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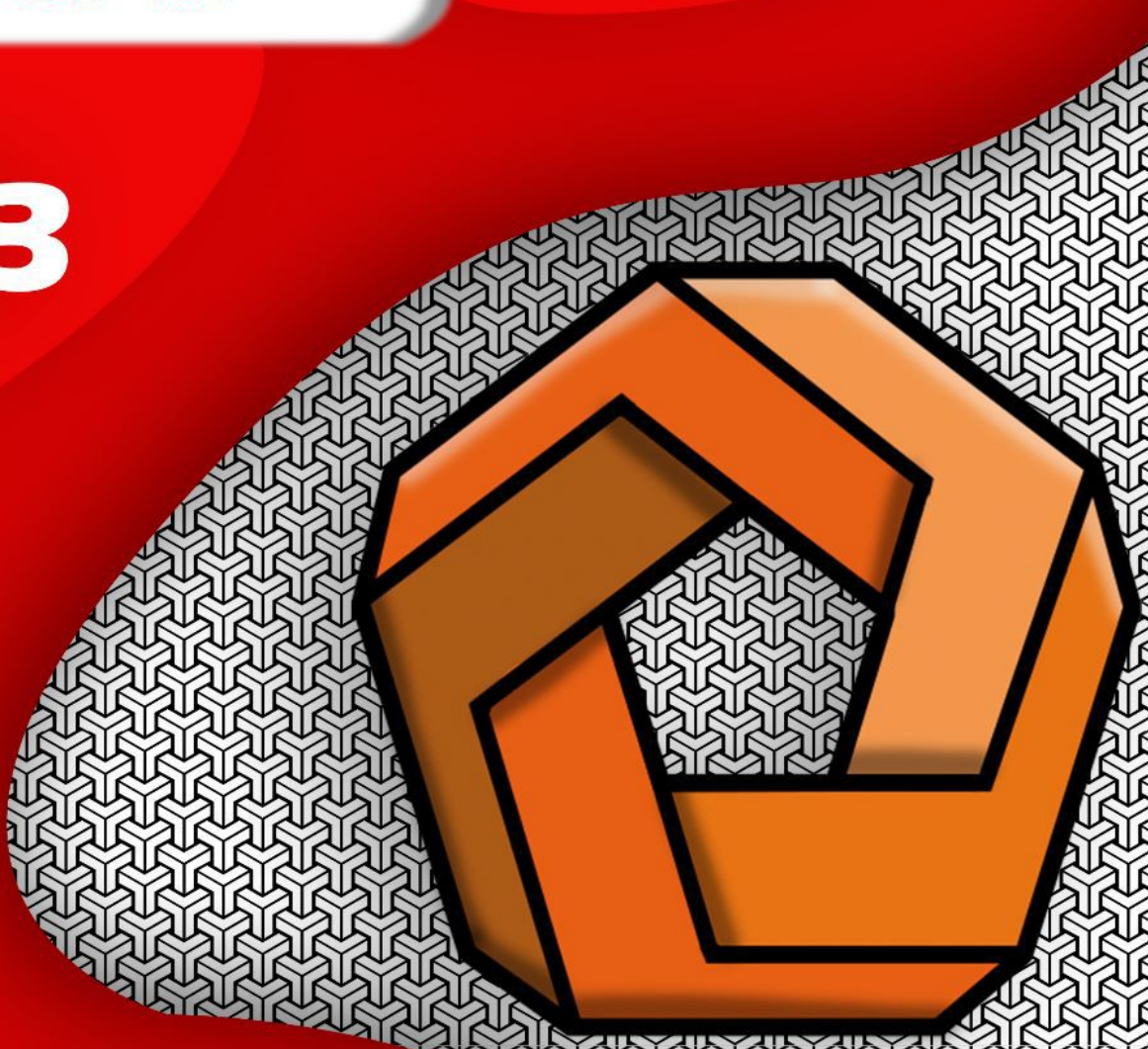

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Interprofessional Healthcare Themes derived through Critical Discourse Analysis

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Interprofessional Healthcare Themes Derived Through Critical Discourse Analysis

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ABSTRACT

One of the four primary learning competencies of Interprofessional Education (IPE) is Interprofessional (IP) Communication. Rosalind Franklin University of Medicine and Science (RFUMS) partnered with the University of New England (UNE) to offer an IP Team Immersion (IPTI) telehealth simulation (tSIM). IPTI aims to provide opportunities for IP teams of students to increase the understanding of each other's roles, responsibilities, demonstrate teamwork principles and skills, and apply integrated communication skills for team-based, patient-centered practice in a simulated setting. We hypothesized that IPTI provides an opportunity for students to learn communication skills in an IP team setting and that Critical Discourse Analysis (CDA) can be used to identify incidences of verbal and non-verbal communication.

In this experience, groups of students formed IP teams and worked together to plan their approach to a standardized patient (SP) case. Nine student teams across two universities and ten health professions participated in the virtual sessions and simulations. At the end of the tSIM activities, IP student teams were given 45 minutes to debrief and discuss their performance during the tSIM.

CDA can be used to understand how communication among a team of IP healthcare students contributes to student learning in a simulated clinical environment. This study used CDA to analyze communication during the debrief sessions and the four main themes identified were Verbal Communication, Non-Verbal Communication, Working Relationships, and Telehealth.

Our results indicated that IPTI provided an opportunity for students working in a team to practice and learn communication skills used within an IP team.

Keywords: Telehealth, Interprofessional, Qualitative analysis, Communication, Education, Healthcare

Introduction

The WHO Framework for Action on Interprofessional Education and Collaborative Practice (2010), states that "Interprofessional education occurs when two or more professionals learn about, from and with each other to enable effective collaboration and improve health outcomes". Interprofessional education (IPE) is a necessary step to prepare a "collaborative practice-ready" healthcare workforce (Interprofessional Education Collaborative, 2016). Accrediting bodies representing health professions recognize the importance of training students to be competent in Interprofessional (IP) collaboration and require IPE to be included in curriculums (Health Professions Accreditors Collaborative and National Center, 2019). In February 2019, the Health Professions Accreditors Collaborative released a report to provide guidance to institutions on implementing uniform and quality IPE (Health Professions Accreditors Collaborative and National Center, 2019). Research has shown that IPE is more effective when principles of adult learning are used (e.g., problem-based learning), such as learning methods to reflect real world experiences (WHO, 2010). Health professional programs use simulated cases in their curricula to mimic real-world healthcare situations as active learning strategies. The World Health Organization defines a simulation (SIM) exercise as an educational activity that emulates a clinical environment to facilitate learning and enhance clinical preparedness. SIMs give students the opportunity to learn fundamental skills in a safe environment, to help them effectively transition to clinical healthcare settings (Xavier, & Brown, 2022)

The Interprofessional Team Immersion (IPTI) SIM is a developmental, longitudinal, and sustainable activity (Konrad, Cavanaugh, Rodriguez, Hall, & Pardue. 2017). IPTI is designed as a small group, interactive, cross-professional learning and teamwork experience, first developed at UNE in 2014. In 2020, the IPTI platform was moved from an in-person format to a remote, Zoom-based format. The broad objective for IPTI is based on behaviors cited in the Interprofessional Education Collaborative (IPEC) Core Competencies for Interprofessional Collaborative Practice (Interprofessional Education Collaborative, 2016). IPTI aims to provide opportunities for IP teams of students to increase understanding of each other's roles, responsibilities, demonstrate teamwork principles and skills, and apply integrated communication skills for team-based, patient-centered practice in a simulated setting.

Health profession students often graduate with little knowledge about or no experience with IP Communication, a core competency of IPE (Interprofessional Education Collaborative Expert Panel, 2011). IPEC defines this competency as communication with patients, families, communities, and professionals in health and other related fields. IP Communication emphasizes using respectful language, organizing and communicating information in an understandable form, using effective communication tools and techniques, and communicating effectively in difficult situations (Interprofessional Education Collaborative Expert Panel, 2011). This is a problem because Interprofessional Collaboration amongst healthcare professionals has demonstrated improved patient outcomes due to the value of patient care each member adds to the team (Esperat, Hust, Song, Garcia, & McMurry, 2023).

Critical Discourse Analysis (CDA) is a qualitative analytical method that addresses how transcripts of verbal interactions are initiated, maintained, reproduced, and transformed within specific contexts (Van Dijk, 1988). CDA has been utilized to examine shared IP collaboration discourse, medication communication between patients and health professionals, world views on nurse-physician collaboration, and many other discourses amongst groups of people (Haddara, & Lingard, 2013; Liu,

Manias, & Gerdtz, 2012; Henneman, 1995). Fairclough and Wodak (1997) state that discourse (language; communication) is a social action that allows us to make meaning in the construction of identity, experiences and events that are socially shaped, such as Interprofessional Practitioners. One of the purposes of IPE is to facilitate healthcare professionals in developing a collaborative identity that allows them to share a mental model of practice. Furthermore, Fairclough and Wodak (1997) argue that discourse allows us to turn abstract ideals into interactive concrete knowledge through communication. Discourse also helps us internalize and organize social norms, which impact how we communicate socially, as a community, and professionally (both as healthcare providers and patients). CDA is an impactful methodology for assessing IP education and practice because of its role in Critical Theory (Wodak & Meyer, 2009) which focuses on how self-reflection can overcome prejudice, power asymmetries and resources. This matches the goal of IPE, in which healthcare providers and patients are equal and are all part of the discourse.

Research has shown that the use of simulations for interprofessional training of health care professionals showed positive effects on teamwork and IP Communication due to the evident varying of medical terminology used amongst healthcare professions (Muñoz de Morales-Romero et al., 2021; Pence, Watkins, & Neubrander, 2023). We utilized CDA on debrief conversations after a telehealth IPE simulation to explore how students used language and communication to develop their collaborative skills and team identity.

Methods and Materials

Methods

A Critical Discourse Analysis was conducted on the data to assess communication style and meaning between IP teams of students in-order to analyze how students reflected and thought about team collaboration and teamwork during the SIM using CDA. This approach provides insight into how the students learn during an IP activity.

Design of "Telehealth" IPTI

The IPTI telehealth SIM (tSIM) used a remote telehealth-type format which allowed a collaboration between UNE and RFUMS. Learning objectives are shown in Table 1.

Table 1. IPTI Educational Objectives used to guide CDA

Communicate information with patients and health team members in a form that is understandable, avoiding discipline-specific terminology when possible.
Collectively express one's knowledge and perspective with team members (including patients) who are involved in patient care and population health improvement. Share with confidence, clarity, and respect, working to ensure common understanding of information, treatment, care decisions, and population health programs and policies.
Listen actively, encourage, and discuss ideas and opinions of other team members including patients.

Use respectful language appropriate for a given difficult situation, crucial conversation, or conflict with team and patient.
Recognize how one's uniqueness and empowerment (experience level, expertise, culture, power, and hierarchy within the health team) influences/impacts effective communication, conflict resolution, and positive interprofessional working relationships (University of Toronto, 2008).
Understand/communicate the importance of teamwork in patient-centered care.

IPTI was offered over a 7-month period between September 2020 to March 2021. Figure 1 describes the timeline of the sessions included in IPTI. The small team interactive experiences were provided in the remote format utilizing Zoom™ breakout rooms. After each simulation and the debrief session, surveys were distributed to the participants, facilitators, and SPs.

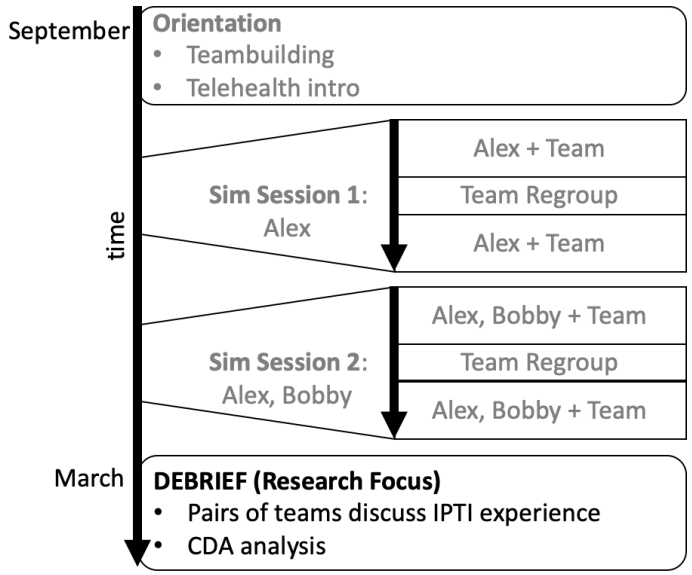


Figure 1. IPTI Timeline

Participants

IPTI facilitators created a recruitment email detailing the program and time commitment. This email was sent to students enrolled in a health professions program at UNE and RFUMS. Nine student teams across the two universities and ten health professions volunteered to participate in the virtual sessions and tSIM. A total of 69 students volunteered to participate in this activity: 10 students from RFUMS and 59 UNE students representing professional programs in Pharmacy, Physical Therapy, Occupational Therapy, Dental, Physician Assistant, Allopathic Medicine, Osteopathic Medicine, Social Work, Nursing, and Psychology. Students were only excluded if the program had too many students from a specific health profession that volunteered. Each student was required to attend motivational

interviewing and telehealth skills sessions to account for knowledge/exposure gaps from the participants.

Ethical Considerations

The participants were informed electronically of the program's nature and there were no ramifications if they decided to opt-out at any time. Participants consented to recordings of their interactions and discussions. Responses to surveys were completed and remained anonymous.

Ethical review board name: University of New England Internal Review Board (IRB) Project

Date of ethics review decision: Received Exempt determination on 11/11/2022.

Ethics assessment document issue number: Project # 111120-10-A

Research Team

The Research Team was composed of 18 health professions faculty (Nursing, Occupational Therapy, Dental Hygiene, Pharmacy, Public Health, and IP Research) and student facilitators from both Universities. Research Team meetings were held via Zoom to create "The IPTI Qualitative Analysis Coding Dictionary" (Coding Dictionary: see appendix) to adopt a uniform coding method based on IP competencies. Educational outcomes shown in Table 1 formed the basis of the Coding Dictionary.

Data Analysis

Analysis teams of 1 to 3 people were created to analyze and code videos of tSIM sessions and debrief transcripts using the Coding Dictionary (See Appendix 2). Analysis Teams conducted inter-rater reliability on coded transcripts to ensure data reliability and uniform coding. The larger Research Team reviewed coded transcripts for general agreement and consistency.

Simulation Scenario

Alex, a homeless 20-something year old person, is recommended to a community health clinic after a visit to a free dental clinic. Alex reported vertigo, decline in ability to take care of physical, mental health/appearance, possible depression and anxiety, as evidenced by fatigue, listlessness and patient's verbalizations of "feeling worthless". The IP Team and team Facilitators met with Alex for two 40-minute sessions. Each 40-minute session was broken into two 20-minute interactions. Alex's friend Bobbie joins the second session to help with the encounter and advocate for Alex. In the break between interactions, the IP Team met to plan and discuss hand-offs and debriefs after each interaction and between sessions. The sessions were recorded for later Conversational/Observational analysis. After each tSIM session, IPTI facilitators and SPs completed a survey rating the teams' performance after each encounter.

Debrief

After the telehealth sessions with Alex and Bobbie, IP student teams were paired with another team and their assigned Facilitators. Teams were given 45 minutes to debrief, and Facilitators offered prompts (shown in Table 2) to the teams for consideration and discussions. We focused on the data from the debriefs because this is where reflective learning took place. The transcripts from the debriefing sessions were transcribed using Panopto, edited for coherence, and distributed amongst the Research Team for distribution to the Analysis Teams for coding.

Table 2. Debriefing Prompts

Briefly describe your team's experience with Alex and Bobbie
Discuss how you and your team used each other's knowledge and strengths to develop your simulation plan. Did you consider all options to solve the problem and provide care?
What did you learn about yourself (assumptions, biases, strengths, style) during IPTI?
In what ways do you anticipate knowledge gained during IPTI will influence your future practice?
What was your greatest takeaway from IPTI?

Debrief Analysis

Analysis Teams used the Coding Dictionary to evaluate videos of debrief discussions of the tSIMs. Each Analysis Team analyzed the data to compare and discuss their designated codes to establish agreement and consistency.

