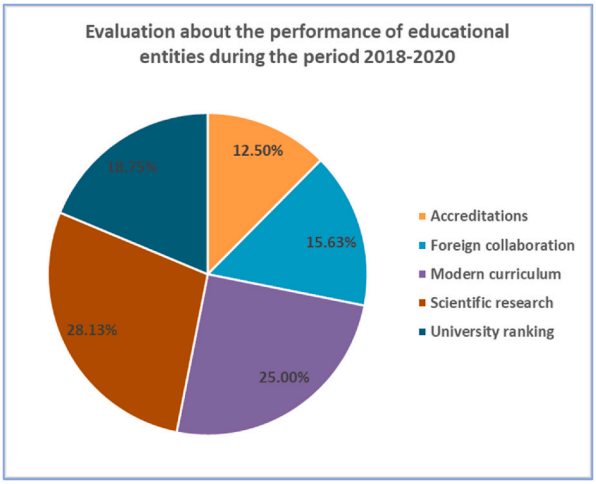

Fig. 9. The HE development entities performance evaluation (Table 3-Q4).

objectives, myriad significant developments have been achieved across the HE sectors. For instance, a significant increase in the number of female professionals in HEIs in various capacities.

4.5. The Vision's VRPs review cycle process

In this vignette, this study looks at the VRPs' review cycle process. The VRPs talk about the story of transformation, and their activities are delivered by following the pre-defined objectives and KPIs. The VRPs performances and the KPIs are evaluated and measured following the review cycle duration, e.g., the first cycle is for 2016–2020, quarterly and annually; for transparency through regular reporting. The Vision is currently in the next stage, and its VRPs have been assessed, reviewed, and re-aligned, emphasizing the Kingdom's needs and the Vision themes [9]. During the Vision review process, several review programs have been introduced, such as the strategic directions program, the regulations review program, and the performance measurement program [9]. In the review cycle process, the stakeholders evaluate the progress at various stages, such as the feasibility of implementation plans and feedback data collection and analysis.

5. Challenges, limitations, implications, and future research

Challenges: The HE development objectives outline insight into VRPs – HCDP and NCE and extracting them requires intelligent efforts. However, this study participants have indicated their perceived challenges regarding the contribution of HEIs to meet the vision's targets. Besides, collecting information for such an important topic requires a deeper understanding of the VRPs' HE development strategic objectives; determining the interviews' responses, and classifying them following the study's objectives was challenging. The first review cycle document [11] describes several implementation challenges for achieving the HE development objectives, such as universities facing insufficient professional and practical training resources and the alignment of educational outcomes to the current market needs [13]. Involving academia and industry experts to introduce new academic programs [17] is highly needed. The study's responders strongly regarded that developing practical-based curriculums in collaboration with industry and research organizations is challenging and limits students' skills improvement [16]; since no such platform exists that facilitates effective communication between these sectors. The absence of a unified system that monitors the HE outcomes in areas of specialization leads to a low alignment between the educational outcomes and the job market demands. It is crucial to focus practical-centered learning with the involvement of work-rich experienced teachers to bring work experience to the classroom [28].

A low collaboration between education and research development activities limits career services and students' motivation to invest free time in professional development. Students can be motivated by facilitating practical training courses that help them get suitable jobs is a high point of concern. The other significant concern for the HEIs is promoting lifelong learning by recognizing students' skills and motivating them towards independent and continuous learning for professional excellence by bringing the enablers on the same page. Finally, effective coordination among the working entities [16] is required to achieve the HCDP's strategic objectives and contribute to the Vision's themes.

Limitations: The initial concern is to critically examine the proposed framework [20] and the model in accordance with the study's scope. It is paramount for assessing the HEIs' readiness in the implementation [16] of the Vision's policies since there is an absence of cogency between institutions' potentialities and the Vision's targets. Another limitation is the study's sample size, it covers only 34% of the Saudi public universities, and the generalization of the results is up to the readers' perceptions. At this juncture, the focus needs to be consistent on implementing Vision's HE policies besides assessing the potentialities, priorities, achievements, and progress of the HEIs. The HEIs would need to be mindful of their performance excellence, as well as emphasis must be given to their talent goals,

Table 7
Higher education progress contributing Vision 2030.

