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Undergraduate university students mentoring program: experiences of mentors and mentees

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Introduction: Research on the impact of mentoring on students and mentors is limited. Therefore, this study explored the experiences of mentors and mentees involved in a mentoring program for undergraduate students at a governmental academic institution in Saudi Arabia. The program connected undergraduate students with peer students, academic staff, or alumni based on their needs.

Methods: Using an online survey ($n = 80$) and a focus group ($n = 24$), we examined mentees and mentors' perceptions of their mentoring experiences. Descriptive statistics were used to summarize participants' responses to the survey. The focus group data were analyzed using six phases of thematic analysis.

Results and discussion: The findings showed that the participants' mentoring experience was positive, with some challenges, such as limited time, unmet expectations of mentees, and a lack of student engagement. The motivation to volunteer as a mentor focused mainly on wanting to help others and appreciating the value of mentoring based on the mentors' previous experiences.

KEYWORDS

mentoring, higher education, undergraduate students, alumni, evaluation

Introduction

Higher education institutions have increasingly focused on undergraduate mentoring programs as an approach to support students' success and development, increase student retention and persistence, and minimize attrition (Akinla et al., 2018; Andersen and West, 2020; Campbell and Campbell, 1997; Crisp and Cruz, 2009; Gehreke et al., 2024; Hamilton et al., 2019; Jacobi, 1991). Crisp and Cruz (2009) reviewed mentoring in education, business, and psychological literature (1990 and 2007) and identified over 50 definitions of mentoring with varying scope and breadth. Other reviews documented the absence of a consistent definition of mentoring in the context of higher education (Jacobi, 1991; Nuis et al., 2023). Nuis et al. (2023) proposed the following definition of mentoring in higher education based on a summative content analysis of 54 definitions:

Mentoring is a formalized process based on a developmental relationship between two persons in which one person is more experienced (mentor) than the other (mentee). The mentor provides support, more specifically career, emotional, psychosocial, psychological, and academic support, to promote and facilitate student success, competence development, and career development. (Nuis et al., 2023)

Jacobi (1991) identified five components that characterize mentoring: (1) mentors typically possess greater experience, influence, and achievement compared to their mentee; (2) mentoring involves one or all of three broad components: emotional and psychological support, direct assistance with career and professional development, and role modeling; (3) mentoring relationships are primarily focused on helping the mentee achieve long-term goals like promotion or graduation; (4) mentorship requires direct interaction between the mentor and the mentee and involve exchanging information beyond what is available in public records; and (5) mentoring relationship is reciprocal as the mentor and the mentee gain emotional or tangible benefits from the mentoring relationships.

A review of the undergraduate mentoring literature between 1999 and 2020 identified four distinct mentoring purposes (Nuis et al., 2023). The first and most common purpose was student success, which included academic achievement, transition to university, enhancing student retention and persistence, and reducing attrition. The second was students' competence development to enhance their knowledge, skills, and abilities. The third was career development, which included students' professional growth. The fourth purpose encompassed diverse objectives such as enhancing the overall student experience and reducing anxiety levels.

The mentor can be a more experienced peer, faculty mentor, or a business professional. Mentors provide mentees with different types of support, such as career, academic, psychosocial, and psychological support (Nuis et al., 2023). To perform this function, mentors exhibit specific behaviors toward their mentees, such as role modeling, providing information and resources, assisting with setting goals, and providing feedback. A good mentor should offer a combination of support types and adapt their behavior depending on their mentees' specific needs (Nuis et al., 2023).

Dominguez and Hager's (2013) literature review on the theoretical underpinnings of adult mentoring in educational and workplace settings revealed that mentoring research is organized around three primary theoretical frameworks: mentoring as a means of support during academic, occupational, and developmental transitions (developmental); mentoring as a learning partnership (learning); and mentors as role models who introduce mentees to social networks to facilitate learning and adjustment to their environment (social). The review concluded that each theory exhibits challenges in the educational setting, that no single mentoring model applies to all individuals and institutions, and that they may be implemented in conjunction with one another (Dominguez and Hager, 2013). Other reviews also confirmed that a single guiding theory or conceptual framework would be inappropriate, given the range of outcome measures in undergraduate mentoring programs. Jacobi's (1991) review of the undergraduate mentoring literature identified four mentoring frameworks: involvement in learning, academic and social integration, social support, and developmental support. Based on an extensive review of the literature on undergraduate mentoring programs, Crisp and Cruz (2009) proposed a conceptual framework encompassing the following domains: (a) psychological and emotional support, (b) support for goal setting and career planning, (c) academic subject knowledge support, and (d) role

modeling. Nora and Crisp (2007) validated this framework through research involving two college populations and concluded that these four fundamental dimensions formed the multidimensional foundation of effective mentoring. Gershenfeld's (2014) review of studies published in undergraduate mentoring programs between 2008 and 2012 identified 20 studies. The findings indicated that 70% of the studies were guided by a theory or conceptual framework, and the most frequently applied theory was Tinto's social integration theory, which postulates that students who are fully integrated into the campus community, both academically and socially, are more likely to persist and graduate from university.

Evaluation is important for improving mentoring programs, helping mentors and mentees feel appreciated, and identifying areas that require improvement (Andersen and West, 2020). Collecting data on mentors' and mentees' perceptions of the goals, processes, and effects of mentoring interventions beyond satisfaction is an important area of research (Gershenfeld, 2014). Gershenfeld (2014) argued that measuring participants' perceptions is a subjective outcome that is considered a methodological flaw by many, but it is an element of social validity and, when combined with more objective valid measures, will lead to improved evidence-based mentoring practice. Two areas that have been examined in the literature are mentors' and mentees' motivations to join mentoring programs and the challenges faced.