Analysis Teams noted perceptions, agreement and disagreement of communication and discourse of discussion by the student participants during the tSIM. If at least 2 people from the Analysis Team agreed or validated a code, the code was accepted for the qualitative data set. The Analysis Team then discussed coding patterns and began to assign themes to the data set. An example is shown in Table 3, below:

Table 3. Transcript (lines 71 and 72)

Transcript content	Team member 1	Team member 2	Team member 3	Code validated	Theme	Sub-Theme	Notes
We really got into some of her social issues that she was dealing with and some of our familial	CC6	CC3, CC4	CC6*, CC2	CC6*	Verbal Communication	Patient Centered	Showing interest in the patient's past; safe space; building trust with patient;

problems that I've been holding in.	inviting the patient into the discussion

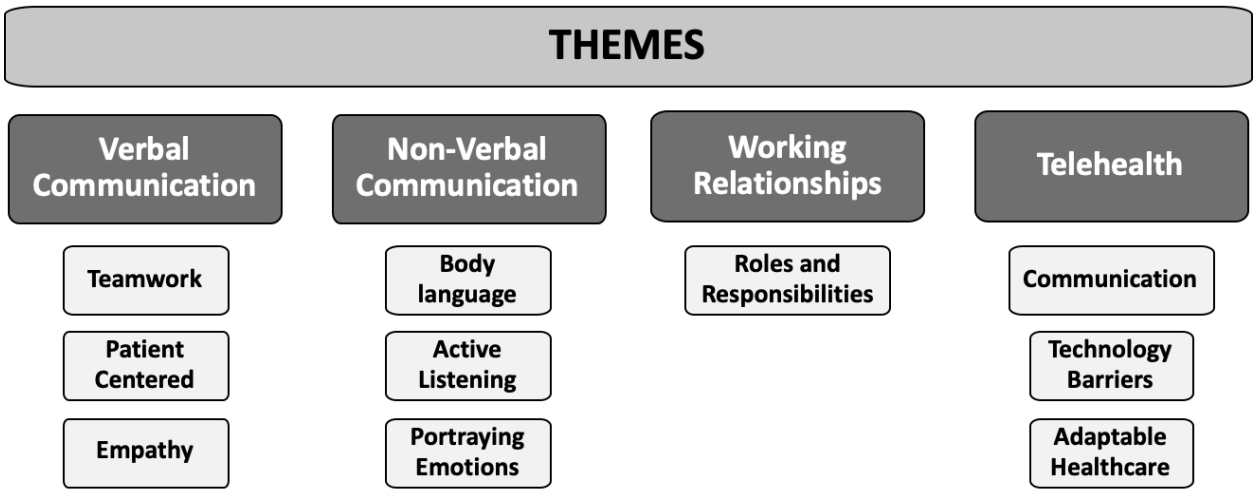
*****CC6: Use respectful language appropriate for a given difficult situation, crucial conversation, or conflict with team and patient. See "Qualitative Coding Dictionary" in the appendix for additional codes.

Results

Qualitative Analysis

CDA was conducted on the data to analyze the interactions of IP Teams during the debrief. Four themes (Verbal Communication, Non-Verbal Communication, Working Relationships, Telehealth) emerged from the debrief transcripts (Figure 2).

Figure 2. Thematic Map



Verbal Communication

Subthemes are Teamwork, Patient-Centered, and Empathy. These sub-themes showcase the way the team communicated between each other and the patient.

- Teamwork: Statements in which the students communicated with each other to solve problems and used "we" statements.
- Patient-Centered communication: Statements in the transcript that showed the team communicating about specific needs of the patient.
- Empathy: Statements based on the team's ability to create a safe space (using verbal communication).

Non-Verbal Communication

Subthemes are Active Listening, Body Language, and Portraying Emotions. These subthemes focus on the way the team interacts with each other or the patient without using words. This is shown in the transcript when the team describes the non-verbal interactions during their debriefs and patient sessions.

- Active Listening: Statements showing that the team used active listening skills during their debrief and patient sessions.
- Body Language: Statements of how the team described the patients and/or their body language during their interactions.
- Portraying Emotions: Statements showing how the teams described the way the patient and/or team member portrayed emotions (laughing, looking sad, etc.)

Working Relationships

The Subtheme for Working Relationships is "Roles and Responsibilities". This Subtheme is based on how team members worked together interprofessionally (not how they communicated with each other).

- Roles and Responsibilities: statements showcasing each team member understanding their own roles and responsibilities on the team and those of their teammates.

Telehealth

Subthemes for Telehealth are Communication, Adaptable Healthcare, and Technology Barriers. These subthemes show how the team and the patient interacted with the telehealth format of the SIM.

- Communication: Statements indicating communication methods used and/or problems encountered that otherwise wouldn't have been encountered if not for the telehealth environment.
- Adaptable Healthcare: Statements relating to the team's ability to assess the patient's healthcare needs in a telehealth environment.
- Technology Barriers: Statements showing how the team performed despite technical issues (camera, audio, etc.).

Verbal Communication was recognized by statements which described how the team exchanged information amongst each other and with the patient. These interactions are highlighted by the sub-themes shown in Table 4: Patient Centered, Empathy and Teamwork. For example, Transcript Line #71 shows the Team's Patient-Centered communication facilitating the patient's opening up about problems which they had not been able to previously verbalize. Transcript Line #81 provides an example of how the team communicated with Empathy about a non-medical topic which facilitated open communication

about the health situation at hand. Transcript Line #111 highlights how the tSIM engaged the team to work collaboratively. Here they acknowledged their collaborative interactions.

Table 4. Theme 1: Verbal Communication

Teams	Transcript Line #	Line Content	Sub-Theme
1 and 2	71	We really got into some of her social issues that she was dealing with and some of our familial problems that I've been holding in.	Patient Centered
1 and 2	81	Because, like, it was that conversation about the guitar happened right before we had done on ask him some serious questions about his depression.	Empathy
1 and 2	97	Like one of my favorite questions that Eliza asked was just like, how do you feel about your smile?	Patient Centered
1 and 2	111	But it was nice that towards the end it was everyone was collaborating. Ask each other questions and really interactive.	Teamwork
1 and 2	146	And then when the person that was done and or when we felt like it was a good time to switch off, we did so.	Teamwork
1 and 2	178	I think we did have a really just solid group and really coherent inciting that made it really easy to work as a team.	Teamwork
1 and 2	182	We were kind of leading the discussion anywhere we wanted to, but we just had to get him to talk more so.	Teamwork
1 and 2	189	but then also really trying to, like, build that relationship with Alex to get them to open up.	Patient Centered
1 and 2	306	With smoking cessation, Alex mentioned he did want to quit and we ran out of time.	Teamwork
1 and 2	313	I understand what you're going through. And it's really hard. But I'm here to listen to you and I have any way I can help.	Empathy

Non-Verbal Communication was recognized by statements which described how the team interacts with each other or the patient without using words. These interactions are highlighted by the sub-themes shown in Table 5: Active Listening, Body Language and Portraying Emotions. For example, Transcript Line #63 shows Body Language and Portraying Emotions because the students described the patient “looking down”. Transcript line #324 shows Active Listening because the students talk about actively listening to decide when to pause in between conversations or to give the patient some time to respond.

Table 5. Theme 2: Non-verbal Communication

Teams	Transcript Line #	Line Content	Sub-Theme
1 and 2	63	He was kind of looking down, wasn't really responding much worse.	Body Language/Portraying Emotions
1 and 2	64	And then the second one, he was like looking up in his body language was more positive.	Body Language/Portraying Emotions
1 and 2	80	And he brought up playing the guitar. And after that, he was like smiling and laughing.	Body Language/Portraying Emotions
1 and 2	198	But I feel like we had a lot of laughs.	Portraying Emotions
3 and 4	235	And also, I think we talked about like body language is really hard to convey over the screen.	Body Language/Portraying Emotions
3 and 4	236	You know? It's just. Yeah, I think there's just a lot more, you know, in person, face to face, there's a lot more consciousness of yourself,	Body Language/Portraying Emotions
3 and 4	239	I would have to remind myself to be like, don't drink that poller because you're actually in a room with someone.	Body Language/Portraying Emotions
3 and 4	242	physical energy feedback that can really help you adjust or help me adjust myself.	Body Language/Portraying Emotions
1 and 2	318	And that's something that I think especially over telehealth is really hard because you can't kind of golf a body language and kind of see any of it.	Body Language/Portraying Emotions
1 and 2	324	Kind of like listening more and pausing and kind of seeing like if he would take a conversation elsewhere.	Active Listening

Working Relationships are recognized by statements indicating how the team members work interprofessionally. These interactions are highlighted by the sub-theme shown in Table 6: Roles and Responsibilities. For example, in Transcript Line #85 the students discuss how every discipline was able to help the patient in different ways and in Line 102 they discussed how well they did with collaborating with one another.

Table 6. Theme 3: Working Relationships

Teams	Transcript Line #	Line Content	Sub-Theme
3 and 4	73	I thought you were pretty individualize in your approach to asking questions with Alex related to your specific professional status.	Roles and Responsibilities
3 and 4	85	And it was really nice to be able to see how every discipline was able to help different aspects that were bothering the patient.	Roles and Responsibilities
1 and 2	87	one of my I realized that I think I had more biases about like other professions than I thought I had before this,	Roles and Responsibilities
1 and 2	91	and like has a lot more like a holistic approach than I originally thought.	Roles and Responsibilities
1 and 2	92	So that was really awesome to be able to see and kind of learn about other professions and also just hear, like, how similar our views could be.	Roles and Responsibilities
1 and 2	102	like our team really did work to collaborate and kind of see like, well, what other types of roles,	Roles and Responsibilities
1 and 2	168	I mean, from like hearing what she talks about, like I understand more of it,	Roles and Responsibilities
1 and 2	244	So those roles really overlap a lot. So we really made a point to, like, let Chantler kind of go in, because after the first man with it,	Roles and Responsibilities
3 and 4	249	Yeah, I really got a interesting overview of how all these different disciplines approach.	Roles and Responsibilities
1 and 2	270	So then I kind of after we went through that, I kind of actively tried to take a backseat,	Roles and Responsibilities

Telehealth is recognized by statements which describe how the team, and the patient interacts with the telehealth format of the SIM. These interactions are highlighted by the sub-themes shown in Table 7: Technology Barriers, Adaptable Healthcare, and Communication. For example, Transcript Line #193 shows Technology Barriers because the students discuss how it was hard to see the patient because the

patient was in a dark room. Transcript Line #213 shows Adaptable Healthcare because the student tried to teach the patient how to do the Epley Maneuver in a virtual setting. Transcript Line #333 highlights Communication because the students described how difficult it is to navigate awkward silences in a virtual setting.

Table 7. Theme 4: Telehealth

Teams	Transcript Line #	Line Content	Sub-Theme
1 and 2	69	I thought that was like what was going on. But then I ask her to lift up the camera and she did.	Technology Barriers
3 and 4	193	And I couldn't even tell because I couldn't see because it was dark and was in a room.	Technology Barriers
3 and 4	201	Like, how do you guys that doesn't probably wouldn't happen quite as often in a clinic setting,	Adaptable Healthcare
3 and 4	212	We were on a video chat and like a dental office we would be like taking X-rays and like looking inside of its mouth and trying to figure it out.	Adaptable Healthcare
3 and 4	223	Christian had a really good idea to actually try to teach Alex how to do the Eppley maneuver over Zoom, which was really cool.	Adaptable Healthcare
3 and 4	233	I can add one thing, I find it hard to just like look at the camera and not look at your screen.	Technology Barriers
1 and 2	331	One thing that I said to my team after was like, I don't have to deal with awkward pauses normally because I am working in someone's mouth.	Communication
1 and 2	333	So being on the screen and there being an awkward pause and like, I must fill it, like there cannot be any awkward pauses.	Communication
1 and 2	338	I was like, yeah, if we let him sit there a couple more seconds, like awkwardly, maybe he would have opened up like a little bit more.	Communication
1 and 2	351	Well, on Zoom. Something that we weren't taught is if there is an awkward pause to take a deep breath and then count to ten.	Communication

Table 8. Facilitator Comments

Facilitator or standardized patient?	Which SIM?	Team?	Please add any notes, thoughts, comments that you think would be helpful for the TEAM evaluation.	Theme
Standardized Patient	SIM 2	Team 1	I observed a lot of growth from the first session to tonight. Communication was much more fluid and balanced between the group tonight, with members passing the baton smoothly and more often.	Verbal Communication
Facilitator	SIM 1	Team 2	Very collaborative and supportive team.	Working Relationships
Standardized Patient	SIM 1	Team 3	The team did a great job of showing that they were listening and adjusting their questions according to the patient's input.	Non-Verbal Communication
Facilitator	SIM 2	Team 4	the telehealth aspect of the visit required the students to be a little more rigid in terms of who talks when so they don't talk over each other as much	Telehealth

Discussion

Collaborative learning curriculums at RFU and UNE are guided by competencies and behaviors outlined in the Core Competencies for Interprofessional Collaborative Practice Reports issued by the US IPE Expert Panel. (Interprofessional Education Collaborative, 2016). Past IPTI programs have shown statistically significant changes in students' perceptions of IPE and expanded their knowledge of the roles and responsibilities of other health care professionals (Mokler, Konrad, Hall, Rodriguez, Pierre, Thieme, & Deusen, J. van, 2020). The thematic map (shown above) highlights the main themes captured from the coded data set.

Themes

The four themes are: Verbal Communication, Non-verbal communication, Working Relationships, and Telehealth.

Verbal Communication

Verbal communication is associated with spoken words and is important in healthcare (Sibiya, 2018). This theme showcases the way the team communicated with each other and the patient. These interactions are highlighted by the sub-themes shown in Table 4: Patient Centered, Empathy and Teamwork. Effective verbal communication can lead to the following positive outcomes: improved flow of information, effective interventions, improved safety, increased patient and family satisfaction, and decreased lengths of hospital visits (Seago, 2008)

The statement in transcript line #97 of Table 4, expressed by a student who witnessed an interaction between an SP and one of their team members. The question "How do you feel about your smile?" is an excellent example of using verbal communication skills to get the patient's opinion to develop shared goals. Open-ended questions are a preferred therapeutic communication technique to allow the patient

to talk about their views on a subject (Sibiya, 2018). This technique is important to teamwork because it creates a space where every team member feels comfortable enough to share their opinions.

Hojat and colleagues' cross-sectional study reports a significant decline in empathy among medical students in the United States from the preclinical to clinical phases of education (Hojat, Shannon, DeSantis, Speicher, Bragan, & Calabrese, 2020). Empathy is associated with a number of positive outcomes in healthcare including greater patient satisfaction and better adherence to treatment plans (Kerasidou, Bærøe, Berger, & Caruso Brown, 2020). Barriers to empathy most often stated amongst healthcare professionals include inability to spend sufficient time with patients and increased pressure to meet operational targets (Kerasidou, Bærøe, Berger, & Caruso Brown, 2020). In the tSIM, students were given a short amount of time to interact with their patient, and the example in transcript line #313 of Table 4 showcases a student using this essential skill despite the barrier. This skill is important to teamwork because an empathetic person will analyze and listen to other opinions besides his or her own, which improves team efficiency and decision-making (Dalmau, 2022).

A report by the Institute of Medicine Committee on the Health Professions Education Summit highlighted teamwork as a core competency that all clinicians should possess regardless of discipline (Institute of Medicine, 2003; Rosen, DiazGranados, Dietz, Benishek, Thompson, Pronovost, & Weaver, 2018). IP teams provide quality care by developing creative solutions to complex problems because of their members' diverse backgrounds and experiences (Institute of Medicine, 2003). As shown in transcript line #111 of Table 4, this tSIM allowed students to develop and practice their teamwork skills before entering the workforce.

Non-verbal Communication

Non-verbal communication does not rely on words. It is communicated using one's body rather than through speech or writing (Sibiya, 2018). These interactions are highlighted by the sub-themes shown in Table 5: Active Listening, Body Language and Portraying Emotions. Non-verbal communication can override verbal communication when they contradict each other. For example, a patient and/or team member is less likely to believe a reassuring verbal comment if it's accompanied by facial expressions that contradicts the message (Silverman, & Kinnersley, P, 2010). Research has demonstrated the relationship between non-verbal communication with the following outcomes: patient satisfaction, patient understanding, and detection of emotional distress (Silverman, & Kinnersley, 2010).

The statement in transcript line #63 of Table 5 an example of a team member noticing non-verbal communication cues from the SP. Non-verbal behaviors represent our attitudes and emotions that are too difficult to communicate verbally. Noticing these behaviors are crucial to working with others because it affects team bonding, patient fluency, patient adherence, and productivity.

Active listening is based on being attentive to what a person is saying and listening carefully while showing interest, without interrupting. By actively listening to patients' concerns, care providers can identify patients' care needs, preferences, fears, and frustrations. Noted by the interaction in transcript line #324 of Table 5, people need time to explore their thoughts and feelings, so by being silent and actively listening, the speaker is allowed to continue speaking or looking for ideas without interruptions (Kohpeima Jahromi, Tabatabaee, Esmaeili Abdar, & Rajabi, 2016).

Working Relationships

Working Relationships are recognized by statements indicating how the team members work interprofessionally. These interactions are highlighted by the sub-theme shown in Table 6: Roles and Responsibilities. Collaboration in health care is defined as health care professionals with varying roles, working together, sharing responsibility for problem-solving, and making decisions to form and carry out plans for patient care (O'Daniel, & Rosenstein, 2008). Many negative patient outcomes (e.g., adverse events, poor quality care, and medical errors) can be traced back to poor collaboration due to lack of communication, leading to ineffective teamwork.
During the debrief, team members discussed how well they collaborated with one another and how they were able to witness different patient care approaches from each member of the team. It's important for healthcare students to be able to recognize and experience effective team collaboration before entering their career fields to prevent negative patient outcomes. In transcript line #85 of Table 6, a student expresses how it was "really nice" to witness patient care amongst other health professions students.