Saudi Vision 2030 for higher educational development and achievements		
Potentialities	**Priorities**	**Progress (2016–2020)** * [6]
Educational infrastructure (Under NTP)	-improve the ranking of educational institutions -six Saudi universities should be ranked within the top 200 universities globally by 2025. -collaborating with foreign universities -invest in innovative research -different educational pathways, modern curriculum, and a sophisticated range of education outcomes -improving equity of access to education, especially in rural areas -improve equal access to education -establishing the National Aviation Academy	-3 Saudi universities got global top 200 universities rankings -1.1% private participation in education -scientific research publications increased by 120%, and 143 patents granted -HEIs contribute 93% of Saudi's scientific research -Saudi ranked 14th globally in the number of COVID-19 publications and ranked 1st in the Arab world -HEIs introducing new and modern academic programs and fundamental learning outcomes -over 9 million beneficiaries of distance learning platforms -4069 Saudi students enrolled in top 200 universities globally -22% of HE students enrolled in STEM -23.4% institutions got national accreditations -King Saud University developed a Chinese language course -legislation to improve institutional structures
Human capital [11] The Human Capability Development Program	-develop our brightest minds in priority fields and build a lifelong learning journey -providing basic skills, values, and skills of the future -expand vocational training to provide for labor market needs -ensure alignment of educational outputs with labor market needs -improve the readiness of youth to enter the local and global labor markets -developing the job specifications of every education field -HCDP ecosystem-education and training sector practitioners	-3700 professional development programs were provided for more than 420,000 educational professionals. -4.6 out of 7 staff engaged in training -engaging adults in lifelong learning -41 is the average number of days students got practical training before graduation -37,351 graduates got opportunities in global companies -4.5% of HE graduates got jobs within six months -32% of Saudization in high-skilled jobs -obtaining significant students result in global education indicators -upholding the Arabic language effectively -38% of SMEs are owned & operated by women -Saudi World Bank Human Capital Index is 84th out of 157
Technology [4]	-developing a centralized student database for tracking HE students -localize AI and incorporate Arabic language into the technology -building national AI and data capabilities -attracting foreign investment in technology -creating the Saudi Company for Artificial Intelligence (SCAI)	-establishing the Saudi Digital Academy and digital platforms for various services -technology support 148 million virtual classes -launching 14 Digital Innovation Labs: facilitates 260 training camps. -conducted Global AI Summit & 1st place amongst Arab nations in the Global AI Index -building national AI and data capabilities -global AI and smart city indicators have been increased -launching a governmental cloud, DEEM -established a national cloud computing policy and the largest advanced cloud center. -fiber-optic coverage has been expanded & Internet speed increased to 109 Mbps in 2020 -launch ThinkTech, a digital knowledge platform
Government institutions/ agencies	-privatization of public universities -a collaboration with foreign universities -nurture and support the innovation & entrepreneurship culture -improve education planning, monitoring, evaluation, and outcomes	-university privatization is underway, and a few universities are considered for pilot practices -Education & Training Evaluation Commission (ETEC) monitors and assesses HEIs performances emphasizing the Vision HE's objectives and ETEC also monitors national and international accreditations -the initiative for flexible learning pathways

*The official sources describe the progress as since the beginning of Vision 2030.

including the Vision's HE objectives as priorities.

Implications: The intended research must have a comprehensive understanding of Vision's VRPs, their objectives, and the study's scope, which will help understand the vision's progress. Since a few VRPs cover objectives that are interlinked with the objectives of the other VRPs and have relevance among them. The current study compares the interviews' outcomes and the survey's results to achieve its objectives by exploring an intellectual interest. The comparison results must be coherent to validate the study's aim and show the contribution of the HE development to the Vision's progress. Hence, future studies should effectively involve academic experts before the start of the study; educate the study's participants about the topic's significance and their responses to achieve the

study's objectives. The study's approach should highlight how their responses are crucial in obtaining the intended outcomes and assure them that their recommendations will be of utmost importance to the readers, as the presented study did.

Future research: Future studies can consider any of the HE's development potentialities (see Sections 4.2 and 4.3) and must have a deeper understanding of the HEIs' development and the Vision's HE development objectives. Further, the HEIs' priorities will be interesting factors in investigating the significance of each priority and the precedence importance in contributing to these objectives. Indeed, studies should consider the impact and progress of HE development by emphasizing the HEIs' potentialities. Future research can expand the sampling size by involving participants from all Saudi universities and industry experts to learn the significance of such potentialities for the Vision's contribution. For instance, intended studies can consider the influence of the direct involvement of industry experts in the curriculum development process and analyze the contribution of academic learning outcomes to market needs [13] and market linkages [17]. Such studies should consider use cases of higher education curriculum development by involving industry representatives or researchers working on contemporary technologies that will help design new modern curriculums. Furthermore, they need to consider the VRPs' performance indicators' targets amidst the vision's HE development objectives, for example, gaining three universities under 200 ranks in the global index. Nevertheless, the current study is a transcendent initiative to investigate the progress and achievements of HEIs' contribution after the first review of the Vision's realizations programs.