Anderson and West's literature review (2008–2018) of mentoring in higher education identified several mentoring challenges (Andersen and West, 2020), which we grouped into three levels: administrative, mentees, and mentors. At the administrative level, these include providing mentoring for all students in need; identifying, selecting, and training effective mentors; and using valid and reliable program evaluation procedures. At the mentee level, the challenges include a lack of awareness about available mentoring opportunities, difficulty in forming a meaningful connection with mentors, disliking the mentoring style offered, and dissatisfaction owing to mentor unavailability. At the mentor level, these challenges include a lack of long-term commitment to students or the organization, time constraints, and limited flexibility in meeting mentees' needs. Obstacles to undergraduate research mentoring include personal faculty problems such as deficits in emotional intelligence, and a lack of time, energy, motivation required for engaged mentorships with students, and institutional reward for time engaged in mentorship (Johnson et al., 2015). The decision to volunteer as a mentor can be derived from different motivations, including a positive institutional culture, prior undergraduate experiences, opportunities to conduct research and work with a bright student, personal fulfillment, and enjoyment (Baker et al., 2015, 2022; Copenheaver and Shumaker, 2022; Hall et al., 2018; Seery et al., 2021).

Although the literature on undergraduate mentoring has examined many critical issues, we argue for further research on the relationship between mentors and mentees. First, most of the published literature focuses on the mentee's perspective, and few studies have examined mentors' perspectives (Baker et al., 2022; Crisp and Cruz, 2009; Davis et al., 2020). Second, a large number of published studies have focused on mentoring certain populations, such as minority students, while mentoring

mainstream undergraduate students remains under-researched. Third, for any mentoring program administrator, the collection of data on the impact of mentoring on objective outcomes, such as students' average grades, is crucial. However, understanding the expectations of mentees from the mentoring activity as compared to their lived experience of mentorship is an important subjective measure of program success. Fourth, most studies have examined either mentors' or mentees' experiences, and very limited research has examined both perspectives for the same mentoring program to provide a holistic picture of the experience. Fifth, although the literature has examined peer and faculty mentoring, the perspective of alumni as mentors for undergraduate students has not been widely studied. Thus, research that explores mentoring experiences from the perspective of both mentees and mentors participating in the same mentoring program is needed. Finally, given that mentoring programs have largely been evaluated in Western countries (Crisp and Cruz, 2009; Gershenfeld, 2014; Nuis et al., 2024), there is a gap in the literature on the implementation, process, and impact of mentoring programs in other settings.

Purpose of the study

Recognizing the benefits of mentorship, the Comprehensive Personal Support Program (CPSP), a mentoring program for undergraduate students, was established at an academic government institution in Riyadh, Saudi Arabia. This study explored the experiences of mentors and mentees involved in the CPSP. Specifically, we aimed to identify mentees' and mentors' motivations for joining the program and the challenges faced during the mentoring relationship that hindered mentees from achieving their goals and expectations by participating in the program.

As mentoring programs vary, research needs to specify the key operational features of the program, such as the characteristics of mentors and mentees, the types and extent of training, and whether the program is mandatory or voluntary, to facilitate comparisons across programs and encourage adaptation (Gershenfeld, 2014; Leavitt et al., 2022). Therefore, we describe the CPSP in the following sub-section before presenting our methods and results.

Program description

We designed the program based on the theoretical and conceptual frameworks for undergraduate mentoring proposed by Crisp and Cruz (2009) (Table 1). The CPSP is an initiative managed through the Rectorate for Academic Support and Student Services and the Student Support Services Center. The establishment of the CPSP was guided by evidence from best practices (Crisp et al., 1997; Crisp and Cruz, 2009; Law et al., 2020; Nuis et al., 2023; Ramani et al., 2006; Sucuoglu, 2018; Treasure et al., 2022).

To design the program, two committees were formed with members of the Rectorate for Academic Support and Student Services, academic staff from different colleges, and two student representatives. These committees focused on defining the program's vision and scope, developing program forms, and

specifying mentor selection criteria. Once the two committees agreed on the main features of the programs, a team from the Deanship of Students' Affairs was assigned to oversee program implementation and provide logistic support for mentees and mentors.

The program connected undergraduate students with peer students, academic staff, or alumni based on their needs. All mentees and mentors were female as the institution was a women-only institution. The CPSP was geared toward all undergraduate students regardless of discipline and without any selection criteria, except students' interest in participation. The criteria for selecting mentors were as follows: student, faculty, or alumni of the institution; having an interest in fostering the development of undergraduate students; and attending an online mentoring training workshop. Additional criterion for peer mentors was a grade point average of ≥ 3.75 out of 5.

To maximize their effectiveness, mentors require training in several key areas: developing effective interactions with students, articulating goals and expected outcomes within the mentoring program, delivering effective feedback, personalizing the mentoring experience to meet individual student needs within the program objectives, explaining the value of program activities for student learning, and providing optimal support for career planning (Andersen and West, 2020; Astrove and Kraimer, 2022; Beltman et al., 2019; Nuis et al., 2023). Therefore, we designed a compulsory workshop for mentors that discussed topics such as the definition of relationships, stages of mentoring, mentors' competencies, and guidance on the resources available for student support. In total, 135 academic staff members, alumni, and students attended the workshops. A 5 min introductory video explaining the aim of the program, the different tracks of the programs, and the potential benefits of joining the program, as well as a booklet on the program, was shared with all mentors and mentees via Microsoft Teams and emailed to all mentors and mentees after matching. The program was offered as a volunteering opportunity for mentors at the Saudi Volunteer Work Platform, and was also used to document mentors' volunteer hours and issue volunteer certificates. The components of mentor training and compensation reflected the formalization process in our mentoring program (Nuis et al., 2023).

The program team was responsible for the matching procedure based on similar academic backgrounds and the common interests of mentors and mentees. After matching, the mentors and mentees were required to meet and set mentoring relationship goals and develop plans to achieve them. The goals and plans were documented in an agreement form signed by both parties. The expected timeframe for the mentoring cycle was one semester (~15 weeks), and mentors and mentees were expected to commit to the program for its duration. Mentors were provided with a goal-setting and action plan form to monitor the progress of goal attainment.