Telehealth

In 2020, the IPTI platform was moved from an in-person format to a remote, Zoom-based format. Telehealth is the use of digital information and communication to access and manage health care services remotely (Telehealth: Technology meets health care, 2022). Telehealth is recognized by statements which describe how the team, and the patient interacts with the telehealth format of the SIM. These interactions are highlighted by the sub-themes shown in Table 7: Technology Barriers, Adaptable Healthcare, and Communication. Telehealth was once limited only to rural or remote communities but is now increasingly used to expand the reach of health care services to lesser served areas (Gajarawala, & Pelkowski, 2021). Telehealth services improve access to healthcare and patient adherence.

As the use of telehealth increases, it's important for students to learn and experience how to communicate and provide quality patient care in a virtual environment (as shown by the actions of a team member in the example transcript line #224 of Table 7).

Enhancing communication skills during virtual visits has been described as vital to engage in effective telehealth encounters. The communication skills most effective include facial expressions, posture, the use of gestures, and navigating "awkward" pauses to enhance verbal communication and optimize the patient experience (Khan, Llinas, Danoff, Llinas, & Marsh, 2022). An example of this sub-theme is shown in transcript line #338 of Table 7.

Technology barriers and lack of computer literacy is a major issue in successfully implementing telehealth 9 (an example shown in transcript line #193 of Table 7). The major technology barriers that were reported in studies were slow connection speeds, poor video quality, and poorly designed interfaces (e.g., text sizes, color contrasts, or menu bars) (Lopez, Lam, & Thota, 2021). Due to the rise in telehealth, several studies have emphasized the importance of telehealth and its integration into the curricula for future medical professionals (Edirippulige, & Armfield, 2016; Wamsley, Cornejo, Kryzhanovskaya, Lin, Sullivan, Yoder, & Ziv, 2021). The telehealth skills explained above can be utilized in any setting. Understanding how to navigate any change of scenery, overcome barriers, and communicate information in any setting are important skills for medical professionals to adopt to care for diverse patient populations.

We utilized CDA to understand how communication among a team of IP healthcare students contributed to student learning in a simulated clinical environment. Our results indicated that IPTI provided an opportunity for students working in a team to learn communication skills required for an effective IP team. Statements from facilitators (Table 8) support these findings.

Limitations

CDA can also be used to analyze written texts and spoken words to reveal sources of power, hierarchy, dominance, inequality, and bias. The use of qualitative analysis for this research is a limitation due to the data being subjective. Another limitation to the data is that it was collected from 4 out of 9 teams, however qualitative analysis focuses on the quality of data and not the number needed to express significance.

Future Research

Future work should use quantitative analysis methods to support the research presented here and the use of IPE in healthcare. Another topic to examine is how power dynamics within IP teams affect learning outcomes.

Conclusion

Our results indicated that IPTI provided an opportunity for students working in a team to learn communication skills required for an effective IP team. Students expressed the importance of teamwork and how IPTI allowed them to understand and appreciate their role and the roles of other healthcare professionals. With this experience, students will be equipped with the necessary skills needed to navigate IP settings within various healthcare systems.

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Investigation of Public Education Center Administrators' Life-wide Learning Habits in terms of Various Variables

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Investigation of Public Education Center Administrators' Life-wide Learning Habits in terms of Various Variables

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ABSTRACT

The aim of this research is to examine the life-wide learning habits of public education administrators in terms of various variables. In this study, the survey model was used to determine an existing situation. The research population consists of public education center administrators working throughout Turkey. The sample of the research consisted of 393 public education center administrators working in public education centers in the 2022–2023 academic year. The stratified sampling method was used to determine the sample representing 7 regions of Turkey. The data of the study were obtained using the "Life-wide Learning Habits Scale". In the analysis process, descriptive statistics were calculated for the whole scale and subdimensions. Independent group t-test was performed to compare groups according to gender and marital status. One-way analysis of variance (ANOVA) was used to determine whether the life-wide learning habits of administrators differ according to professional seniority and educational status. The Tukey test was used to identify from which groups the differences between the groups originated. According to the results of the research, life-wide learning habits of administrators were at a high level. The life-wide learning habits of administrators differed significantly according to gender, marital status, and professional experience. It was determined that there was no significant difference according to the education status of administrators.

Keywords: public education, administrator, life-wide learning, life-wide learning habits, lifelong learning.

Introduction

Changes occur at a dizzying rate in today's world, especially in science and technology. All these changes have led people to seek and discover knowledge. To meet the requirements of the age, people should constantly renew and improve themselves. As a result of all these, people's need to learn has become unrestricted to certain periods of life. In particular, the European Union process, globalization movements, and the developments in the Bologna process have accelerated the developments in the field of education. Even the most developed countries of the world have sought to increase continuity in education (Ayçiçek & Yanpar Yelken, 2016), which necessitates lifelong learning.

Lifelong learning occurs in every moment of life. Lifelong learning is all the learning activities that a person engages in throughout life with the aim of improving knowledge, skills, behaviors, interests and abilities (MoNE, 2009). Lifelong learning may be regarded as "The process in which individuals, educators, schools, communities and countries support, stimulate and promote learners to obtain knowledge, skills and abilities across their lifetime with the help of formal, non-formal and informal education to fulfill the requirements of the workforce and the individuals' curiosity" (Reyes-Fournier, 2017, 2). Lifelong learning, as the name suggests, simply implicates what an individual learns throughout life (Clark, 2005). Aksoy (2013, 36), on the other hand, defines lifelong learning as "Formal, non-formal, experience-based learning activities that individuals participate in throughout their lives in order to identify their interest and to develop their knowledge-skills-attitudes, behaviors, and competences, and documentation of what is obtained as a result of these activities".

To adjust to the changes in the field of education in today's digital age, another phenomenon, which most developed countries have realized the importance and made it an education policy, is life-wide learning (Türkmenoğlu & Aslandağ, 2021). Life-wide learning emphasizes the advantages of on-the-job training, seminars, and new experience with many applications that improve the ability of the learner (Skolverket, 2000). One of the most basic skills that individuals should have to adjust to the ever-changing and developing world is the ability to learn throughout life. In today's world, individuals who only have knowledge in their own field are not considered sufficient. The globalizing world seeks a human profile of qualified individuals who are capable of making their presence felt in all areas of life and possess diverse knowledge and experiences (Aslandağ-Soylu, 2013). Jackson (2011, 12-13) defines life-wide learning as "A type of simultaneous and multiple learning, which learners perform in real learning environments, which enables their experience-based and holistic development, which covers many different areas of life, and which enables individuals to become aware of their own abilities, qualities, values and tendencies". On the basis of the phenomenon of life-wide learning lies the fact that continuous learning occurs independently of time and place. In today's digital age, the thought that education should be given in certain places, in certain age groups, and in certain time periods is taken over by the life-wide learning approach with an unlimited learning approach independent of time and place (Ayçiçek & Yanpar Yelken, 2016). Life-wide learning opposes the one-dimensional view of learning. This supports the idea that individuals should have experience in different fields to improve themselves without a predetermined curriculum.

Lifelong learning does not occur in a linear sense since it does not take place only at schools, specific locations, or even time. It may be more accurate to regard the lifelong learner as an "explorer" rather than a "student" in the traditional sense. Life-wide learning supports the idea that learning may take place at any time and at any place (Reyes-Fournier, 2017). As the term implies, lifelong learning is learning from cradle to grave. Life-wide learning, on the other hand, is learning in various settings at the same time; in other words, it is actually learning across a person's life at any moment in time (Barnett, 2011: 24).

Lifelong learning can be considered as a holistic approach of education that is comprised of two dimensions (Skolverket 2000): "Lifelong learning, recognizing that individuals learn throughout a lifetime, and life-wide learning, recognizing the formal, non-formal, and informal settings." The lifelong dimension does not pose a problem, as it simply implies what an individual learns from the cradle to the grave. The life-wide dimension is more complicated because it comprises an extensive number of learning environments and settings (Clark, 2005). Life-wide learning aims to complete the

issues that schools lack in meeting, such as the social life skills of the individual and the needs of the society. For this reason, non-formal education institution administrators, which are institutions that provide education after school, will have crucial duties in developing a positive attitude toward learning.

Considering the historical development of life-wide learning, although it is not a very new concept, it is a relatively new concept for our country. Non-formal education administrators, who work at institutions providing adult education, need to be willing to innovate and learn so as to be a role model for teachers and learners. In order for education to last a lifetime, people should be able to continue their education after formal education, which can be realized through public education institutions. In our world where continuous change and development is experienced, people need to renew and develop themselves, either through non-formal education institutions or in different settings and places, regardless of their level of education (Kaya, 2015). As it is important for all individuals, life-wide learning is also crucial for non-formal education institution administrators. Non-formal education administrators also need to have high life-wide learning skills. Public education administrators can develop their current potential and gain a new vision for the institutions they manage through life-wide learning. Public education centers perform a crucial task for the settlements where they operate. It is of great importance for administrators working in public education centers to have life-wide learning skills, both for their own development and for the development of the institution. For these reasons, it is important to investigate the competencies and qualifications of public education administrators in the context of life-wide learning habits.

Life-wide learning is a phenomenon that has just gained value for our country. A comprehensive review of the relevant literature has revealed that there are very few studies conducted in Turkey (Aslandağ-Soylu, 2013; Ayçiçek, 2016; Türkmenoğlu & Aslandağ, 2021; Yıldırım, 2020) on life-wide learning. When the studies are examined, there is no study done specifically with public education administrators as education administrators. In this respect, it can be said that the study will be an original study in the literature.

The aim of this study was to reveal the life-wide learning competencies of administrators working in public education centers according to various variables. In this direction, the following sub-problems were sought:

1. What is the level of life-wide learning habits of public education administrators?
2. Do the life-wide learning habits of public education administrators differ in terms of gender?
3. Do the life-wide learning habits of public education administrators differ in terms of their marital status?
4. Do the life-wide learning habits of public education administrators differ in terms of their professional experience?
5. Do the life-wide learning habits of public education administrators differ in terms of their educational status?

Methods and Materials

Research Model

In this study, which aims to examine the life-wide learning habits of administrators working at public education centers according to different variables, the survey model was employed to determine the existing situation. In the survey model, past or present situations are described as they are. The important thing in this model is to reflect the existing situation as it is without changing it (Karasar, 2011).

Population and Sample

The population of the research consists of administrators working at public education centers throughout Turkey. 393 administrators who worked in public education centers in the 2022-2023 academic year were identified as the sample of the research. Stratified sampling was used while determining the sample to represent each region. Stratified sampling is a sampling method that determines subgroups in the population and provides their representation in the sample according to their ratios in the population size (Büyüköztürk et al., 2021).

As of the 2022-2023 academic year, there are 175 Public Education Centers in the Marmara Region, 132 in the Aegean Region, 114 in the Mediterranean Region, 177 in the Central Anatolia Region, 189 in the Black Sea Region, 121 in the Eastern Anatolia Region, and 89 in the Southeastern Anatolia Region. There are 524 public education center administrators in the Marmara Region, 397 in the Aegean Region, 344 in the Mediterranean Region, 529 in the Central Anatolia Region, 570 in the Black Sea Region, 360 in the Eastern Anatolia Region, and 267 in the Southeastern Anatolia Region.

69 of the public education center administrators included in the study group are in the Marmara Region; 49 of them are in the Aegean Region; 45 of them are in the Mediterranean Region; 71 of them are in the Central Anatolia Region;74 of them are in the Black Sea Region; 49 of them are in the Eastern Anatolia Region; 36 of them work in public education centers in the Southeastern Anatolia Region.

Table 1. Demographic Features of the Participants

		f	%
Gender	Female	147	37,4
	Male	246	62,6
Marital status	Married	275	70
	Single	118	30
Years of experience	1-5 Years	97	24,7
	6-10 Years	48	12,2
	11-15 Years	83	21,1
	16-20 Years	75	19,1
	21 years and above	90	22,9
Educational statue	Undergraduate	349	88,8
	Postgraduate	38	9,7
	Doctorate	6	1,5
TOTAL		393	100

As seen in Table 1, 147 of the participants were women (37.4%); 246 of them were male (62.6%). Considering the marital status of the administrators, 275 (70%) are married and 118 (30%) are single. As for the professional seniority distribution, 97 (24.7%) of the administrators have 1-5 years of seniority; 48 (12.2%) of them have 6-10 years of seniority; 83 (21.1%) of them have 11-15 years of seniority; 75 (19.1%) of years of seniority; 90 (22.9%) of them have 21 or more years of seniority. When the educational status of the administrators is examined, it is seen that 349 (88.8%)of them are undergraduates, 38 (9.7%) of them are postgraduates, and 6 of them (1.5%) are doctoral graduates.

Data Collection Tools

The data of the study were collected with “Life-wide Learning Habits Scale”, which was developed by Aslandağ-Soylu (2013) to ascertain the life-wide learning habits of instructors. Cronbach’s Alpha coefficient was 0.88, KMO value was 0.85, and total explained variance value was 55,915 for the

original scale. The first part consists of demographic information and the second part consists of 33 items. It is a five-point Likert-type scale scored as “I totally agree (5)”, “I agree (4)”, “I am undecided (3)”, “I do not agree (2)”, “I totally disagree (1)”. In the scale, 1-8 items form the “Professional Development Habits” dimension, 9-13 items form the “Leadership Habits” dimension, 14-19 items form the “Care-Based Habits” dimension, 20-23 items form the “Cultural Interaction Habits” dimension, 24-26 items form the “Leisure Time Habits” dimension, and 27-33 items constitute the sub-dimensions of “Problem Solving Habits”. The reliability coefficient for the Professional Development Habits sub-dimension of the scale was 0.88; the reliability coefficient of the Leadership Habits sub-dimension was 0.83; the reliability coefficient for the Care-Based Habits sub-dimension was 0.66; the reliability coefficient of the Cultural Interaction Habits sub-dimension was 0.78; the reliability coefficient of the Leisure Habits sub-dimension was 0.58; and the reliability coefficient of the Problem Solving Habits sub-dimension was determined as 0.90. In line with the obtained data, it can be accepted that the scale has high reliability. The Cronbach's alpha reliability coefficient for the whole scale was found to be 0.91 in this research. With the permission of the researcher who developed the scale, it was decided to use it as a data collection tool.

Data Collection

The data of the study were collected by applying the “Life-wide Learning Habits Scale” to public education administrators working in the 2022-2023 academic year. The scales were delivered to the administrators via a Google Form. Necessary ethical permissions were obtained for the application of the data collection tool in this study. The link of the scale, which was prepared as a Google form, was sent to the managers via e-mail. They were asked to fill in the form on a voluntary basis.

Analysis of Data

The data obtained from the "Life-wide Learning Habits" scale were analyzed using the SPSS-23 program. “Kolmogorov–Smirnov” test was conducted to detect whether the data showed the characteristics of a normal distribution. As the p-value calculated for the data was larger than the significance level, it was concluded that the data followed a normal distribution. In the study, “Independent samples t-test” were used for comparisons between two groups (gender, marital status). In the study, “one-way analysis of variance (ANOVA)” was conducted in comparisons of more than two groups (professional seniority, educational status). The results of “Tukey test” showed from which groups the differences between the groups originated.

Ethical Considerations

In this study, all rules stated to be followed within the scope of "Higher Education Institutions Scientific Research and Publication Ethics Directive" were followed. None of the actions stated under the title "Actions Against Scientific Research and Publication Ethics", which is the second part of the directive, were not taken.

Ethical review board name: Erciyes University Social and Human Sciences Ethics Committee.
Date of ethics review decision: 25.04.2023
Ethics assessment document issue number: 176

Findings

Findings Regarding the First Sub-Problem of the Study

The descriptive statistics of the first sub-problem, which is stated as “What is the level of life-wide learning habits of public education administrators?”, are presented in Table 2.