5.1. Covid-19 and beyond: affects and challenges

Since March 2020, the COVID-19 pandemic has affected the education system and disrupted the process of educational development across the world [29]. There is clear evidence that educational institutions faced difficult trade-offs during the pandemic and went on online for academic activities. Educational institutions were not prepared for such pandemics [4] and faced the consequences [30] while dealing with learning, teaching, and performance evaluation [14]. It was an unexpected situation for the Saudi HEIs, too, and they must bring overnight changes– on-campus academic practices to the online education system. During the pandemic, 74% of Saudi students reported that they could use the computer for their academic work; in contrast, 43% of students went backwards in socioeconomic distribution [30]. The second OECD-Harvard questionnaire consists of educational responses about Covid-19 collected from official sources describing how the pandemic affected instructional time lost, teachers' support, equity in learning content access, academic practices, assessments, and performance measurement [30]. A comparative study [4] revealed the pandemic's negative impacts on the educational process in Saudi Arabia and raised concern about getting back from the education distractions to quality education. It mentioned that assessment, communication engagement, and course material were affected during the pandemic. The pandemic also affects Saudi HE development and its contribution to the Vision theme. However, the Saudi HEIs' potential has to prioritize their focus on learner-centered teaching pedagogies [19]. These institutions have already realized that they are the only producer of human capital and are under pressure to take urgent steps to meet the HE-specific targets outlined in Vision's VRPs. It is challenging for HEIs to reset their performance targets to achieve their desired outcomes to match the VRPs' objectives.

6. Conclusion

Investigating higher education development by emphasizing how effectively HEIs' potentialities and priorities contribute to the Saudi Vision theme is the purpose of the current study. Owing to the Vision's implementation policies, the participants' views from the top ten QS-ranking Saudi universities have indicated that the HEIs' potentialities and priorities are significant contributors to the Vision's progress, previously unheard of. The findings revealed that the Vision is the most transcendent reason behind the HE reforms. The academic experts reemphasized *educational infrastructure*, *human capital*, *technology*, and *government institutions* as prominent entities, and their ideas of higher education development were strongly tied to HEIs' potential and priorities. The performances of these entities achieve the Vision's VRPs (HCDP and NCE) objectives, impact the progress, link to economic growth, and enhance Saudi ranking in global reports. Additionally, the study's respondents were focused on *modern curriculum*, *foreign collaboration*, *scientific research*, *faculty development*, *skilled graduates*, *accreditations*, *and university ranking*, majorly contributing to the HE system development. In these contexts, as the evidence from the first review (2016–2020) explained, Saudi universities are achieving academic excellence and producing more than 50% female graduates. The HEIs' policymakers need to be apprised of the government effort for digital transformation that brings the name, top digital riser (got +149 points) and Saudi stood ranked second for allocation of frequency bands (1110 MHz) among G20 countries; these development trends support them in achieving performance excellence. Besides, the future skills initiative program is provided to 40,000 individuals and will produce 20,000 IT professionals within two years. "Doroop" is a platform which aims to provide training in various specialties and will provide the aspirants with proper jobs. The HEIs are mandated by the Ministry of Education to effectively implement the vision's policies and commitment to the VRPs' objectives. The Saudi universities' stakeholders should take these aspects as opportunities for improving the quality of learning-teaching, capacity building, and sustainable HE development rather than considering compliance. Therefore, the subsequent studies should consider the presented approach adding the perspectives of developing the brightest minds and building a knowledge-based society that links to the Vision's economic growth. Indeed, this work will be exciting for the Saudi HEIs policymakers, stakeholders, and readers to learn about the HEIs' contribution to the Vision's goals.

Author contribution statement

Khalid Mohiuddin: Conceived and designed the experiments.
Osman A. Nasr: Performed the experiments.

Mohamed Nadhmi Miladi:Contributed reagents, materials, analysis tools or data.
Huda Fatima: Analyzed and interpreted the data; Wrote the paper.
Samreen Shahwar: Contributed reagents, materials.
Quadri Noorulhasan Naveed: Analyzed and interpreted the data.

Funding statement

The authors extend their appreciation to the Deanship of Scientific Research at King Khalid University, Saudi Arabia for funding this work through Small Groups Project under grant number RGP.1/26/43.

Data availability statement

No data was used for the research described in the article.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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