There are three platforms for mentoring: in-person mentoring, which allows mentors and students to connect in person; online mentoring, which refers to online interaction between mentors and mentees through email, texting, free video meeting services such as Zoom, and document sharing such as Google Docs; and a blended platform that combines both in-person and online mentoring components (Andersen and West, 2020). In our program, the

TABLE 1 Overview of the comprehensive personal support program tracks.

Track	Mentor	Construct
Track 1	Senior student	<ul style="list-style-type: none"> Academic subject knowledge support: aimed at advancing a student's knowledge relevant to their chosen field. For example, share with them their effective study skills or experiences of student clubs in college. It was explicitly clarified that no teaching is expected from the mentors and mentees are advised to use study groups available in many colleges Emotional support: examples advise on strategies for managing exams and assignment stress or tips to navigate through challenges during their first year. It was explicitly clarified that mentor should not advise for social or psychological issues, but instead tell the mentee about social and psychological services available in every college Specification of a role model
Track 2	Faculty	<ul style="list-style-type: none"> Academic subject knowledge support: aimed at advancing a student's knowledge relevant to their chosen field. For example, share with them their effective study skills or experiences of student clubs in college. It was explicitly clarified that no teaching is expected from the mentor and mentees are advised to use study groups available in many colleges Emotional support: for example, advise on strategies to cope with oral presentation stress, tips to facilitate transition to university life. It was explicitly clarified that mentor should not advise for social or psychological issues, but instead refer mentee to social and psychological services available in every college Specification of a role model
Track 3	Alumni	<ul style="list-style-type: none"> Support for setting goals and choosing a career path. For example, tips on searching for a job, applying for a job and networking skills Specification of a role model

first mentoring session was conducted in-person to set goals and sign the agreement form, whereas the modes for the rest of the mentoring sessions (in-person or online) were left for the mentor and mentee to decide. The use of other communication methods, such as email and phone calls or messages, was left to their preference but had to be documented in the agreement form.

Students interested in the program submitted an online mentee application form that collected the relevant information required for the matching process, such as the college and preferred mentoring track. The application process was not a filtering process, as we attempted to match all applicants with a mentor, with the only limiting step being the availability of a suitable mentor. Owing to limited human resources, registration for the program was open for only 2 weeks at the beginning of the semester. To ensure inclusivity, all students were sent an email about the CPSP via the Rectorate for Academic Support and Student Services in addition to advertising the program through the university's X (Twitter) accounts. An introductory video was attached to the email and tweet.

The first, second, and third batches began in January 2022, September 2022, and April 2023, respectively. Three-hundred-and-sixty-eight mentors registered in the program over three cycles (academic staff, $n = 120$; alumni, $n = 175$; students, $n = 73$). A total of 118 mentors matched the students. Some mentors worked for all three cycles, whereas others were matched with more than one student. A total of 214 students participated in the program, of whom 64% ($n = 137$) were matched with mentors.

Methods

Design

We collected data from mentees and mentors using an online questionnaire administered at the end of the mentoring cycle and focus groups. The Institutional Review Board of the university revised the proposal and exempted the study from review as it poses no more than minimal risk to the participants. Participants were informed that their participation was voluntary and that they could terminate their participation whenever they wanted to and without any justification. Written informed consent was obtained.

Procedures

All mentors and mentees who were matched and started a mentoring relationship were invited via email to participate in the survey and focus groups. A reminder email was sent after 2 weeks. Participation was voluntary. The online survey was designed using Google Forms, and a link to the survey was emailed to all the mentees and mentors. We selected the composition of the focus groups to reflect homogeneity between participants but with sufficient variation among participants to allow for contrasting opinions. The mentees' group included students from different colleges and mentoring tracks. The mentors' groups were homogenous in terms of their tracks, but participants represented different colleges and work affiliations. We decided that the focus group size should not exceed eight participants to allow each participant opportunity to share insights and observations. The evidence suggests that data reached saturation within 4–8 focus groups, especially in those involving relatively homogeneous study populations and clearly defined objectives (Hennink and Kaiser, 2022). In our study, we ensured that each question was answered by all participants and that there were no new dimensions identified before moving to the next question. For focus groups, participants could select suitable times and dates for the focus groups from a list of suggestions. Focus groups were conducted face-to-face or online, based on the participants' preferences.

Participants were assured that all data collected would be securely stored and only accessed by the authors and any identifying information would be removed to maintain confidentiality and anonymity, respectively.

Measurables

We used online surveys and focus groups to collect data from the mentors and mentees. The survey aim was to measure mentors and mentees' perceptions of their mentoring relationship. The survey questions were formulated based on previous studies (Andre et al., 2017; Goodman-Wilson, 2021; Gullan et al., 2016). To minimize bias, we avoided leading and loaded questions. The two previously mentioned committees revised the survey for

clarity and comprehensibility. The survey for mentees included 14 statements evaluating the mentor and four questions evaluating their experience in the CPSP; all questions were closed-ended. The mentors' survey included five closed questions and three open questions for additional comments.

The focus group topic guide was based on previous studies (Dollinger et al., 2019; Hamilton et al., 2019; Ramani et al., 2006; Seery et al., 2021). The topic guide consisted of open-ended questions about the participants' understanding of mentorship, their personal experience of mentoring, and their recommendations for improvement. The participants' personal experiences of mentoring consisted of questions on three areas: their motivation to join the program, the challenges they faced during the mentoring relationship, and the benefits they gained from joining the program.

Data analysis

Descriptive statistics were used to summarize the participants' responses to the end-of-cycle survey. The focus groups were recorded and transcribed verbatim. We anonymized the data by removing all identifiers and replacing them with codes to differentiate between participants; for example, S1 (Student Mentee 1), F1 (Faculty Mentor), and A1 (Alumnae Mentor 1).