Table 2. The Arithmetic Mean and Standard Deviation of The Scores of Administrators Working at the Public Education Centre Regarding Life-Wide Learning Habits

Factors	N	Min.	Max.	X	Sd
Total Scale	393	110,00	165,00	140,75	12,62
Professional Development Habits	393	31,00	40,00	37,84	2,79
Leadership Habits	393	10,00	25,00	21,20	3,13
Care-Based Habits	393	17,00	30,00	26,43	2,54
Cultural Interaction Habits	393	7,00	20,00	15,59	2,97
Leisure Time Habits	393	4,00	15,00	8,29	2,44
Problem Solving Habits	393	23,00	35,00	31,37	3,30

When Table 2 was examined, it was seen that the lowest score was 110.00, the highest score was 165.00, and the mean score for the whole scale was $\bar{x}$=140.75. In the "Professional Development Habits" dimension of the scale, it was seen that the lowest score was 31, the highest score was 40, and the mean of the dimension was $\bar{x}$=37.84. In the "Leadership Habits" dimension, it was seen that the lowest score was 10, the highest score was 25.00, and the mean of the dimension was $\bar{x}$=21.20. The lowest score was 17.00, the highest score was 30, and the mean of the dimension was $\bar{x}$=26.43 in the “Care-Based Habits” dimension. For the dimension of “Cultural Interaction Habits”, the lowest score was 7.00, the highest score was 20.00, and the mean of the dimension was $\bar{x}$=15.59. In the "Leisure Time Habits" dimension, the lowest score was 4.00, the highest score was 15.00, and the mean of the dimension was $\bar{x}$=8.29. In the dimension of “Problem Solving Habits”, the lowest score was (23.00), the highest score was (35.00), and the dimension mean was $\bar{x}$=31.37.

Findings Regarding the Second Sub-Problem of the Study

“Independent samples t-test” analysis was conducted to determine whether the life-wide learning habits of public education administrators differ statistically according to their gender. The findings of the analysis are presented in Table 3.

Table 3. t-test Results Regarding the Statistical Differentiation of Life-wide Learning Habits of Public Education Administrators according to Their Genders

Dimensions	Gender	N	X	Sd	t	p
Life-wide learning habits	Male	246	142,63	11,99	3.89	.000
	Female	147	137,60	13,04		
Professional Development Habits	Male	246	38,58	2,23	6.51	.000
	Female	147	36,62	3,20		
Leadership Habits	Male	246	21,44	3,16	1.92	.055
	Female	147	20,81	3,05		
Care-Based Habits	Male	246	26,80	2,38	3.88	.000
	Female	147	25,79	2,68		
Cultural Interaction Habits	Male	246	15,64	3,02	.426	.671
	Female	147	15,51	2,89		
Leisure Time Habits	Male	246	8,26	2,33	-.351	.726
	Female	147	8,35	2,62		
Problem Solving Habits	Male	246	31,89	3,15	4.132	.000
	Female	147	30,50	3,36		

Table 3 shows that the total mean score of life-wide learning habits of male administrators was 142.63, and the mean total score of life-wide learning habits of female administrators was 137.60. The t-value calculated for the significance of the difference between the means of the groups (p=.000, t=3.89; p<.05) showed that the gender groups differ from each other in a meaningful way in favor of male administrators. In the professional development habits sub-dimension, a significant difference was found between male administrators' scores (X=38.58, Sd=2.23) and female administrators' scores (X=36.62, Sd=3.20) in favor of male administrators (p=.000, t=6.51; p< .05). In the care-based habits sub-dimension, a significant difference was found between male administrators' scores (X=26.80, Sd=2.38) and female administrators' scores (X=25.79, Sd=2.68) in favor of male administrators (p=.000, t=3.88; p< .05). In the problem-solving habit sub-dimension, a significant difference was found in favor of male administrators (p=.000, t=6.51; p< .05). It was identified that there was no significant difference according to gender in the other sub-dimensions of the scale: leadership habits (p=.055, t=1.92; p>05), cultural interaction habits (p=.671, t=.426; p>05), leisure time habits (p =.726, t=-.351; p>05).

Findings Regarding the Third Sub-Problem of the Study

"Independent samples t-test" analysis was conducted to reveal whether the life-wide learning habits of public education administrators differ statistically according to their marital status. The findings of the analysis are presented in Table 4.

Table 4. t-test Results Regarding the Statistical Differentiation of Life-wide Learning Habits of Public Education Administrators According to Their Marital Status

Dimensions	Marital Status	N	X	Sd	t	P
Life-wide learning habits	Married	275	139,84	12,86	-2.188	.029
	Single	118	142,87	11,82		
Professional Development Habits	Married	275	37,62	2,93	-2.645	.009
	Single	118	38,37	2,39		
Leadership Habits	Married	275	21,18	3,21	-.188	.851
	Single	118	21,25	2,95		
Care-Based Habits	Married	275	26,39	2,59	-.443	.658
	Single	118	26,51	2,44		
Cultural Interaction Habits	Married	275	15,34	2,91	-2.497	.013
	Single	118	16,16	3,05		
Leisure Time Habits	Married	275	8,05	2,40	-3.086	.002
	Single	118	8,87	2,45		
Problem Solving Habits	Married	275	31,24	3,37	-1.293	.197
	Single	118	31,6949	3,11		

Table 4 reveals that the total mean score of life-wide learning habits of married administrators was 139.84, and the mean of single administrators was 142.87. The t-value calculated for the significance of the difference between the means of the groups ($p=.029$, $t=-2.188$; $p<.05$) showed that there was a statistically significant difference between the total score means of the life-wide learning habits of the administrators in favor of single administrators.

In the professional development habits sub-dimension, a significant difference was found between the scores of married administrators (X=37.62, Sd=2.93) and those of single administrators (X=38.37, Sd=2.39) in favor of single administrators ($p=.009$, $t=-2.645$; $p<.05$). In the sub-dimension of cultural interaction habits, a significant difference was detected between the scores of married administrators (X=15.34 Sd=2.91) and those of single administrators (X=16.16, Sd=3.05) in favor of single administrators ($p=.013$, $t=-2.497$; $p<.05$). In the leisure time habits sub-dimension, a significant difference was found between the scores of married administrators (X=8.05, Sd=2.40) and the scores of single administrators (x=8.87, Sd=2.45) in favor of single administrators ($p=.002$, $t=-3.086$; $p<.05$).

Findings Related to the fourth Sub-Problem of the Study

"One-way analysis of variance (ANOVA)" was conducted to reveal whether the life-wide learning habits of public education administrators differ statistically according to their seniority. The findings of the analysis are given in Table 5.

Table 5. N, X, and Sd Values of Public Education Administrators for Life-wide Learning Habits

Life-wide learning habits	**N**	**X**	**Sd**
1)1-5 Years	97	142,6701	11,96934
2) 6-10 Years	48	141,7500	12,44648
3) 11-15 Years	83	142,6506	10,61917
4) 16-20 Years	75	142,5733	9,86007

5) 20 Years and above	90	134,9000	15,34403

Table 5 shows that the highest mean score belongs to the administrators with a seniority of 1-5 years ($\bar{x}$=142,6701), followed by those with 11-15 years of seniority ($\bar{x}$=142.6506), 16-20 years of seniority ($\bar{x}$=142.5733), 6-10 years of seniority ($\bar{x}$=141.75), and lastly with a seniority of 20 years or more ($\bar{x}$=134,90). The results of variance analysis regarding the life-wide learning habits of public education administrators are presented in Table 6.

Table 6. Variance Analysis Results Regarding Life-wide Learning Habits of Public Education Administrators

Life-wide learning habits	Sum of Squares	df	Mean Square	F	P	Meaningful difference
Between Groups	4034,792	4	1008,698	6,698	,000	1>5
Within Groups	58429,757	388	150,592			2>5
Total	62464,550	392				3>5
						4>5

When Table 6 was examined, the F value (F=6.698; p<.05) calculated for the life-wide learning habits of public education administrators indicated that the groups differed significantly from each other at the level of .05. When the difference between the life-wide learning habits scores of public education administrators was examined with the TUKEY test, it was identified that there was a significant difference at the level of .05 between the administrators with seniority of 20 years and above and the administrators with seniority of 1-5 years, 6-10 years, 11-15 years, and 16-20 years. According to this finding, life-wide learning habits scores of administrators with a seniority of 20 years or more are significantly lower than those of the other administrators.

Findings Related to the Fifth Sub-Problem of the Research

One-way analysis of variance (ANOVA) was conducted to reveal whether the life-wide learning habits of public education administrators differ statistically according to their educational status. The findings of the analysis are given in Table 7.

Table 7. N, X and Sd Values of Public Education Administrators' Life-wide Learning Habits

Life-wide learning habits	**N**	**X**	**Sd**
Undergraduate	349	140,42	12,73
Postgraduate	38	142,73	12,03
Doctorate	6	147,50	6,02

Table 7 shows that the highest mean belongs to administrators who have a doctorate degree ($\bar{x}$=147.50), followed by those with master's degree ($\bar{x}$=142,735 and those with undergraduate degree ($\bar{x}$=140.42). The results of variance analysis regarding the life-wide learning habits of public education administrators are given in Table 8.

Table 8. Variance Analysis Results Regarding Life-wide Learning Habits of Public Education Administrators

Life-wide learning habits	Sum of Squares	df	Mean Square	F	P
Between Groups	460,443	2	230,222	1,448	,236
Within Groups	62004,106	390	158,985		
Total	62464,550	392			

When Table 8 was examined, the F value (F=1.448; p>.05) calculated according to the life-wide learning habits of public education administrators indicated that there was no significant difference at the level of .05 between the groups in the relevant dimension.

Discussion and Conclusion

In this study, life-wide learning habits of administrators working in Public Education Centers affiliated to the General Directorate of Lifelong Learning were analyzed and it was determined how life-wide learning habits differ in terms of some variables. Due to the limited number of studies on life-wide learning, lifelong learning studies, which are closely related to the subject, have also been examined.

In relation to the first sub-problem of the research, the level of life-wide learning habits of public education administrators was examined. According to the means calculated for life-wide learning habits, it was found that public education administrators' perceptions on life-wide learning habits were high. Aslandağ-Soylu (2013), in his doctoral study, determined that the life-wide learning habits of the instructors and learners at the faculty of education were at a high level. Similarly, Ayçiçek and Yanpar-Yelken (2016) determined that instructors had high perceptions of life-wide learning habits. Yıldırım (2020) determined that the life-wide learning habits of non-staff master trainers were quite high. A literature review has revealed that there are many studies with similar findings (Ayaz, 2016; Çam & Üstün, 2016; Kılıç, 2015; Şahin & Arcagök, 2014; Tanatar, 2017; Türkmenoğlu & Aslandağ, 2021; Yavuz-Konokman & Yanpar-Yelken, 2014). Şahin, Akbaşlı and Yanpar-Yelken (2010) and Evin-Gencel (2013) determined that pre-service teachers perceived themselves sufficient in lifelong learning. Jovanova-Mitkovska and Hristovska (2011) found that pre-service teachers had lifelong learning competencies Macedonia. Doğan and Kavtelek (2015) determined that lifelong learning administrators' perception level of lifelong learning was highly positive. Pınarcık et al. (2016) determined in their study that pre-school teachers perceived themselves sufficient in lifelong learning. However, the results of some studies in the literature do not show similarity with the results of these studies. Tunca, Alkın Şahin and Aydın (2015) identified that pre-service teachers' perception of lifelong learning is low. Diker-Coşkun (2009) and Coşkun and Demirel (2012) found that university students had a low level of lifelong learning tendencies.

In the "professional development sub-dimension", the scores of public education administrators were quite high. This shows that administrators follow current practices to do their jobs in the best way and try to be an effective and efficient administrators. The perceptions of professional development habits, leadership habits, care-based habits, cultural interaction habits, and problem-solving habits of public education administrators were quite high. We can say that they contribute to their personal development by improving themselves on these sub-dimensions. The fact that their leadership habits were high indicates that they use the experience they have gained in the field for their personal development as they work as administrators. It was concluded that the problem-solving habits of the administrators were also quite high. In this case, it shows that administrators can effectively cope with problems by turning crises, problems, and threats to opportunities. Moreover, university lecturers (Aslandağ-Soylu, 2013; Ayçiçek, 2016), teachers (Türkmenoğlu & Aslandağ, 2021), and non-staff master trainers (Yıldırım, 2020) exhibit positive attitudes toward activities related to "problem solving, professional development, cultural interaction, leadership and care-based habits." In the research, it was seen that the scores of the leisure time habit sub-dimension were lower than those of the other sub-dimensions. This situation may result from the fact that public education centers have a heavy workload and thus the administrators cannot spare time to improve themselves in this area. Similarly, Aslandağ-Soylu (2013), Türkmenoğlu and Aslandağ (2021) and Yıldırım (2020) stated that university instructors, teachers, and non-staff master trainers did not actively participate in leisure activities.

Within the framework of these findings, it can be expressed that the life-wide learning habits of the administrators are quite high and they are aware of what criteria they should have in order to contribute to their personal development. The fact that public education administrators have high life-wide learning habits is related to both their being administrators and the constant change in the needs of the target group they address. They should follow all these changes and developments in science and

technology and contribute to their personal development. It is foreseen that it will be beneficial for them to transmit the knowledge, experience and achievements that administrators have gained about life-wide learning habits to their colleagues and adults with whom they work.

With regard to the second sub-problem of the research, it was examined whether the life-wide learning habits of public education administrators differ according to gender. In the study, it was concluded that the life-wide learning habits of the administrators differed significantly according to the gender-independent variable in favor of male administrators. On the other hand, Coşkun and Demirel (2012) in their studies with university students and Evin-Gencel (2013), İzci and Koç (2012) with pre-service teachers concluded that female participants had higher lifelong thinking tendencies. In the literature there are studies with the results that teachers (Ayaz, 2016; Çam & Üstün, 2016; İleri, 2017; Poyraz, 2014; Şahin, Akbaşlı & Yanpar-Yelken, 2010; Şahin & Arcagök, 2014; Tunca, Alkın Şahin & Aydın, 2015; Türkmenoğlu & Aslandağ, 2021; Yaman & Yazar, 2015; Yılmaz, 2016), instructors (Aslandağ-Soylu, 2013; Ayçiçek, 2016) and pre-service teacher (Oral & Yazar, 2015) do not differ significantly from each other by gender in terms of life-wide learning habits.

When the sub-dimensions were examined in terms of gender, a meaningful difference was detected in the sub-dimensions of care-based habits, leadership habits, professional development habits, and problem-solving habits. It was concluded that these differences favored male administrators. It was concluded that the subdimensions of leadership habits, cultural interaction, and leisure habits did not differ significantly according to gender. In Yıldırım (2020) study, the mean of male master trainers in the sub-dimension of professional development habits, leadership habits, cultural-based habits, leisure habits, and problem-solving habits was higher than the mean of female master trainers, and in the sub-dimension of care-based habits, the mean of female master trainers was higher than male master trainers. Similarly, Türkmenoğlu and Aslandağ (2021) determined that there was a significant difference in favor of women in the sub-dimension of care-based habits and a difference in favor of men in the sub-dimension of leadership habits.

In line with the third sub-problem of the research, it was examined whether the life-wide learning habits of public education center administrators differ according to their marital status. According to the results of the research, it was concluded that the life-wide learning habits of the administrators differed significantly according to their marital status in favor of the single administrators. Similar to this result, Pınarcık et al. (2016) found a significant difference in favor of single teachers in the sub-dimensions of teachers' social and civic competences and entrepreneurship. Unlike this result, Abbak (2018), Çam and Üstün (2016), and Poyraz (2014) determined that lifelong learning competencies do not differ according to marital status.

When the sub-dimensions were examined in terms of marital status, it was concluded that the significant difference in the sub-dimensions of professional development habits, leisure habits, and cultural interaction habits favored single administrators. Türkmeoğlu and Aslandağ (2021) found significant differences in favor of the singles in the sub-dimension of cultural interaction habits and leisure habits, and in favor of married people in the sub-dimension of care-based habits. In his study, Yıldırım (2020) revealed that while the mean of single master trainers was high on the whole scale, the mean of married master trainers was high on the care-based habits sub-dimension. Contrary to the findings of the present study, Ayçiçek (2016) determined that the life-wide learning habits of the instructors did not make a significant difference according to their marital status.

In line with the fourth sub-problem of the research, it was examined whether the life-wide learning habits of public education administrators differ according to seniority. According to the results of the research, it was concluded that the life-wide learning habits of the administrators differed significantly according to their seniority. According to the life-wide learning habits of public education center administrators, the highest mean score belongs to administrators with 1-5 years of seniority, followed by administrators with 11-15 years of seniority, administrators with 16-20 years of seniority, administrators with 6-10 years of seniority, administrators with 5-10 years of seniority, and the lowest mean belongs to the. administrators with a seniority of 20 years or more. Similar to the results of the research, Kılıç (2015) determined in his study that the lifelong learning tendencies of teachers working

for more than 20 years were lower. Similarly, Şahin and Arcagök (2014) concluded that the lifelong learning competencies of teachers with 31 years or more professional experience were lower in terms of acquiring knowledge and digital competencies. Yaman and Yazar (2015) found in their study that teachers with 6-10 years of seniority had a higher tendency to learn throughout life. Johnstone (1965) stated that generally those under the age of 40 participate in adult education activities. Different from these results, Yıldırım (2020) determined in his study that the highest mean belonged to the master trainers who worked for 25-30 years, and the lowest belonged to the master trainers who worked for 5-10 years. Türkmenoğlu and Aslandağ (2021), on the other hand, concluded in their study that teachers' life-wide learning habits did not differ significantly according to their professional experiences. When the literature is examined, it is seen that professional experience does not differ according to lifelong learning habits in studies conducted with teachers (Ayaz, 2016; İleri, 2017; Özçiftçi, 2014; Poyraz, 2014; Tanatar, 2017).