We analyzed the focus group data using thematic analysis, which is a method of "identifying, analyzing, and reporting patterns (themes) within data" (Braun and Clarke, 2006). We followed Braun and Clarke's (2006) recommendations for the six phases of the thematic analysis. In phase 1, the two authors independently read the focus group transcripts repeatedly to familiarize themselves with the dataset and to search for patterns. In phase 2, each author independently generated the initial codes and organized them into potential themes by identifying interesting aspects in the transcripts that may form the basis of repeated patterns (potential themes). Coding was performed manually. Frequent meetings provide a platform for authors to overview and compare their coding. Disagreements were discussed until a consensus was reached. In phase 3, the authors met to discuss potential themes and collate all the relevant coded data extracts within the identified themes. In phases 4 and 5, the authors reviewed the themes to ensure that they worked in relation to the coded extracts and the entire dataset, refined the themes and reached a consensus on thematic analysis. In the final phase, the writing up of the analysis, quotes that best illustrate the themes were chosen and all authors agreed on the final interpretations of the data.

Results

Survey

Twenty-five mentees completed an end-of-cycle survey. The mentees were representative of the three tracks academic staff ($n = 13$), alumni ($n = 9$), and students ($n = 3$). The responses indicated an overall positive evaluation of the program (Table 2). Twenty-one (84%) mentees were very satisfied with their experiences and

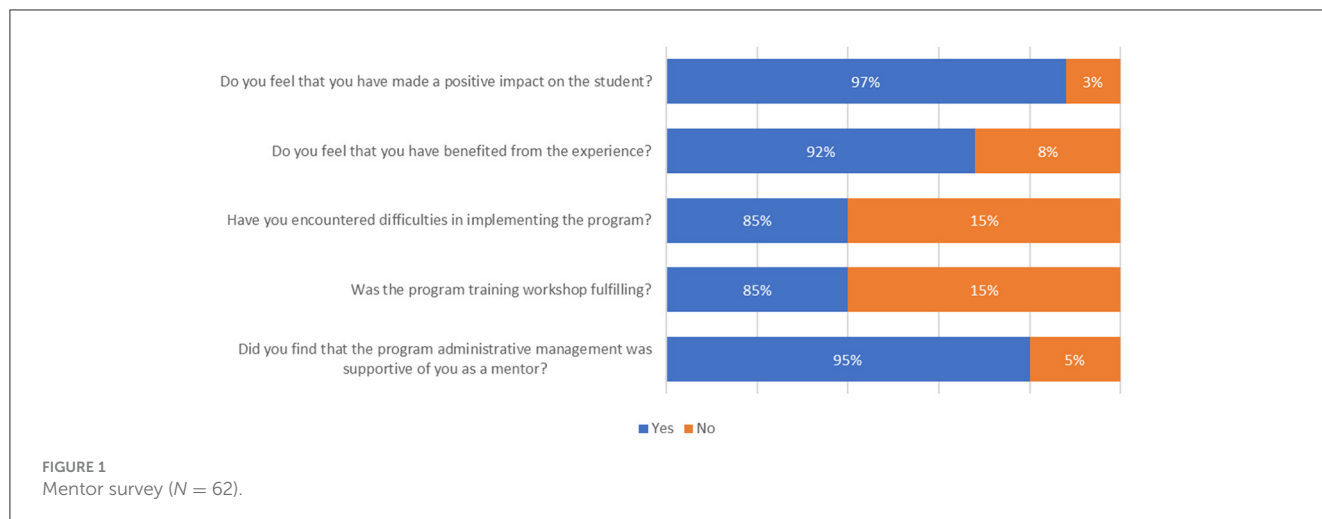
TABLE 2 Student survey ($N = 25$).

Item	Agree	Undecided	Disagree
The mentor gave me enough time to learn	22	3	0
The mentor gave me tasks that challenge my abilities, which helped me research, innovate and create	14	8	3
The mentor was accepting and understanding	25	0	0
The mentor offered me support and encouragement	25	0	0
The mentor communicated with me in a clear way	25	0	0
The mentor is a good role model for me	24	1	0
The mentor was available when I need her	24	1	0
The mentor offered constructive criticism and feedback in a kind way	24	1	0
The mentor encouraged my participation in the discussion	25	0	0
The mentor gave me enough encouragement when I finished the required tasks	24	1	0
Meetings with the mentor were effective and productive	24	1	0
I think the mentor believes in my abilities	24	1	0
I feel comfortable working with the mentor	25	0	0
I apply the suggestions and advice provided by the mentor	23	2	0

four (16%) were undecided. Twenty (80%) rated their experience as excellent, and five (20%) rated their experience as acceptable. Twenty-four mentees recommended the CPSP to their peers. Twenty-two (88%) mentees rated the mentoring skills of their mentors as excellent, and three (12%) as acceptable.

Fifty-five mentors completed the end-of-cycle survey and seven mentors provided two responses as they continued as mentors in two cycles (total responses = 62). The responses indicated a positive evaluation of the mentoring experience in general (Figure 1). Forty-five (72%) mentors were very satisfied with their experiences and 10 (16%) were undecided. Three mentors did not participate in the program again, while 52 (84%) did. All mentors stated that they would recommend the CPSP to their peers.

For the open-ended questions regarding suggestions for program improvement, the answers included more advertising for the program, meetings between the mentors to share their experiences, support mechanisms expected from the mentor with examples, programs integrated into the academic calendar, mentees matched with mentors early in the semester as well as a second training workshop after matching to answer all mentors' questions and a monthly meeting between mentors and the



CSPC administration to discuss challenges, provide solutions, and streamline the forms that need to be completed by the mentors.

Focus group

Four focus groups were conducted: two with mentees [face-to-face (*n* = 4), online (*n* = 5)], one with alumni (online; *n* = 8) and one with academic staff (online; *n* = 7; Table 3). The participants were from different colleges and different mentoring tracks except the peer mentoring track. The results of the analysis are presented as follows.

Understanding mentoring

Participants understood that mentoring differed from other forms of student support such as academic advice or counseling. Mentees appreciated that mentoring was personal, one-to-one support, and dependent on their needs [“it was personal” (S4); “she teaches me or gives me or provides me with skills according to the things I need” (S3); “she will sit with me alone” (S2)].

Some of the mentors’ explanations reflected a good understanding of the purpose of mentoring. One said, “Support the student and help them determine their career path. It is possible to develop skills and discover the student’s own strengths” (A3). Another explained, “It is about transferring knowledge or guiding someone who needs experience or guidance in certain things in their postgraduation path” (A2).

Previous experience with mentoring, mainly at the postgraduate level or on the job, has been reported as a helping factor in understanding mentoring. One mentor said, “From the moment you said the word ‘mentorship,’ I immediately understood the concept as I was mentored while doing my PhD abroad” (F2). Another explained, “Because I was exposed to a mentorship program while I was a student through the Mawhiba Foundation and because I was also exposed to indirect mentorship, the program vision was clear to me” (A1).

TABLE 3 Characteristics of the focus group participants.

	Background	Type of mentoring
Mentee		
Students (<i>n</i> = 9)	<ul style="list-style-type: none"> • College of education • College of social work • College of science • College of languages • Health and rehabilitation Sciences • Nursing • College of/academic staff of art • Applied college 	<ul style="list-style-type: none"> • Academic/research (<i>n</i> = 6) • Academic/personnel (<i>n</i> = 1) • Career (<i>n</i> = 2)
Mentors		
Academic staff (<i>n</i> = 7)	<ul style="list-style-type: none"> • College of medicine • College of arts • College of arts and design • College of science • College of business administration • College of computer and information sciences 	<ul style="list-style-type: none"> • Academic/research (<i>n</i> = 4) • Academic/personnel (<i>n</i> = 3)
Alumni (<i>n</i> = 8)	<ul style="list-style-type: none"> • College of business administration (<i>n</i> = 2) • Academic staff of art • College of art and design • College of computer and information sciences • College of social work • College of languages 	Career (<i>n</i> = 8)
Students (<i>n</i> = 0)	0	0

Mentees expectations of mentoring

The expectations of the mentees involved in the CPSP varied from research to advancing skills, setting goals, career advice, studying skills, and innovation. They articulated their expectation very clearly: “I need someone to help me set my goals” (S8); “I had research ideas as summaries, and I wanted the mentor to tell me if those ideas were suitable for research” (S6); “... I needed help in the career path; how, for example, to start. Additionally, I needed help

in my studies sometimes as I got distracted sometimes” (S5); “She inspired me with what I want, especially innovation” (S2).

Types of mentors’ support

Faculty mentors’ support for mentees varied in nature. Some provided skills and knowledge support, as one mentor explained: “Guidance on attending workshops: how to search in databases, choosing a research topic, choosing a research question” (F2). Others mentors helped with networking and connecting with others, as explained by one mentor: “Making friends, getting to know their peers, and building relationships with their classmates. This includes things like how to interact with others and how to resolve conflicts” (F7).

As expected, alumni support focused on career advice. One mentor mentioned the following: “How to write a CV using a specific and up-to-date format, how to create accounts on LinkedIn, and how to guide different job search methods, such as attending job fairs” (A4); another said, “How to prepare for important tests that they may need to take when applying for a job” (A6).

Experiences differed between participants with positive and negative experiences for multiple reasons. Negative experiences were primarily related to unmet expectations during the mentoring process. For instance, a student with video-making skills stated that her expectations of CPSP were not fulfilled because of communication or time barriers.

I want someone to guide me; I have a talent. I need someone to direct me to the right place to enable me to harness my talent. Unfortunately, she was busy; I was also busy. I felt I mean she does not understand exactly what I want, no matter how much I try to explain to her. (S1)

Some students expected to engage in a research project and were dissatisfied with not receiving that opportunity.

Frankly, I did not feel that I benefited the way I aspired to... She gave me her opinion briefly and rejected most of the ideas; then, she told me that I could have a training chance with an academic staff. (S6)

I was expecting to be with her in the research, her specialty is different from my major, I needed information on how to start research, [and] she explained to me in general I mean, honestly, she gave me information that I already have. (S7)

Another student was looking for answers on where to pursue her postgraduate studies after finishing her bachelor’s degree, and was satisfied with her experience and achieved her goals in one mentoring session: “Actually, she helped me with this [research], especially since she is a researcher and a specialist in her field” (S3).

The mentoring relationship benefits

The impact of the experience on the students ranged from joining certain student clubs, gaining research skills, idea generation, setting goals, building a plan to look for a job to participate in innovation competitions, and winning a prize. One student said, “She provided me with ideas... I started tutoring struggling physics students” (S4). Another student stated the following:

She [the mentor] will ask: what is your goal of the job and you can’t reach your goal without a plan even if it is a simple thing. We divided the plan into small steps. She taught me these steps and thank God I was employed, and my job is really something that suits the thing I studied, and I am currently marketing specialist in a government agency. (S5)

Regardless of their experience with CPSP, all students were willing to recommend the program to other students and participate as mentors: “I am willing to register this semester as a student mentor” (S1); “I actually advised others for it, because it is not a condition that it did not work with me; it might not work with others.” (S9). Similarly, most mentors in the current study said that they would be mentors again.

The benefits to the mentors from the experience reported by the participants included keeping up with employers’ policies on recruitment and being updated with university policies and services. One alumni mentor stated, “I was with her [the mentee] searching for suitable employer, and I became more informed about the employers’ policies in recruiting graduates.” (A1) A faculty member said the following:

For me and for the progress of the students’ before my eyes, it is not the case that I did not see the result, I felt the result, and their personalities changed in some aspects that we discussed together, and this means that one will be happy. (F4)

Mentors’ motivation to join the program

When asked about the reason for volunteering as a mentor, one major theme reported by five mentors was the desire to help others, or to “serve society and others” (A2).