In line with the fifth sub-problem of the research, it was examined whether the life-wide learning habits of public education administrators differ according to their educational status. According to the results of the research, it was concluded that the life-wide learning habits of the administrators did not differ significantly according to their educational status. Similar to this result, İleri (2017) and Yılmaz (2016) concluded that there was no significant difference between teachers' lifelong learning tendencies and educational background. Türkmenoğlu and Aslandağ (2021) and Yıldırım (2020) revealed in their studies that those with a postgraduate degree had higher life-wide learning habits scores. There are studies that show a significant difference in the lifelong learning habits of teachers in favor of those with postgraduate education (Ayaz, 2016; Poyraz, 2014; Tanatar, 2017; Yaman & Yazar, 2015). Abbak (2018), on the other hand, found in his study that teachers with an undergraduate degree were more innovative than those with a postgraduate degree.

In conclusion, it was determined that the life-wide learning habits of administrators were at a high level. According to the results of the research, life-wide learning habits of administrators did not differ significantly according to educational status. However, life-wide learning habits of administrators differed by gender in favor of male administrators, by marital status in favor of single administrators, and by seniority in favor of 1-5 years of seniority.

Limitations and recommendations

The research is limited to the scope of the scale used and the administrators participating in the research. Considering the results obtained from the research;

1. The sample group of this study consists of administrators working in public education centers. Future studies, unlike this research, can be conducted with administrators working at other educational levels.

2. According to the results of the research, it has been determined that the life-wide learning habits of female administrators are lower than that of male administrators in some sub-dimensions. It can be investigated why the level of life-wide learning habits of female administrators is lower.

3. The Ministry of National Education may organize in-service training to improve the life-wide learning habits of administrators, especially those of senior administrators.

4. Within their undergraduate education, students can be encouraged to participate in activities that will improve their life-wide learning habits.

5. Studies on the life-wide learning habits of educators can be conducted using the mixed method.

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Committed to Ethics: How Ethical Leadership and Ethical Climate Foster Knowledge Sharing in Private Higher Education Institutions

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ABSTRACT
Private higher education in Lebanon is facing mounting challenges brought about by the COVID-19 pandemic and the unprecedented economic crisis that has left the once-distinguished sector struggling for survival. These crises require private universities to bolster their education and reputation in order to remain afloat amid the drain of competent labor as well as widespread corruption that permeates all levels of society. By attracting and retaining ethical leaders and fostering an ethical climate characterized by open communication, accountability, and trust, universities in Lebanon can stand out as resilient knowledge - intensive organizations and beacons of hope in a surrounding marked by despair. Drawing on social learning and social exchange theories, this quantitative study empirically examines the direct and indirect relationships among ethical leadership, ethical climate, and the bidirectional process of knowledge sharing (knowledge collecting and knowledge donating). In total, 585 responses from academic and non-academic staff employed in nine private higher education institutions in Lebanon were collected via a web-based self-administered questionnaire using the Qualtrics platform. Hierarchical regression analysis and Hayes' PROCESS macro for SPSS were used to test the hypotheses. Findings reveal that ethical leadership positively influences employee knowledge sharing behavior specifically, the study presents evidence that perceptions of the ethical climate serve as a mechanism through which ethical leadership affects knowledge collection and donation in varying strengths. The findings encourage the deeper consideration of ethics in higher education leadership and demonstrate the role universities must play in creating the conditions that facilitate knowledge sharing.

Keywords: ethical leadership, ethical climate, knowledge sharing, higher education, quantitative research

Introduction

In difficult times, such as the economic collapse that Lebanon is witnessing, preceded by a global disruption caused by the COVID-19 pandemic, organizations in general and higher education institutions (HEIs) in particular face increasing pressure and scrutiny to perform effectively and transparently. HEIs should stand out as beacons of resilience and hope amid the surrounding corruption and chaos. Wang (2020) argues that the wider society demands higher education leaders to behave ethically and flawlessly so that their institutions can be perceived by the public as trustworthy organizations. In fact, ethical leadership is at the heart of every successful leadership, and more so in HEIs, as ethical values are integral to the reason higher education exists (Frost, 2016). An element that complements ethical leadership in conveying trust is the ethical climate of the institution. Ethical climates are predictors of organizational ethical conduct (Deshpande and Joseph, 2009; Lu and Lin, 2014) and are associated with employee ethical behavior such as knowledge sharing (Wang and Noe, 2010). Through enforcing a clear code of ethics, HEIs can maintain an ethical climate that conveys support to employees and fosters stronger levels of ethical behavior among them (Zagenczyk et al., 2021).

An important outcome of ethical leadership and ethical climate is employee knowledge sharing behavior. In times of crises, knowledge is considered an organization's most valuable resource and a crucial element of competitive advantage, sustainability, and innovation (Spender & Grant, 1996). This is especially relevant to knowledge-intensive organizations such as HEIs. However, as Swart et al. (2014) argue, knowledge can only be exploited once it is shared. Knowledge sharing behavior has been researched in multiple industries and contexts, yet there is an evident dearth of empirical research on this behavior in HEIs (Fullwood et al., 2013).

This study uses an exploratory design. It aims to contribute to the growing body of work on ethical leadership, ethical climate, and knowledge sharing by unraveling the links between these constructs, and examining how and to what extent one affects the other. Considering the morality of knowledge sharing behavior, this study uses a moral lens to draw on social learning and social exchange theories, and offers a novel perspective on knowledge sharing as a morally inferred event with ethical leadership as its predictor variable.

Importantly, at the time of conducting this study, no previous research had investigated the influence of ethical leadership on employee knowledge sharing and the role of the ethical climate among HEIs in Lebanon, which adds to the originality of this study. The findings of this research will expand our understanding of the potential role of ethical leadership in enhancing knowledge sharing among researchers, educators, and employees in general; advance the literature on ethical climate; and bring new insights into the role of social exchange and social learning theories within the leadership field. The study provides a new lens to examine the interaction of these institutional aspects and to understand the mechanisms by which institutions can achieve an ethically-led workforce.

Notably, the existing research on higher education institutions in Lebanon has mostly examined the role of ethical leadership in promoting corporate social responsibility (Rawas, 2019), the effect of university ethical practices known as university social responsibility on the perceptions of university service quality and image (El-Kassar et al., 2023), and provided stakeholder analysis of the ethical challenges in Lebanese HEIs (Traboulsi, 2010).

Theory and Hypotheses

Ethical Leadership

Brown et al. (2005) define ethical leadership as "the demonstration of normatively appropriate conduct through personal actions and interpersonal relationships, and the promotion of such conduct to followers through two-way communication, reinforcement, and decision-making" (p. 120). They describe ethical leaders as honest, caring, trustworthy, and fair. A widely used conceptualization of ethical leadership identifies two distinct components: "moral person" and "moral manager" (Treviño et al., 2000). The

moral person component refers to the leader's moral traits that influence the follower's perception of what an ethical leader is. These traits include honesty, integrity, agreeableness, and concern for others (Treviño et al., 2003). The moral manager component, on the other hand, refers to establishing and promoting ethical standards, emphasizing accountability through discipline and rewards, and above all, modeling ethical conduct to followers (Treviño et al., 2000).

A strong theoretical framework that demonstrates why ethical leadership affects followers is found in social learning theory (Bandura, 1986). Social learning theory posits that individuals observe and imitate the behavior of significant others. Based on this, Brown et al. (2005) assert that, through observational learning, followers mimic their ethical leaders who act as role models and demonstrate normatively accepted behavior. Ethical leaders provoke ethical conduct through implementing reward and punishment systems, openly discussing ethical issues, and engaging followers in decision making (Kalshoven et al., 2011). In addition to social learning, social exchange theory (Blau, 1964) describes how relationships are formed and how power is shared among exchange parties. As a result of the fair treatment of ethical leaders, followers perceive themselves in a social exchange where they reciprocate the treatment through displaying a pattern of desired behaviors (Mayer et al., 2009).

Ethical Climate

Ethical climate has been defined as "the prevailing perceptions of typical organizational practices and procedures that have ethical content" (Victor & Cullen, 1988, p. 101). This shared understanding defines the conventional bases for decision making in an organization. Notably, ethical climates are not the reflection of the members' ethical standards but rather illustrate elements of their work environment. They provide members with a lens to detect and address ethical issues, particularly in situations that harbor moral dilemmas (Cullen et al., 2003). Integrated with organizational policies and clear supervisory direction, ethical climates can breed honesty, reduce complexity when responding to ethical matters, and cultivate an agreeable work environment (Schwepker, 2001). Based on social learning theory, Kuenzi et al. (2020) assert that when employees observe their surroundings, they learn the ideal way that ethics operate in their specific contexts, and shape their behavior in line with their observation. In a strong ethical climate, employees tend to easily understand the links between actions and consequences.

This study adopts a novel conceptualization of the ethical climate presented by Kuenzi et al. (2020), which draws on Treviño and Nelson's (2017) Multisystem Ethical Culture Framework. The framework reflects the six formal systems in organizations: recruitment and selection, orientation and training, policy and codes, reward and punishment, accountability and responsibility, and decision-making systems (Treviño & Nelson, 2017).

Knowledge Sharing

Knowledge is defined as "the fluid mix of framed experiences, values, contextual information and expert insight that provides a framework for evaluating and incorporating new experiences and information" (Swart et al., 2014). This study focuses on the dynamics of knowledge sharing between employees. Knowledge sharing processes can take many forms: the supply and demand for new knowledge, a casual exchange between a source and a receiver, or an intentional interaction between a knowledge requester and a knowledge carrier (Ardichvili et al., 2003). That is, knowledge sharing is a bidirectional process, and every instance of this process is made up of two acts: knowledge donating and knowledge collecting (Van Den Hoof and De Ridder, 2004). Knowledge donating is providing others with one's intellectual capital, whereas knowledge collecting is consulting others to share their intellectual capital. Essentially, sharing knowledge is always within the control of the individual, not the organization, making the process highly social (Empson, 2001). Thus, knowledge sharing has been identified as a moral dispute within organizations (Van den Hooff & de Leeuw van Weenen, 2004). In fact, no policy can actually make staff share knowledge that they may have spent years acquiring. Considering the significance, impact, and distinct bidirectional nature of knowledge sharing, it becomes vital to understand the mechanism of this behavior (Bock et al., 2005) and how it is influenced by leadership.

Ethical Leadership and Employee Knowledge Sharing

Several studies have demonstrated the significant role that leaders play in promoting knowledge sharing by realizing norms that encourage prosocial behaviors (Srivastava et al., 2006). Ethical leadership is strongly represented by morality and desirable behaviors including fair treatment and building trust among exchange parties (Le & Lei, 2018), which evidently promote knowledge sharing and provide the motivation and opportunities to do so. Moreover, ethical leaders facilitate knowledge sharing through enforcing policies that underscore morality in the workplace, including fair rewards, ethical decision-making practices, and applicable codes of ethics (Bock et al., 2005).

While prior research on knowledge sharing has mostly used a social capital lens that argues that social relationships are resources that are exploited to accumulate human capital (e.g.: Hu & Randel, 2014; Yang & Farn, 2009), this study examines knowledge sharing from a moral perspective. It adopts a social learning lens besides social exchange, where ethical leadership, with its moral person and moral manager dimensions, promotes employee knowledge sharing (knowledge collecting and knowledge donating) through dropping the barriers that prevent this behavior. Employees experiencing relationships that are marked with trust and fairness expect their contribution of knowledge assets to be equally reciprocated by other team members (Mayer et al., 2012). Based on these theoretical arguments, the following hypotheses are presented:

H1. Ethical leadership has a positive association with employee knowledge collection in higher education institutions.

H2. Ethical leadership has a positive association with employee knowledge donation in higher education institutions.

Ethical Leadership and Ethical Climate

Based on social learning theory, employees learn what behavior is expected of them through their leaders' enforcement of ethical standards and discipline. Top managers set the strategic goals, while ethical leaders interpret and implement them (Zohar & Luria, 2005). Interpretation and implementation follow the ethical leader's moral person and moral manager dimensions. This learning process shapes employees' perceptions of how policies and procedures are implemented and establishes clear directions about their desired ethical conduct. In particular, ethical leaders influence several areas that make up the ethical climate. For example, they look for high moral standards when recruiting new employees. Through active ethics management, they establish ethics training and clarify what behaviors are acceptable (Brown & Mitchell, 2010). They discuss policies and codes pertaining to organizational ethics with their employees and emphasize the ethical means to reach goals over end results (Brown et al., 2005).

Another element of the ethical climate that is influenced by ethical leaders is the reward and punishment system, where ethical behavior is directly linked to rewards while violations are linked to discipline. Transparency and accountability are exemplified through leaders' open admission of their mistakes and ethical misbehavior. This, in turn, encourages employees to question the misconduct of others rather than fearing it, and to continuously practice balanced decision-making by favoring an ethical viewpoint (Brown et al., 2005).

Consequently, ethical leaders play an essential role in shaping employee climate perceptions (Mayer et al., 2010; Zohar & Luria, 2005). They guarantee that messages concerning ethical conduct are properly and consistently propagated downwards from top managers to their immediate work environment and laterally across the organization. On the contrary, when the leader's ethicality is misaligned with that of the organization, employees perceive their environment as phony and motivated by strategy and profit rather than compassion (Myer et al., 2016).

Ethical Climate and Employee Knowledge Sharing Behavior

Several lines of evidence suggest that ethical climates significantly reduce employees' self-interest and build cooperation, compassion, and trust (Martin & Cullen, 2006; Victor & Cullen, 1988). Others have shown that these climates indeed have the potential to induce ethical behavior (Deshpande & Joseph, 2009; Lu & Lin, 2014).

As social learning theory implies, employees construe their observations of the ethical climate as the distinctive way ethics operate 'around here' and shape their behavior. In remarkable ethical climates, employees would consistently notice their peers behaving ethically and attempt to mimic this behavior (Kuenzi et al., 2020), ultimately drawing the links between actions and consequences. Constructing this mental map assures employees that the work environment is balanced and predictable, their efforts will not be ignored, and their goals can be achieved (Kacmar et al., 2009). Moreover, in an ethical climate, employees are more likely to identify with the organization and feel a duty to contribute to its success (DeConinck, 2011). One meaningful contribution employees tend to make is the sharing of knowledge, which is a noticeable form of morality and collaboration (Piccolo et al., 2010). Wang & Noe (2010) rightly suggest that a climate defined by trust, cooperation, and justice reduces the perceived costs of sharing one's knowledge, thus encouraging employees to repeatedly take part in this behavior.

In the same line of reasoning, Johnson et al. (2015) assert that these positive conditions create a feeling of trust in and control over one's environment. As an exchange for their valued membership, employees believe their organization is worth their knowledge and are encouraged to share it. Poor ethical climates, on the other hand, generate a sense of competition and uncertainty where employees are likely to become skeptical of information shared by their colleagues and eventually fail to maintain this behavior (Mayer et al., 2013). Apparently, a culture of mistrust that lacks clear ethical values is characterized by questionable behavior, instills fear, and leads to knowledge hiding.

Mediating Role of Ethical Climate

The preceding sections have established that ethical leaders influence employee perceptions of the ethical climate through their relevant practices, which in turn promote employee moral behavior (Mayer et al., 2009) such as knowledge sharing. Taken together, these mechanisms suggest that the ethical climate is expected to be an agency by which ethical leadership is associated with employee ethical behavior.

A growing body of literature has highlighted the mediating role that organizational climates play in the relationship between organizational variables such as leadership and unit-level outcomes (Kuenzi et al., 2020; Zohar & Luria, 2005). Furthermore, Kuenzi and Schminke (2009) revealed that the mediation of ethical climates is demonstrated in "facilitating the processes by which organizational activities translate to outcomes" (p. 701). Based on the aforementioned arguments, the following hypotheses are presented:

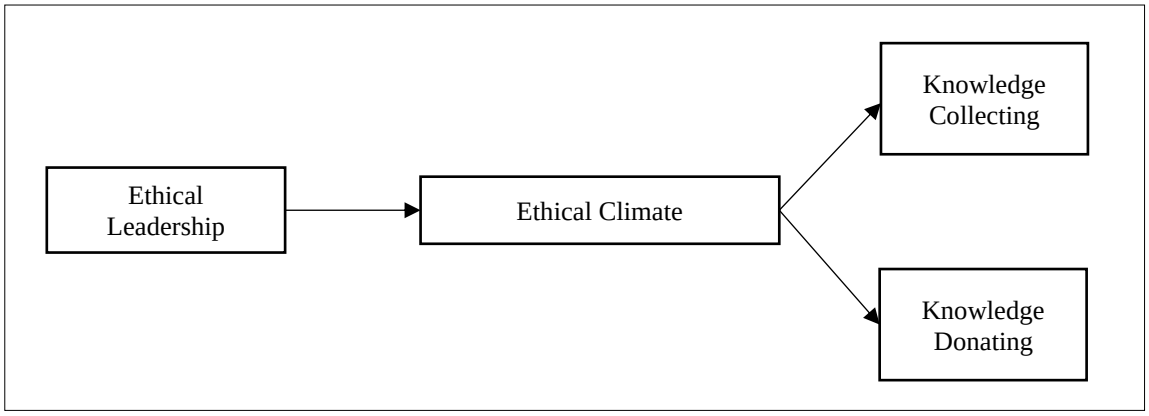
H3. The ethical climate mediates the relationship between ethical leadership and employee knowledge collection in higher education institutions.