Five mentors reported appreciating the value of mentoring based on prior enriching experiences as a motivator. One mentor said, “I had this experience, and it had an enormous impact on my development” (A1). Another explained, “I have experience being a mentor at the University of Southern California for 2 years. At that time, I used to say, ‘I wish [the name of the university] had this’” (A8). Three mentors reported feeling empathy with the students, as they remembered their own experiences and struggles as students, and how they would have benefited from having a mentor. One mentor said, “If I had this opportunity when I was student, I would have been happy” (F4). Another explained, “When I was in these girls’ shoes, I wished that this program was available so that I could have a mentor to pass on her experience to me” (A7). Anticipation of benefits for mentors also emerged. One mentor said,

Anyone who has contributed to volunteer work will surely notice that it has helped in developing her personal skills and that she has formed a network of relationships along with the feeling of accomplishment. The feelings of joy and happiness that you have given and contributed is sufficient. (A3)

Another explained that “the mentor herself can also benefit from the students, even if she is the one transferring her experience to them” (F4). Other reported motivations were “our students need it” (F1), “give back to the university” (A3), “pass knowledge to others” (A7), and “sense of responsibility.”

Challenges faced by mentees and mentors

According to the students, the main reason for unsatisfactory mentoring relationships was a lack of time. One student explained, “She was busy... she may not be the reason or possibly a small percentage, but the main reason is me, as I did not follow up with her again” (S9). Another said, “Time did not help us both, and she was very busy and I was waiting for her to reply” (S4). Another challenge was the mismatch between mentees’ expectations and mentoring relationships.

Mentors’ challenges focused on students’ understanding of the mentoring process and the lack of student engagement. One mentor said, “I noticed that the students still did not have enough information about the program” (F4), and another questioned, “Do the students themselves know what this project is about? Do they know all the details?” (A2).

Moving the program forward: suggestions for improvement

The mentees’ suggestions were varied. One participant said, “The student chooses the mentor” (S7) another suggested, “You may add group mentoring” (S6). Two students suggested that the mentoring cycle should be extended beyond one semester until the agreed-upon goals are achieved.

One mentor suggested actions for mentees who are not very engaged with the mentoring process: “Ask them to reply within a week or the student will be considered withdrawn as we or you may did contact her later and end up with no response to start with us” (A7).

The suggestions from academic staff mentors focused on methods for improving their recruitment. Suggestions included email invitations to volunteer as mentors sent to all academic staff directly and not through the department head, advertising for the program through campaigns that visit colleges, and announcements in departmental meetings. The suggestions of alumni mentors focused on encouraging students to join the alumni track early in their academic years, recruiting human resource managers as mentors, and introducing group mentoring.

Discussion

This study explored the experiences of mentors and mentees involved in CPSP. Our findings suggest that participants generally found mentoring to be a positive experience with few challenges.

Ward et al. (2012) identified six emergent themes of mentee growth and development: academic skills and knowledge, career decision-making, connectedness to others, maturity, physical wellbeing, and aspiration. Our analyses of focus groups documented four of these themes: academic skills and knowledge, career decision-making, connectedness to others, and aspiration. For instance, the aspiration theme, which embraces the way in which mentees experience personal growth and motivation to succeed inspired by their mentors, was illustrated by a mentee who stated that inspired by her mentor, she participated in an innovation event and won a prize. The theme of connectedness to others was not as clear as the other themes, but it was evident in participant offering comments on mentees becoming more

comfortable and confident in front of other students, joining student clubs, and participating in events. The short period of the mentoring cycle could explain the lack of themes such as maturity.

The motivations for becoming a mentor reported by the participants were the mentors’ desire to do something that benefits others, giving back to the community, the mentors’ personal positive or negative experiences as first-year students, and prior undergraduate mentoring experiences, which is consistent with those reported in previous literature (Baker et al., 2015, 2022; Beltman et al., 2019; Dollinger et al., 2019; Ehrich et al., 2004; Limeri et al., 2019). However, it is important to acknowledge that a bias could have been introduced in our study, as mentors and mentees with relatively rewarding experiences were more willing to participate in the survey and focus groups. A factor reported in the literature but not in our study was faculty motivation to mentor undergraduate students who bring new perspectives and help with various research tasks (Baker et al., 2015; Limeri et al., 2019). One reason for this could be our new experience in implementing the program and, consequently, the lack of evidence on students’ possible contributions to research. Although many colleges have a faculty-supervised graduation research project as part of the degree requirement, expectations for a supervised project may differ from mentoring a research project.

There is a consistency between our findings generated from the survey and focus groups. The survey and focus group results suggest that mentees and mentors would recommend the CPSP to their peers. The survey (Figure 1) and focus group results suggest that mentors felt that they had a beneficial impact on their mentees and that they benefited from the mentoring experience, but faced few challenges. Similarly, the mentees’ survey (Table 2) and focus groups suggest that although their experiences were generally positive, few challenges existed. The focus group helped further to understand the challenges mentors and mentees faced. The three main challenges identified in our study were lack of time, mismatch between mentors’ and mentees’ expectations, and keeping students engaged. Both mentors and mentees referred to the lack of time as a challenge because they found it difficult to arrange meetings for the short period available for mentoring. Time has also been reported as a challenge in other studies (Brace et al., 2018; Hill and Reddy, 2007; Law et al., 2020; Vandermaas-Peeler et al., 2015). Short duration of mentoring relationships may result in compromised benefits from the relationship. Our program cycle lasted one semester, but an extension to the next semester was possible if the mentee and mentor wanted. We had few instances in which the mentoring process continued for more than one semester; however, a problem arose if the mentor was unwilling to continue because of other commitments in the second semester. To overcome this hurdle, we offered a choice of one or two semesters mentoring cycle.

Mentees who joined the student-academic staff track specifically reported suboptimal experiences owing to the mismatch between students’ expectations of participating in a research project and academic staff providing general advice on research. This led to dissatisfaction with the outcomes of the mentoring relationship; however, it did not affect the participants willingness to recommend the program to their peers and their appreciation of the importance of mentorship. Baker et al.’s (2022) survey of mentors ($n = 36$) and mentees ($n = 16$) from a college in the US identified three main challenges for faculty mentor

engagement in undergraduate research: lack of time to train and appropriately mentor students, lack of clarity about students' knowledge and competence in research, and lack of knowledge about students' skill sets, which posed a challenge for faculty to define expectations regarding specific work tasks and the necessary follow-up actions. The top three challenges faced by students engaged in undergraduate research were seeking clarity on faculty expectations, maintaining consistency in experience among their peers, and balancing and prioritizing responsibilities while being a first- or second-year college student. Dollinger et al. (2019) surveyed 69 students and 134 alumni mentors and reported slight mismatches between mentors' general desires to help students by sharing stories or helping build young people's confidence, and their instrumental expectations, such as specific career guidance.

In their narrative review, Shanahan et al. (2015) identified 10 effective undergraduate mentoring practices. One practice was to set clear expectations, where mentors and students develop clear, structured plans and outline expectations using learning contracts. Part of our program was an agreement form signed by mentors and mentees in the first mentoring session, which included a section on setting the goals of the mentoring relationship. However, this did not prevent a mismatch between expectations. Possible reason could be that the agreement form was not completed at the first meeting, expectations were not expressed clearly in the first meeting, or expectations were unreasonable, particularly within the short timeframe of each mentoring cycle. Prior research has reported a low percentage of mentors discussing students' expectations, and many found that setting reasonable goals for undergraduate research projects was a challenge (Brace et al., 2018).

A few mentors stated that they had encountered disengaged mentees who did not respond to messages, and thus, did not attend meetings. One reason for this could be that disengaged students joined the program without fully understanding its potential and how it could be helpful. Law et al. (2019) reported that students being uninterested in or unprepared to effectively utilize mentoring relationships because of a lack of understanding of how mentoring relationships should work is a barrier to mentoring. Other studies (e.g., Brace et al., 2018) also reported that keeping mentors engaged was a challenge for them. A study on female Saudis from science and technology professions (mechanical engineering, space technology, microbiology and game development) mentoring schoolgirls to increase their interest in science and technology careers reported similar issues with regard to low levels of engagement from mentees and highlighted a lack of familiarity with the concept of mentoring as a contributing factor (Alhadlaq et al., 2019). As an approach to encourage meaningful engagement from mentees, the participants proposed prohibiting any mentee who missed three meetings from scheduling any new meetings for 1 month.

Previous research on students' frequency of contact suggests that students' characteristics, such as symptoms of depression, high attachment insecurity, and social anxiety, are negatively associated with their willingness to seek mentors' counsel, take advice, and their overall satisfaction with the mentorship they receive (Goodman-Wilson, 2021). Other studies reported mentors' concern for students' personal wellbeing and ability to provide constructive feedback, and students' satisfaction with the amount of contact between themselves and their mentors as predictors of

students' frequency of contact and satisfaction with their mentors (Goodman-Wilson, 2021). A Saudi study found that medical students were more likely to attend meetings with senior, motivated mentors compared to junior, less motivated ones (Fallatah et al., 2018).

Enhancing mentees' engagement is a priority for our program because disengaged mentees waste program resources and may create a negative experience for mentors, leading them to hesitate to participate in the program in the future. It is crucial that mentors learn not to take a lack of student engagement as a reflection of their success as mentors (Marshall et al., 2021); therefore, we introduced lack of student engagement as a challenge in the future iterations workshop.

It is crucial to discuss literature within the local context to provide a relevant and nuanced understanding of mentoring in the context of Saudi higher education. A search for literature on mentoring in Saudi higher education identified four studies. A survey of first-year medical students involved in a peer-mentoring program at a Saudi university ($n = 284$, 60% male) found that the majority of mentees agreed that the program helped them adjust to college, advance academically, and improve their self-confidence, self-awareness, and problem-solving skills (Alobaid et al., 2024).

Another cross-sectional study ($n = 90$) examined medical students undertaking the clinical skills module rotation mentored by senior and junior faculty members. This study reported that participation in the mentoring program had no significant effect on student academic performance and found that mentees were more likely to attend meetings with senior, motivated mentors compared to junior, less motivated ones (Fallatah et al., 2018).

A study involved 12 doctors in training matched to supervisors provided informal mentorship. The participants were likely to be influenced positively when they saw the leader as a role model rather than a manager (McWalter et al., 2023).

Another study described a mentorship program at a Saudi private university in which students were assigned a mentor at the beginning of their first year (Ghawji et al., 2017) and academically struggling students were offered academic counseling and teaching tips to improve their performance. The study participants identified a lack of motivation as the program primary challenge and suggested that improved communication through regular meetings with mentors could enhance program effectiveness. About half of the mentors believed that students resisted criticism, which hindered their ability to reevaluate their performance (Ghawji et al., 2017).

The identified studies were cross-sectional, non-comparative analyses focused on medical students and did not explore issues such as the characteristics of a good mentor, mentees' expectations of mentoring relationships, challenges in establishing a mentoring program, or the impact of cultural factors on the mentoring relationship. The absence of prior studies on mentoring in Saudi higher education limits our ability to contextualize our findings within the existing local research.