H4. The ethical climate mediates the relationship between ethical leadership and employee and knowledge donation in higher education institutions.

Methods and Materials

The conceptual model this research proposes is depicted in Figure 1, in which the ethical climate mediates the relationship between ethical leadership and the two processes of knowledge sharing.

Figure 1. Conceptual Model



Measures

All measurement scales used in this study were adopted from previous research, and ratings were made on a seven-point Likert scale (1 = *strongly disagree;* 7 = *strongly agree*).

Ethical leadership. Ethical leadership was measured using the 10-item Ethical Leadership Scale developed by Brown et al. (2005). Example items include: "My supervisor disciplines employees who violate ethical standards" and "My supervisor discusses business ethics or values with employees" (Cronbach's alpha (α) = 0.95).

Ethical Climate. The ethical climate was measured using a newly developed and verified instrument, the ethical organizational climate (Kuenzi et al., 2020). The scale consists of 12 items that measure ethical practices in organizations reflecting Trevino and Nelson's (2017) six formal organizational systems: decision-making, orientation and training, policy and codes, recruitment and selection, reward and punishment, and accountability and responsibility. Each of these systems was measured using two items. Example items include: "A good effort is made to measure and track ethical behaviors." and "When an unethical act occurs, employees take responsibility for their actions" (Cronbach's alpha (α) = 0.93).

Knowledge Sharing Behavior. Knowledge sharing behavior was measured using the knowledge sharing scale developed by Van Den Hooff and De Ridder (2004). The scale is divided into six items that measure knowledge donation and four items that measure knowledge collection. Example items include: "I share the information I have with colleagues within my department" (Knowledge Donating) (Cronbach's alpha (α) = 0.89) and "Colleagues within my department tell me what they know when I ask them about it" (Knowledge Collecting) (Cronbach's alpha (α) = 0.87).

Control Variables. Previous studies have shown that gender, age, and education level may influence knowledge sharing and the amount of information employees may convey. Lin (2006) highlighted that females are more likely than males to participate in knowledge sharing behavior. Lazazzara and Za (2020) argued that as people age, they tend to have fewer knowledge sharing behaviors and their interest in collecting and donating knowledge diminishes. Bartol et al. (2009), on the other hand, have shown that employees with a higher level of education are more likely to share knowledge. Thus, gender, age, and education level were included as control variables in this study. In addition, the study took into account a university-specific context and controlled for university name. University names have been letter-coded to preserve anonymity.

Sampling

At the time of this study, there were 36 private universities operating in Lebanon (Ministry of Education and Higher Education (MEHE), 2021) of which the researcher contacted 16 universities requesting permission to conduct the study among their academic and non-academic staff at all levels. The choice to survey all higher education employees in an institution was to involve all the employed workforces of that institution and examine the institution as one entity.

Nine universities comprise approximately 5,000 academic and non-academic staff approved to take part in the study. Data collection lasted between April and July 2021, with 663 responses registered in the survey system, resulting in a 13% response rate. The total number of usable surveys after eliminating cases with missing data was 585. Table 1 indicates the number of respondents per university.

Table 1. Respondents per university

University	Respondents
A	42
B	48
C	112
D	14
E	10
F	15
G	35
H	155
I	154

Among the 585 respondents, 371 were female (63.4%), thus constituting the largest gender group, while the largest age group (115 respondents, 19.7%) was between 36 and 40 years old. The most represented education level was doctorate with 265 respondents (45.3%), while 228 (39.0%) reported holding master's degrees. The survey also inquired about the role of the respondents in the institution; 307 (52.7%) described their role as 'academic', 162 (27.7%) recorded their role as 'non-academic' and the rest described their work as a combination of the two.

Ethical Considerations

Ethical considerations corresponding to respondents' rights to privacy, anonymity, consent, voluntary participation, and protection from harm and deception were adhered to in this research. Privacy was guaranteed through distributing an electronic survey that does not constrain the participants to a specific location or time. The survey was completely anonymous. Participants were not asked to disclose any personally identifiable information. The study did not impose any risk on participants.

The survey began with a confidentiality notice and an informed consent form that informed participants that they could decline participation or discontinue their progress in the survey at any time, and that the collected data will be used for research purposes only. Data were kept on the researcher's password-protected cloud storage. Formal ethical approval to conduct this study was obtained from the University of Bath Social Sciences Research Ethics Committee (SSREC). The University of Bath Ethics Review Board, represented by Rebecca Wise, made the decision on April 08th, 2021. The SSREC reference number was S21-055.

Findings

Correlations among the study variables, means, and standard deviations are presented in Table 2.

Table 2. Study variable correlations and descriptives *(N=585)*

Variable	Mean	SD	1	2	3	4
1. Ethical Leadership	5.45	1.27	.95			
2. Ethical Climate	4.95	1.13	.61**	.93		
3. Knowledge Collecting	5.18	1.08	.31**	.42**	.87	
4. Knowledge Donating	5.41	1.05	.20**	.24**	.45**	.89

Note. Coefficient alphas are reported on the diagonal. *p < .05 (two-tailed). **p < .01 (two-tailed)

Confirmatory Factor Analysis

To ensure the structure of the measures, this research applied confirmatory factor analysis (CFA) using AMOS 25. The most widely used fit indices for CFA include the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), the Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR) (Taasoobshirazi and Wang, 2016). Hu and Bentler (1999) recommend using one or more of the fit indices along with SRMR. Accordingly, the researcher relied upon all four indices.

The CFI and TLI are incremental fit indices that evaluate the improvement in the fitness of a model over a baseline model without a relationship among the model variables. The fit indices CFI and TLI range between 0 and 1, with values closer to 1 (especially greater than 0.9) representing better fit (Kline, 2015). RMSEA indicates the extent to which the hypothesized model fits approximately well in the population. In other words, RMSEA reveals information about the 'badness-of-fit' with lower values indicating a good fit. The RMSEA index is considered among the most informative and recommended indices due to its sensitivity to model misspecification (Garver and Mentzer, 1999; MacCallum and Austin, 2000; Kline, 2015). According to Hair et al. (2014), the RMSEA overcomes the problem of rejecting the model due to large sample sizes. RMSEA values ranging between 0.05 and 0.08 are considered acceptable (Hair et al., 2014). Values less than 0.05 indicate a close fit between the hypothesized model and the data, while a value of 0 suggests a perfect fit (Brown and Cudeck, 1992; Byrne, 2013). The SRMR is another 'badness-of-fit' statistic and measures the mean absolute correlation residual, i.e., the overall difference between the observed correlations and the predicted ones with smaller values (<0.08) indicating a good model fit (Kline, 2015).

Table 3 presents the CFA results for the scales. Since all index values were within their acceptable thresholds, the construct validity of all constructs was established and its fitness with the data was confirmed.

Table 3. CFA results (N=585)

Measurement Scale	CFI (>.90)*	TLI (>.90)*	SRMR (<.08)*	RMSEA (<.08)**
1. Ethical Leadership Scale	.994	.987	.014	.053
2. Ethical Organizational Climate	.991	.986	.022	.042
3. Knowledge Collection Scale	.998	.988	.005	.076
4. Knowledge Donation Scale	.995	.980	.015	.076

Note. Recommended values: *Kline (2015), **Hair et al. (2014)

Hypotheses Testing

To test the first and second hypotheses (H1 and H2), this study used hierarchical multiple regression to examine the effects of ethical leadership on knowledge collection and knowledge donation.

H1. Ethical leadership has a positive association with employee knowledge collection in higher education institutions.

Hierarchical multiple regression was conducted to examine the relationship between ethical leadership as the independent variable and knowledge collection as the dependent variable (Table 4). The control variables were included in step 1 of the analyzes and explained 0.18% of the total variance in knowledge collection. The model was found to be statistically insignificant with F (12,572) = 0.873, p = .574. Ethical leadership was entered in step 2, and the total variance explained was 11.1% with F (13,571) = 5.506, p = .000. Ethical leadership thus explained an additional 9.3% of the variance (ΔR^2) in knowledge collection after controlling for age, gender, education, and university. The analysis indicated that ethical leadership is a statistically significant predictor (β = .311, p = .000) of knowledge collection. Therefore, hypothesis H1 was supported.

Table 4. Regression coefficients and main effects of Ethical Leadership on Knowledge Collecting

Variable	Step 1			Step 2		
	β	t	Sig.	β	t	Sig.
Age	.026	.597	.551	.046	1.088	.277
Gender (Male)	.003	.065	.948	.009	.224	.823
Gender (prefers not to say)	.055	1.312	.190	.066	1.663	.097
Education	-.034	-.764	.445	-.019	-.454	.650
Univ A	.024	.526	.599	.022	.509	.611
Univ B	.046	1.018	.309	.059	1.359	.175
Univ C	-.039	-.799	.424	-.002	-.035	.972
Univ D	-.000	-.007	.994	-.003	-.082	.934
Univ E	-.048	-1.103	.271	-.044	-1.071	.285
Univ F	.071	1.639	.102	.066	1.602	.110
Univ G	.029	.653	.514	.006	.140	.888
Univ I	-.017	-.330	.741	-.009	-.172	.863
Ethical Leadership				.311***	7.747	.000
R^2	.018			.118		
ΔR^2	.018			.093		
Adjusted R^2	-.003			.091		
F-value	F (12,572) = .873, P=.574			F (13,571) = 5.506***, P=.000		

Notes: N = 585, β = standardized beta, *p ≤ .05, **p ≤ .01, *** p ≤ 0.001

H2. Ethical leadership has a positive association with employee knowledge donation in higher education institutions.

Hierarchical multiple regression was also conducted to examine the relationship between ethical leadership and knowledge donation (Table 5). The control variables were included in step 1 of the analyzes and explained 0.28% of the total variance in knowledge donation. The model was found to be statistically insignificant with F (12,572) = 1.380, p = .171. Ethical leadership was entered in step 2, and the total variance explained was 7.0% with F (13,571) = 3.324, p = .000. Ethical leadership thus explained an additional 4.2% of the variance (ΔR^2) in knowledge collection after controlling for age, gender, education, and university. The analysis indicated that ethical leadership is a statistically

significant predictor (β = .209, p = .000) of knowledge donation. Therefore, hypothesis H2 was supported.

Table 5. Regression coefficients and main effects of Ethical Leadership on Knowledge Donating

Variable	Step 1			Step 2		
	β	t	Sig.	β	t	Sig.
Age	.055	1.248	.213	.068	1.575	.116
Gender (Male)	.001	.014	.989	.005	.116	.908
Gender (prefers not to say)	.050	1.209	.227	.058	1.422	.156
Education	.018	.405	.686	.028	.642	.521
Univ A	.023	.512	.609	.022	.494	.621
Univ B	-.046	-1.003	.316	-.037	-.833	.405
Univ C	-.003	-.051	.959	.023	.474	.636
Univ D	.055	1.278	.202	.052	1.247	.213
Univ E	-.079	-1.824	.069	.076	-1.805	.072
Univ F	.089*	2.078	.038	.086*	2.044	.041
Univ G	.052	1.169	.243	.036	.834	.405
Univ I	.015	.280	.779	.020	.401	.689
Ethical Leadership				.209***	5.092	.000
R^2	.028			.070		
ΔR^2	.028			.042		
Adjusted R^2	.008			.049		
F-value	F (12,572) = 1.380, P=.171			F (13,571) = 3.324***, P=.000		

Notes: N = 585, β = standardized beta, *p ≤ .05, **p ≤ .01, *** p ≤ 0.001

The hypothesized mediation in H3 and H4 was tested using Model 4 of the Hayes Process (Preacher & Hayes, 2004) for SPSS. 10,000 bootstrap samples were chosen as recommended by Hayes (2017).

H3. The ethical climate mediates the relationship between ethical leadership and employee knowledge collection in higher education institutions.

Table 6 shows the total, direct, and indirect effects of ethical leadership on knowledge collection via the ethical climate. Comparing the total effect of ethical leadership on knowledge collection (B = .273, p < .001) with the direct effect (B = .070, p > .05), it is clear that the direct effect of ethical leadership became lower and insignificant 95% CI [-.0135, .1535] after controlling the effect of the ethical climate, which suggests full mediation. Besides, bootstrapping analysis showed that the indirect effect of ethical leadership on knowledge collection via ethical climate was significant .20, and the 95% confidence interval did not contain zero (CI = [.1369, .2701]), as shown in Table 6. Thus, hypothesis H3 was supported.

Table 6. Total, direct and indirect effects of ethical leadership on knowledge collection via ethical climate

Mediation results	B	SE B	t	Sig.	LLCI 95%	ULCI 95%
EL → EC → KC						
Total Effect	.2728	.0352	7.7467	.000	.2036	.3419
Direct Effect	.0700	.0425	1.6457	.1004	-.0135	.1535
	B	BootSE	BootLLCI	BootULCI		
Indirect Effect	.2028	.0340	.1369	.2701		

Notes: LLCI = lower limit within the 95% confidence interval of boot indirect effect. ULCI = upper bound within the 95% confidence interval of boot indirect effect. Bootstrap sample size = 10,000. Beta coefficients not standardized. Abbreviations: EL, ethical leadership; EC, ethical climate; KC, knowledge collection

H4. The ethical climate mediates the relationship between ethical leadership and employee knowledge donation in higher education institutions.

Table 7 shows the total, direct, and indirect effects of ethical leadership on knowledge donation via the ethical climate. Comparing the total effect of ethical leadership on knowledge donating (B = .173, p < .001) in table 7 with the direct effect (B = .074, p > .05), we find that the direct effect of ethical leadership became lower and insignificant 95% CI [-.0095, .1583] after controlling the effect of the ethical climate, which suggests full mediation. Besides, the bootstrapping analysis showed that the indirect effect of ethical leadership on knowledge donating via ethical climate was significant .099, and the 95% confidence interval did not contain zero (CI = [.0421, .1576]), as shown in Table 7. Thus, hypothesis H4 was supported.

Table 7. Total, direct and indirect effects of ethical leadership on knowledge collection via ethical climate.

Mediation results	B	SE B	t	Sig.	LLCI 95%	ULCI 95%
EL → EC → KD						
Total Effect	.1734	.0340	5.0921	.000	.1065	.2403
Direct Effect	.0744	.0427	1.7415	.0821	-.0095	.1583
	B	BootSE	BootLLCI	BootULCI		
Indirect Effect	.0990	.0296	.0421	.1576		

LLCI = lower limit within the 95% confidence interval of boot indirect effect. ULCI = upper bound within the 95% confidence interval of boot indirect effect. Bootstrap sample size = 10,000. Abbreviations: EL, ethical leadership; EC, ethical climate; KD, knowledge donation

Discussion and Conclusion

The main purpose behind conducting this study was to examine the implications of perceived ethical leadership for employees' inclination to collect and donate knowledge in HEIs and to analyze the role of the ethical climate in that relationship. As discussed earlier, ethical leadership, ethical climate, and knowledge sharing are critical factors for the survival of organizations (Kalshoven et al., 2011; Kuenzi et al., 2020; Swart et al., 2014), and HEIs in particular during crises that demand resilience and transparency.

The study explored the direct relationship between ethical leadership and employee knowledge sharing processes (knowledge collecting and knowledge donating). The findings provided a deeper insight into the relationship between ethical leadership and knowledge-sharing behavior in the context of higher education. In particular, the study emphasized the importance of having leaders at all levels of the organization that are highly ethical and can influence employee outcomes. The study also investigated knowledge sharing from a novel perspective, distinguishing between its two processes of knowledge donating and knowledge collecting (Van den Hooff and De Ridder, 2004). In addition, the research highlighted the significant function that the ethical climate plays in mediating the relationship and subsequently underscored the role of the institution in maintaining the appropriate climate for leaders to influence the knowledge sharing behavior of employees, besides the leaders' long-held responsibility in producing the desired change.

This study makes considerable theoretical contributions to the literature on leadership, organizational climate, and knowledge management, specifically in the context of higher education. First, it echoes the significance of ethical leadership and its influence on employee attitudes and behaviors, thereby acting as a robustness test of existing research on the subject. It also answers the need for a comprehensive understanding of the mechanism by which employees adopt these attitudes and behaviors and how they are altered by different aspects and styles of leadership (Bock et al., 2005). The study proposes a conceptual model (see Figure 1) that links ethical leadership to knowledge sharing

through the mediating role of the ethical climate – explained through social learning and social exchange theories – within a knowledge-rich organizational environment such as a university.