Program improvement

The consistent themes found in these findings and those expressed by both mentees and mentors enabled us to devise

five key recommendations for program improvement. The implementation of the CPSP required human resources, including both academic and administrative staff. The academic staff was responsible for designing the program, developing the booklet and video, designing the forms, training, and matching mentors with mentees. The administrative staff were key to ensuring that mentors and mentees completed the required forms, responded to inquiries, and calculated the voluntary hours to be added to the Saudi Volunteer Work Platform. Adequate resources should be invested for the designing and building of a platform for registering and matching mentors and mentees interested in the program. This will hopefully increase mentees' autonomy in selecting a mentor and minimize the workload of the program team. The program workshop and booklet were revised to address the points raised by the participants and were supplemented with quotations from mentors and mentees to reflect how the program contributed to their experience. Effective mentors actively seek initial and ongoing training opportunities to enhance their mentoring skills and knowledge (Andersen and West, 2020). Therefore, the CPSP team plan to introduce training for mentors in addition to a compulsory initial workshop. Extra training could focus on topics such as resolving conflicts in mentoring. Students' comments on the ideal mentor characteristics were used to update our criteria for mentor selection, although many characteristics, such as being approachable and being able to connect with students, are difficult to measure. The CPSP team introduced group mentoring and e-mentoring for first-year students (Skjevik et al., 2020; Tinoco-Giraldo et al., 2020). Tinoco-Giraldo et al., identified a lack of research on e-mentoring, mentoring through virtual learning environments, and recommended further research on operational definitions and the characteristics and qualities of an effective e-mentoring. The use of e-mentoring during the COVID-19 pandemic demonstrated how mentoring relationships can change and evolve to ensure continued success (Tetzlaff et al., 2022). A study on e-mentoring for schoolgirls in Saudi Arabia recommended involving mentees in the e-mentoring program development and utilizing existing technologies and social networks to facilitate e-mentoring (Alhadlaq et al., 2019).

The different dimensions of culture, such as age, gender and social norms, should be considered to ensure effective implementation of our mentoring programs. Alkhatnai (2023) interviewed 12 mid to high level academic administrators from eight different Saudi universities (male = 8, female = 4) involved in a year-long mentoring program to identify the role of culture in a mentoring program targeting academic development. The main factor was age, as mentors were expected to be older than mentees in age; otherwise, an uncomfortable situation could arise when the young mentor advises the mentee. The second factor was seniority, as mentees with lower levels of academic status rarely questioned those at higher levels. The third was quality of communication, as the relationship is negatively affected if orders and instructions from the mentor were the norm. The second and third factors were subtly observed in our study. Many mentees described the mentor as a busy faculty member with teaching, scholarship and administrative responsibilities and the mentee passively waited for the mentor's guidance instead of engaging in a mutual and communicative relationship. This dynamic was observed among the mentees in the faculty track but not in the alumni track, where

mentors are younger, lack authority over the students and do not form a faculty-student hierarchical relationship. Another study demonstrated that the opportunities, barriers and requirements of e-mentoring for young women in Saudi Arabia are more influenced by the cultural dimensions of the mentees' age than cultural norms. For instance, independence, a trait of young female participants, was reflected in their desire for a flexible and uncommitted relationship, the ability to connect with more than one mentor, and the power to initiate mentoring relationships themselves (Alhadlaq et al., 2019). The cultural challenges that may hinder the effective implementation of mentoring programs will be included the training workshop for our mentors.

Limitations and future research

This study had several limitations that warrant consideration. One major limitation was the survey low response rate despite sending reminders to participants to complete the questionnaire. Thus, the findings may not be generalizable to all members of the CPSP. Another important limitation was the lack of feedback from the peer mentoring (student-student) track despite receiving the same invitations as the other tracks. The generally accepted number of focus groups is 4–8, with each group comprising 6–8 participants (Hennink and Kaiser, 2022). We adhered to these recommendations because larger sample sizes can lead to concerns such as overburdening participants and wasting research funds, while smaller samples can compromise the validity of the study's findings. In our study, all mentees and mentors were female, limiting the generalizability of our findings to different-gender mentorships. This might be a strength in our program as evidence suggests that female students prefer female mentors (Gallen and Wasserman, 2023). Furthermore, in Saudi Arabia female-male mentorship might be discouraged due to cultural norms.

The study design of most published research on mentoring uses only qualitative measurements, collecting data largely using self-report surveys that lack any documented evidence of validity and reliability. Very few studies have employed qualitative approaches such as focus groups or a mixed-methods approach (Andersen and West, 2020; Crisp and Cruz, 2009; Gershenfeld, 2014; Leavitt et al., 2022; Nuis et al., 2023). This is a strength of our study, which implemented a mixed-methods approach. However, long-term outcomes of the program were not assessed in this study. Additionally, we did not use an experimental design to measure program effectiveness. Leavitt et al. (2022) conducted a review aimed to assess the methodological rigor of research measuring outcomes for the effect of mentoring on mentors, specifically undergraduate student mentors, within the fields of science, technology, engineering, and mathematics. Eighty studies, published between 2013 and 2020, met the inclusion criteria. The effectiveness of 78 studies was ranked as emerging, that is, the intervention demonstrated some degree of positive change over time, and the evidence was mainly from non-experimental studies with 11 containing some form of pre- and post-intervention measurement. Other reviews have also concluded that conclusive evidence on the effectiveness of undergraduate mentoring remains limited, owing to the limited number of rigorous research designs

(Gershenfeld, 2014). We plan to compare the outcomes of students enrolled in the program with those of students not enrolled with respect to cumulative grade point average, employment status 6 months after graduation, number of job applications and interview invitations, job search self-efficacy behavior and outcomes, and satisfaction with university experience.

Future studies should measure mentoring using validated tools, such as the one developed by Nuis et al. (2024) to evaluate the quality of mentoring programs, assess what types of support students receive, and develop mentoring programs focusing on particular needs of students. The challenges identified in our study and in other publications call for future research on the design and testing of interventions to improve mentoring relationships and overcome these challenges.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving humans were approved by Princess Nourah bint Abdulrahman University Institutional Review Board. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

SA-A: Conceptualization, Formal analysis, Investigation, Methodology, Project administration, Supervision, Writing – original draft. HA: Conceptualization, Formal analysis, Funding

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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