The findings of this research indicate that, based on social exchange theory, ethical leadership matters significantly in cultivating a positive reciprocity of knowledge sharing among employees in higher education, extending our understanding of the predictors of knowledge sharing behavior and providing further evidence that knowledge sharing indeed has moral grounds. The research also contributes to the theoretical understanding of such knowledge sharing behavior by examining its two distinct behavioral components: knowledge collecting (actively consulting others to obtain knowledge), and knowledge donating (actively providing others with one's knowledge) (Van den Hooff and De Ridder, 2004).

This study adds to the literature on organizational climates in general and more specifically to the literature on ethical climates in higher education. It draws on social learning theory to provide a rationale that explains why an ethical climate is related to socially desirable employee behavior and why it mediates the relationship between ethical leadership and that behavior. This research uses the novel Ethical Organizational Climate conceptualization (Kuenzi et al., 2020), which draws on Treviño and Nelson's (2017) theoretical framework of formal organizational practices that provides a more comprehensive understanding of the ethical climate.

The results obtained through the study provide practical recommendations that are valuable to directors and managers in HEIs in Lebanon and serve as a guide for the practice of ethical leadership, the promotion of ethical climates, and knowledge sharing activities in the context of higher education. First, HEIs should strive to hire ethical leaders who, as the findings imply, play a big role in promoting knowledge sharing behavior. In addition, tools that assess integrity, morality, and empathy can be integrated into the hiring process. Examples include tests of integrity in the form of case studies where a given department is assumed to undoubtedly fail unless urgent yet unethical actions are taken. How candidates address this dilemma can raise many flags. Other forms of assessment can include structured interviews that tap into the moral person and moral manager aspects of the interviewee.

Another form of maintaining leaders' ethicality is training and mentorship, which can be addressed to different employees in the institution according to their unique needs. However, all training should target the moral manager aspect through raising awareness on the importance of ethical practices communicating values to subordinates, thus indirectly serving as ethical role models to others. Training should also build the moral person of the ethical leader by highlighting the implications of justice when using reward and punishment as well as the importance of trustworthiness, honesty, and employee voice. Training needs to be integrated in all performance reviews, which should also document any instances of malpractice that are normally overlooked as time passes.

Policies that relate to recruitment and promotion should clearly state that the aforementioned ethical characteristics must take priority when hiring leaders, thus preventing decisions that are biased toward skills and experience. These policies should also clarify the course of action in case of employee misconduct and ensure that the values of the institution and those of the candidate are always aligned.

Furthermore, the findings in this study signal the pivotal role of the ethical climate in shaping desirable employee behavior. As such, the presence of an ethical climate becomes an essential precursor in HEIs, where ethical leaders are hired to conceivably affect the change. Accordingly, HEIs should regularly incorporate ethical values into their culture by providing the necessary conditions that establish a strong ethical climate. Institutions can erect a dedicated office that focuses on this undertaking, thereby sending a clear message to leaders and followers alike about the seriousness of ethics. Such an office would be tasked with maintaining the six formal systems that constitute an efficient ethical climate: recruitment and selection, orientation and training, policy and codes, reward and punishment, accountability and responsibility, and decision-making. Policies and procedures that emphasize the value of being an ethical employee can then be devised and enforced, ultimately producing a highly transparent system. Moreover, such a tangible office strengthens the perceptions of the ethical climate, which is more effective than sponsoring an idea that, at best, remains abstract.

Another important finding of this study was the role of the ethical leader in encouraging the two facets of employee knowledge sharing, i.e., knowledge collecting and knowledge donating. Under ethical leadership, employees overcome their fear of losing proprietorship to their knowledge and are motivated to take what otherwise would be considered risky steps. Altogether, the previous points

suggest that ethical leadership in HEIs not only promotes employee knowledge sharing directly, but also indirectly through the mediating effect of the ethical climate, which has direct implications for policies that govern the sharing of knowledge in the institution. HEIs should allocate considerable effort to develop ethical leaders and constructing and maintaining an unchanging ethical climate. Diligence should extend beyond recruiting and promoting ethical leaders at all levels to enact a comprehensive ethical climate through honing the six formal systems endorsed in this study.

It is worth noting that the positive influence of ethical leadership and ethical climate may well extend beyond the context of HEIs to other contexts in Lebanon, especially those that are affected by the societal impact of these institutions. For example, the public and private sectors can benefit from the positive implications listed above as these sectors will eventually recruit their workforce from ethically-led and values-driven Lebanese HEIs. Rectified governance and management practices inside HEIs will ultimately dissipate to the larger community through enriching the Lebanese civic and economic life and influencing government planning and policy making.

Limitations and recommendations

The researcher recognizes that this study is not without limitations. First, although the data were collected from a wide number of HEIs in Lebanon, the study is still cross-sectional and causal inferences cannot be clearly drawn from the results. The author strongly encourages future researchers to adopt a longitudinal design that can better estimate causal relationships in the research model. Second, the survey was administered to HEIs in Lebanon, limiting the applicability of the findings in other research contexts. Third, the survey used close - ended questions that cannot reveal the motivations behind the answers. Future research should therefore consider investigating the motivations behind the respondents' answers. Fourth, the survey method might be subjected to common method bias resulting from self-report questions (Podsakoff et al., 2003). However, the choice of measuring knowledge sharing behavior through self-report questions was intentional rather than convenient. Only respondents answering those questions could rate how personally involved they were in collecting and donating knowledge.

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Availability of data

The datasets generated and/or analyzed during the current study are not publicly available because permission was not obtained from participants to share their data publicly but are available from the corresponding author on reasonable request.

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Examining Black and Latinx College Students' Perceived Stress, Resilience, and Networking Efficacy from a Social Capital Perspective

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ABSTRACT

Black and Latinx college students often have disparate access to social capital opportunities and experience more stress in than their White counterparts. However, many students are resilient. A social capital lens was used to examine the relationship between perceived stress, resilience, and networking efficacy in a sample of predominantly Black and Latinx students (N = 114). The results indicated that resilience mediated the negative influences of perceived stress on networking efficacy. Implications are discussed for how college career counselors can (a) help Black and Latinx students increase resiliency, (b) address stress, and (c) build social capital.

Keywords: Stress, social capital, resilience, networking, Black and Latinx college students

Introduction

Disparate rates of college degree and career attainment are concerning because of an increased need for emerging adults to achieve post-secondary education to gain economic stability (Arnett, 2014). Specifically, Black and Latinx students are underrepresented in university settings (de Brey et al., 2019). For example, in 2018, 42% of White students were enrolled in college compared with 37% and 36% of Black and Latinx students, respectively (National Center for Education Statistics [NCES], 2020). As of 2016, the percentage of Black (21%) and Latinx (15%) college students who completed a bachelor's degree was lower than that of their White (35%) and Asian (54%) counterparts.

One factor that plays a role in college and career attainment is social capital. Social capital influences career outcomes such as employability, employment status, and job quality (González-Romá, et al., 2018). Providing racially minoritized students with increased access to social capital can help facilitate education and career success by improving degree completion and career outcomes (Museus & Neville, 2012). To better inform how career counselors on college campuses can support Black and Latinx college students' career development, we use a social capital lens to examine the relationships between perceived stress, resilience, and networking efficacy in Black and Latinx college students.

Social Capital Theory

Social capital theory suggests that building meaningful relationships provides value to members of a network by affording them access to social resources (Bourdieu, 1985). Social capital is defined as the sum of resources generated from the characteristics, qualities, and structures of social relationships (Coleman, 1990). Bourdieu (1985) discussed how the volume of social capital that one has is related to (a) the size of their social networks and (b) the amount of resources possessed by the individuals belonging to those networks. Almeida et al. (2021) found that grit does not significantly impact first-generation college students' GPA yet, social capital with faculty and staff does. The more social capital connections first-generation college students have with faculty and staff, the higher their college GPA.

The Search Institute (2022) conducted the social capital and learning for equity (SCALE) project to develop social capital measures that practitioners can use to assess how social capital and peer relationships help youth and young adults secure education and employment opportunities. The young people in the SCALE project tended to experience the most social capital from near peer relationships, which provided participants with the most valuable resources for reaching their education and career goals (Search Institute, 2022).

Counselors and Building Social Capital

Counselors can play a critical role in (a) supporting Black and Latinx students' mental health and (b) helping students increase their social capital. Farmer-Hinton and Adams (2006) used social capital theory to explore the role of counselors in fostering college access for Black first-generation high school students. The results of Farmer-Hinton and Adams (2006) qualitative study suggested that allowing students' access to counselors helped them build social capital and provided them with resources to support their college plans. To highlight the role of counselors in building social capital, Bryan et al. (2011) found that Black and Latinx students who contacted their school counselors for college information were more likely to apply to multiple universities and have positive academic outcomes. Edeburn and Knotts (2019) discussed the role of counselors in assisting Latinx students' in their transition from eight to ninth grade. In providing recommendations for school administrators, Edeburn and Knotts (2019) discussed the important role that counselors play in deepening students' access to social capital resources and educational opportunities. These studies discuss building the social capital of Black and Latinx students at the K-12 level and the role of counselors. However, there is a need to further explore aspects of social capital within Black and Latinx college student populations and discuss the role of college career counselors in addressing social capital.

Social Capital and Higher Education

Palmer and Gasman (2008) found that social capital is embedded in Historically Black Colleges and Universities (HBCUs). Specifically, factors such as mentorship; support from community and administration; peer motivation, and strong relationships with faculty are unique features of HBCUs when compared to the lack of support Black students receive at Predominantly White Institutions (PWIs; Palmer & Gasman, 2008). Unfortunately, at PWIs, there are inequities in racially minoritized students' access to social capital (Museus & Neville, 2012). For instance, many racially minoritized college students do not have equal access to either informal (e.g., social capital resources gained from friends, family, neighbors, etc.) or formal (e.g., social capital resources gained from organizations and institutions) social networks that serve as pipelines to college and career opportunities (Gonzalez et al., 2003). Inequity in social capital during college hinders career and educational outcomes and can negatively affect students' mental health (Ahnquist et al., 2012; Lindstrom, et al., 2012). Limited access to social capital is associated with poor psychological health and increased stress (Ahnquist et al., 2012; Lindstrom, et al., 2012). The underrepresentation of Black and Latinx college students and disparities in their degree completion present unique challenges that are often overwhelming and limit access to social capital. Some of these challenges include: language barriers, financial hardship, racism, anxiety, and stress (Terrell & Strayhorn, 2010; Unidos US, 2020).

Stress and Career Development in Black and Latinx College Students

This study focuses on stress as a challenge to Black and Latinx college students' career development. Perceived stress is one's subjective assessment of an experience as being likely to exceed their ability to respond effectively (Cohen, et al., 1983). Stress is not always a negative experience and, in some cases, can help students reach their goals (Eustis, et al., 2017). However, increases in perceived stress are associated with individuals having a limited ability to respond to stressful events (Cohen, et al., 1983).

Generally, college students' stress levels are concerning. In 2018, the American College Health Association (ACHA) reported that most undergraduate students experience symptoms of stress and that stress is a major impediment to their academic performance. For college students, stress can be overwhelming, hinder academic achievement, and distort their self-efficacy beliefs or their belief in their ability to perform a task (Amirkhan, 2018; Bandura, 2008). In college student populations, increases in stress are associated with low self-esteem, life satisfaction, optimism, and self-efficacy (Saleh et al., 2017).

For many racially minoritized college students, stressors are both interpersonal and systemic at the institutional level (Pittman et al., 2017). For instance, racially minoritized college students are likely to perceive their college experience as stressful (Wei et al., 2010) because of experiences with microaggressions or having to internalize of their psychological distress (Bissonette & Szymanski, 2019). Cokley et al. (2013) found that Black college students experienced significantly higher levels of minority stress than their Asian and Latinx counterparts. Jimenez (2014) examined the association between minority stress and depressive symptoms in a sample of Latinx undergraduate students on a diverse college campus and found that higher levels of Latinx minority stress were associated with increased depression. In addition, racially minoritized college students often experience somatic or physical manifestations of stress, including: increased heart rate, sweating, restlessness, and insomnia (Torres-Harding, et al., 2020).

In relation to stress and career development, Bullock-Yowell et al. (2011) explored the relationships among career and life stress, negative career thoughts, career satisfaction, and career decidedness. Increases in life stress were associated with lower levels of career decision-making and satisfaction with career choice. Stress also impacts students' career goals. Hu et al. (2018) found that stress, along with receiving negative career feedback, had detrimental impacts on college students' career goals. Whitman et al. (2017) explained that for first-generation college students, increased stress levels are negatively associated with academic and career decision-making self-efficacy.

Regarding Black and Latinx college students in particular, stress can further exacerbate negative college and career outcomes. For instance, Arbona (2016) examined whether college self-efficacy moderated the relationship between minority stress and persistence intentions. College and minority stress were negatively related to persistence among Latinx college students with low self-efficacy. Bentley-Edwards et al. (2016) explained that among Black college students, increases in race-related stress presented barriers to achieving academic and career goals. In addition, stress can make racially minoritized students question their career path. McGee (2018) explained that Black college students who are interested in careers in science, technology, engineering, and mathematics (STEM) experience stress and anxiety related to race-based stereotypes. This increased stress and anxiety can make it more difficult for Black students to continue in their chosen STEM career (McGee, et al., 2018).

Resilience, Social Capital, and Self-Efficacy

Although Black and Latinx students may experience high levels of stress, many show resilience, or the ability to bounce back from adverse experiences (Bukoski & Hatch, 2016; Southwick et al., 2014). For many young adults, peer and social networks foster resilience (Botrell, 2009). Increased social capital can counteract the negative impact of stress on racially minoritized college students by enhancing their resilience (Ledogar & Flemming, 2010). Resilience built from social capital can occur at the individual or community level (Sherrieb et al., 2010). At the community level, social capital can help develop social support, social participation, and community bonds among Black and Latinx communities. At the individual level, social capital can enhance resilience related to economic development and growth.

Self-efficacy is also an important aspect of resilience (Bandura, 2008; Terrell & Strayhorn, 2010). Terrell and Strayhorn (2010) discussed that for racially minoritized college students, increases in self-efficacy can facilitate higher levels of resiliency and result in positive academic and career achievements. Wang et al. (2018) explored the relationships among resilience, social support, and self-efficacy in early career nurses and found that social support had a positive impact on nurses' resilience

and self-efficacy. Furthermore, Sidiropoulou-Dimakakou et al. (2015) found that among Greek college students, perceived career self-efficacy, resilience, and career adaptability are all interconnected. Further Sidiropoulou-Dimakakou et al. (2015) explained that college students who have a higher sense of control and exploration of their environment tend to exhibit more resilient career behaviors.

Although the relationship between resilience and career self-efficacy has been explored in the literature, no studies have examined the relationship between resilience, perceived stress, and networking efficacy in Black and Latinx college students. Career search efficacy is a person's belief in their ability to accomplish career-related tasks such as searching for a job, networking, exploring their personal interests, and interviewing (Solberg et al., 1994). The networking efficacy domain of career search efficacy is related to social capital. Networking efficacy refers to one's belief in their ability to build professional relationships with others (Solberg et al., 1994). In a previous study, Cabell and Gnilka (2021) explored the impact of perceived stress on the career search efficacy of undergraduate engineering students and found that increases in students' perceived stress were associated with decreases in their career search efficacy. However, this study did not include the role of resilience and analyzed data from a majority of White college students.

The Present Study

Because much of the literature on the role counselors play in fostering social capital is focused on the K-12 setting (Bryan et al., 2011; Edeburn & Knotts, 2019; Farmer-Hinton & Adams, 2006), the present study seeks to expand the literature on Black and Latinx college students by examining the relationships between perceived stress, resilience, and networking efficacy in these college students. Doing so, can inform interventions used by college career counselors when working with Black and Latinx students to reach their college and career goals. We hypothesized that perceived stress is a negative predictor of networking efficacy, and that this relationship is mediated by resilience. In this study, networking efficacy was used to measure social capital. Claridge (2017) explained that there is no universal way to

directly measure social capital. However, measures such as the career search efficacy scale, which aims to assess networking beliefs, can address social capital.

Methods and Materials

Procedures

The university's institutional review board approved this study as exempt because no identifying information was collected. Purposive sampling was used to recruit Black and Latinx undergraduate students. Black and Latinx undergraduate students were sent recruitment emails using the Black and Latinx undergraduate email listserv from the university's Office of Multicultural Student Affairs. In addition, Black and Latinx undergraduate students were sent recruitment emails from undergraduate email listservs of Black and Latinx student organizations. Three recruitment emails were sent to these listservs with information on the study and the online link for self-identified Black and Latinx undergraduate students to participate. Data were collected using Research Electronic Data Capture (REDCap), a secure web-based application designed to support data capture for research studies (Harris et al., 2009). Participants could voluntarily opt in to complete the survey by clicking on a link in the recruitment email. After clicking on the link, participants were shown the informed consent before answering any of the survey items. Participants were then directed to answer the survey questions which took approximately 15 minutes to complete. Only participants who were at least 18 years old could participate in the study.

Instruments

Career search efficacy scale (CSES; Solberg et al., 1994)

The CSES measures a person's belief in their ability to participate in career selection and search using four subscales: networking efficacy, job search efficacy, personal exploration efficacy, and interviewing efficacy. The CSES is a 35-item Likert-type scale instrument that asks participants to rate, on a scale of 0 ("*very little*") to 9 ("*very much*"), how confident they are in their ability to complete career-related

tasks. The Networking Efficacy subscale specifically asks questions related to an individual's networking beliefs (e.g., *"use social networks for job opportunities," "meet new people in careers of interests," "solicit help from an established person,"etc.*). Evidence for convergent validity was established the association of the CSES with the Career Decision Making Self-Efficacy scale (Solberg et al., 1994). In Solberg and colleagues' (1994) study with a college student sample, the Cronbach's coefficients alpha was .97 for the full scale. In the current sample, the Cronbach's coefficients alpha was .92 for the Networking Efficacy subscale.

Perceived Stress Scale (PSS-4; Cohen, et al., 1983). The PSS-4 measures one's perception of stress over the past month. The PSS-4 is a four-item Likert-type scale instrument that asks participants to rate on a scale from *("0-Never")* to *("4-Very Often"),* how frequently they experience stress-related symptoms (e.g., "*how often have you felt that you were unable to control the important things in your life?"*). The PSS is the most commonly used measurement of perceived stress. The concurrent validity of the PSS-4 scale was established by its correlation with life event scales. The PSS Cronbach's coefficients alpha typically ranges from .84-.86 in college student populations and the PSS-4 sometimes has a lower reliability when compared to the full scale. The Cronbach's coefficients alpha in this sample was .79.

Brief Resilience Scale (BRS; Smith et al., 2008). The BRS is a 6-item Likert-type scale instrument that allows participants to respond from 1 ("*strongly disagree")* to 5 ("*strongly agree*") on items that indicate resilience (e.g., *"I tend to bounce back quickly after hard times"*). The BRS measures a person's ability to bounce back after experiencing stress. The reported Cronbach's coefficients alpha of the BRS typically ranges from .68-.91 in undergraduate samples. Convergent validity was established because the BRS was positively correlated with other measures of resilience, optimism, and purpose in life (Smith et al., 2008). The Cronbach's coefficients alpha for the BRS in this study was .85.

Statistical Methods

Preliminary Analysis

First, an *a priori* power analysis with a .80 power level, three predictors, a medium effect size (.15), and a .05 *p*-value was conducted using G*Power 3 to determine the adequate sample size needed to detect a medium effect size (Faul, et al., 2007). The power analysis revealed that a sample size of 74 would be sufficient to detect a medium effect size. Subscale scores were examined for univariate and multivariate outliers as well as for the distribution of scores (Aiken & West, 1991). Next, to determine if various demographic variables had significant relationships with any of the study variables, analysis of variance (ANOVAs) and independent *t* tests were conducted for categorical demographic data, and bivariate correlations were conducted for continuous demographic data. Any demographic variables that were found to be significant predictors were added as covariates to the main analyses. In addition, bootstrapping was used to address any non-normality in the data. However, no significant outliers were found, and there was no evidence of multicollinearity in the data. Finally, bivariate correlations were calculated for all study variables. The bivariate correlations are detailed in Table 1.

Table 1. Correlations among Variables (N = 114)

	M	SD	α	1	2
1. Perceived Stress	2.01	0.68	.79	--	
2. Resiliency	3.18	0.72	.85	-.66*	--
3. Networking	5.35	1.65	.92	-.33*	.40*

Note. Perceived Stress = PSS, Resiliency = BRS, Networking = Networking Efficacy Subscale *$p < .05$

Tests of mediation

The effect of perceived stress on the networking efficacy through resilience was assessed using the SPSS macro PROCESS (Hayes, 2017) to calculate the indirect effect. Specifically, the indirect effect

of the independent variable (perceived stress) on the dependent variable (networking efficacy subscale) and was defined as the product of perceived stress to the resilience path (*a*) and the resilience to the networking efficacy path (*b*), or the indirect path *ab*.

The PROCESS macro allows for bootstrapping, which is a non-parametric approach that does not rely on the assumption that the variables are normally distributed. Bootstrapping has been found to have significantly higher power for studies with smaller sample sizes than other tests of mediation (e.g., Sobel Test; Baron & Kenny). The bootstrapping method creates multiple similarly sized samples from the original dataset, sampling with replacement and calculates an indirect effect for each sample. A total of 5,000 bootstrap samples were taken. When creating 95% bootstrapped confidence intervals (CIs), the indirect effect estimates are sorted from lowest to highest. The indirect effect is significant when zero is not located within the 95% CI.

Sampling

Participants were 114 undergraduate students at an urban Mid-Atlantic PWI. Some participants did not complete all the demographic questionnaire items; therefore, totals may not all equal 114. The sample included freshman (n = 6), sophomore (n = 22), junior (n = 28), and senior (n = 44) undergraduate students. The mean age of the participants in the sample was 21.34 years old, (SD = 3.43). Participants identified as Black (n = 86) and Latinx (n = 12). The sample included females (n = 84) and males (n = 14). Most of the participants were full-time students (n = 96). Some of the participants identified themselves as first-generation college students (n = 40).

Findings

First, preliminary data analyses were conducted for univariate and multivariate outliers. No cases were found to be univariate outliers (z ±3.0). Based on Mahalanobis and Cook's distances, no multivariate outliers were detected (Pallant, 2010). Bivariate correlations revealed that perceived stress was

significantly associated with resilience and networking efficacy, these relationships were negative in direction. Resilience and networking efficacy had a significant, positive relationship.

Next, several bootstrapping analyses were conducted in order to test if resilience mediated the relationship between the stress and networking efficacy variables. The results of the analysis are detailed in Table 2. The results of the bootstrapping analyses showed that resilience significantly mediated the relationship between perceived stress and the networking efficacy subscale ($p < .05$), as noted by zero not being in the 95% CI. The mediating relationship resilience had with perceived stress and networking efficacy was positive, indicating that higher levels of resilience mediated the negative relationship between perceived stress and networking efficacy. 17% of the variance in networking efficacy scores was explained by the mediating relationship between resilience and perceived stress, indicating a medium effect size.

Table 2. *Hierarchical Multiple Regression Results for Simple Mediation on the Networking Efficacy Subscale (N = 114)*

Overall Model	Path/effect	B	SE	95% CI
$R^2 = .171$*	C	3.563*	1.283	
F (2, 112) = 11.53*	a (PSS ⟶ RES)	-0.700*	0.747	
	b (RES ⟶ NET)	0.743*	0.262	
	c' (PSS ⟶ NET)	-0.286*	0.278	
	a X b	-0.520	0.242	-1.0423, -.0805

Note. PSS = perceived stress; RES = resilience; NET = networking efficacy; For paths, C = total effect of independent variable (IV) on dependent variable (DV); a = IV to mediators; b = direct effect of mediator on DV. c' = direct effect of IV on DV; a X b = indirect effect of IV on DV through mediator. CI = confidence interval. *$p < .05$

Discussion

Overall, resilience and perceived stress are interconnected, and shape Black and Latinx students' networking efficacy. In support of our hypotheses, the results of the study indicated that resilience mediated the relationship between perceived stress and networking efficacy. Specifically, resilience buffered students from the harmful effects of stress on networking efficacy. Networking efficacy is a domain of career search efficacy related to social capital.

These findings suggest that resilience is an important factor in Black and Latinx college students' networking beliefs. Networking efficacy is a crucial aspect of career exploration and the job search process (Solberg et al., 1994). In addition, networking efficacy addresses individuals 'ability to know themselves and interact with others on an exploratory basis.

Networking involves building personal and professional relationships with others to garner career information, contacts, and support (Batistic & Tymon, 2017). For the Black and Latinx students in this study, social capital helps to explain the relationship between stress, resilience, and networking self-efficacy. Building social capital can enhance one's resilience and career development (González-Romá et al., 2018; Sherrieb et al., 2010). Furthermore, a critical aspect of resilience is building networks, and the resilience developed from social capital can occur at the individual or community level (Holdsworth et al., 2018). Thus, the Black and Latinx students in this study may have developed resilience through (a) their individual experiences of navigating college, (b) the social support that they have in their local communities, and/or (c) the college community supports that were available to them.

Experiencing stress does not always have to be negative (Eustis, 2017); however, perceived stress is a type of stress that is overwhelming and inhibits a person's ability to use their resources to problem solve (Cohen, 1983). Therefore, in the present study, it is not surprising that perceived stress had a negative relationship with resilience and networking efficacy. The results of the present study suggest that once stress levels reach beyond Black and Latinx college students' ability to cope, their ability to bounce back from challenges or believe in their ability to build networks may be negatively affected.

Black and Latinx students who have access to networking opportunities with professionals in their career of interest may be in a better position to develop the resiliency that is helpful in combating stress and developing self-efficacious networking beliefs. This, in turn, may result in lower perceived stress and increased resilience and networking self-efficacy. Alternatively, Black and Latinx students who

have limited opportunities to develop professional networks may struggle to (a) navigate stress, (b) develop resilience, and (c) believe in their ability to network.

Implications for Practice

Students who are more resilient to stress may be more likely to approach networking with self-confidence and better tolerate unsuccessful attempts (e.g., rejection) to network during the career search process. Additionally, students who have more access to opportunities to build social capital may be in a better position to respond to stress and develop resiliency. However, Black and Latinx college students often have limited opportunities to build social capital (Ahnquist et al., 2012; Lindstrom et al., 2012). Bryan and et al. (2011) highlighted how instrumental counselors are to the development of students' social capital by (a) providing students with information regarding college and (b) helping students to develop social networks. Museus and Neville (2012) also explained that employees at universities can connect racially minoritized students with the information and support to broaden their social networks. Career counselors can help Black and Latinx students develop social capital during college. The Christensen Institute (2022) recommends five steps to help students build social capital. These steps include: learning who students have in their lives, helping students build a support system, using students' interests to expand their networks and opportunities, using educational technology that helps students connect with professionals; and helping students build lasting networks.

In practice, counselors in career services can implement these steps by helping Black and Latinx students develop a LinkedIn profile to build professional networks and conduct informational interviews with individuals in their potential career paths. Further, career counselors in college settings can help students to connect with Black and Latinx alumni to expand their social and professional network and develop resilience through connections with the larger college community. Career counselors can also help students prepare for opportunities that enhance their social capital. For instance, career counselors can utilize role plays to help prepare students for conversations at networking events or help students meet more students from similar racial backgrounds in professional

organizations that align with their career goals. Career counselors can normalize the challenges that Black and Latinx students face when navigating college and address the college-level and employment-level systemic barriers to building social capital. Specifically, career counselors can advocate for their university to have campus events aimed at increasing Black and Latinx students' social capital and facilitating their career development. For instance, career counselors on college campuses can invite employers to career fairs that are inclusive, value building relationships, and offer opportunities to Black and Latinx college students. In alignment with the findings from the Search Institute's (2022) SCALE project, career counselors can help Black and Latinx college students foster near peer relationships by establishing or promoting affinity groups that build their social capital and access to valuable career resources.

In relation to addressing the stress of Black and Latinx students, career counselors can teach students somatic healing practices to use during their career exploration (Caldwell, 2018). For example, counselors can teach Black and Latinx students progressive muscle relaxation techniques to utilize before entering spaces where networking opportunities exist. Learning somatic practices can help Black and Latinx students address the physical symptoms of stress such as sweating, increased heart rate, and trouble breathing (Torres-Harding, et al., 2020)

Black and Latinx students might also experience stress due to having to navigate racial microaggressions. Counselors in college career centers can teach students the importance of being aware of how their stress manifests in their body and using self-care strategies when negative racial experiences occur. In addition, career counselors can broach the topic of race with students and explore the impact of race on students' stress. Understanding the interconnectedness of resilience, stress, and networking efficacy can help counselors take a more holistic view of students and their career needs-attending to both their professional and mental health needs.

Limitations and recommendation

Although this study contributes to the literature on the social capital (e.g., networking beliefs) of Black and Latinx students, it has several limitations to this study. First, data were collected from one university in an urban setting, which limits the generalizability of the study. Future studies can explore the study's constructs at multiple universities in both urban and rural settings. Doing so, would also increase the sample size of the study. Additionally, most of the participants in the study were juniors and seniors in college and likely had experience related to networking. Exploring the relationships among this study's variables with students who are further along in their college experience might not accurately capture the experiences of first- or second-year students regarding stress, resilience, and networking efficacy. Future studies can specifically explore the relationships between the study's variables with Black and Latinx student populations who are beginning their college journey (i.e., first- or second-year students) to better understand how stress, resilience, and networking efficacy impact retention outcomes. In addition, although there were no outliers or statistically significant differences based on race, the sample consisted of mainly of Black college students; therefore, future studies can further explore the study's variables in Latinx students. From the study's measures, it is unclear how participants gained their resiliency. Future studies can explore the genetic and environment influences that build Black and Latinx college students' resilience. Finally, this study was correlational in nature; therefore, causal relationships cannot be determined, and generalizability is limited.

Conclusion

Career counselors can play an integral role in (a) building Black and Latinx students' social capital, (b) helping students develop resilience, and (c) assisting students in combating stress. By addressing these areas with students, career counselors can help reduce inequities in Black and Latinx students' career self-efficacy beliefs and attainments.

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Teaching is (not) a career priority for student teachers: Empirical evidence from Indonesia.

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Teaching is (not) a career priority for student teachers: Empirical evidence from Indonesia

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ABSTRACT

ITE plays a crucial role in preparing future teachers for the teaching profession. Indonesia has over 420 ITEs with various qualities. Despite a significant number of teacher graduates from ITE, previous studies have found that student teachers joining ITE do not necessarily mean they want to become teachers. However, the number of student teachers who prioritize teaching as their career intention remains unknown. This mixed-methods explanatory sequential design study seeks to determine the proportion of student teachers (N=409) of private and state universities in Indonesia who view teaching as a career priority and explore in-depth the rationale of students who intend or do not intend to become teachers (N=14). The study found that student teachers who choose to become teachers as their career priority are low (25.4% in the private university and 37% in the state university). Even though the findings indicate that the low interest in the teaching profession is not static and likely to change, a small percentage of student teachers interested in becoming teachers might impact the teacher competencies and retention rate. The findings indicate that teacher working conditions in Indonesia is one possible reason for the small proportion of student teachers prioritizing teaching as a career. Further discussion of the findings and context analysis will be included.

Keywords: career intention, student teacher, initial teacher education, Indonesia, mixed methods

Introduction

Initial Teacher Education (ITE) is an important institution aimed at preparing future teachers with the necessary knowledge and skills to educate the younger generation. Given the dynamic nature of the teaching profession, its role also encompasses preparing student teachers to confront unforeseen adversities. A compelling illustration of these challenges emerged with the recent pandemic, forcing teachers worldwide to swiftly adapt to crisis-induced changes. Throughout the COVID-19 pandemic, teachers encountered a mix of new and familiar hurdles. The existing literature highlights these universal challenges, which can be categorized into distinct areas. These include constraints stemming from limited online resources, inadequate facilities for connectivity and accessibility, challenges in effective teaching and learning, parental cooperation, and concerns regarding well-being issues (Castroverde & Acala, 2021; Hamsan, 2021; Lukas & Yunus, 2021; Mandapat & Farin, 2021; Ocampo & Solina, 2021; Rosalina et al., 2020; Shaheen & Hoque, 2021). Compounding these challenges, socio-economic issues have worsened the situation, leaving many parents struggling with financial constraints that prevent them from affording the necessary internet data to support online learning (Dewi et al., 2021; Lestiyanawati & Widyantoro, 2020). During these challenges, teachers have learned valuable lessons. It has become evident that keeping up with fundamental technological pedagogical content knowledge and ICT skills is crucial (König et al., 2020). Moreover, the pandemic challenged the conventional assumptions underlying education, redefining what constitutes an effective teacher during such crises. Rather than being solely focused on student achievements, the notion of effective teaching during pandemics became associated with caring for students' well-being and adeptly managing uncertainty (Kim et al., 2021). This transformative shift not only redefines the role of teachers but also significantly reshapes perceptions about teacher education and the teaching profession as a whole. Thus, teacher education programs must possess adaptability and an explorative nature to effectively prepare teachers for the ever-changing and unforeseen challenges that emerge in the field of education. Considering the COVID-19 pandemic, a range of studies have researched its impact on teacher education, triggering a compelling demand for enhancements in response to the complexities it introduced (Assunção Flores & Gago, 2020; Kidd & Murray, 2020; Mohamad Nasri et al., 2020; Panther et al., 2021; Quezada et al., 2020; Vancell, 2020). Moreover, the closure and downsizing of businesses resulting from the pandemic might have seemingly presented a sense of greater stability in the teaching profession. However, it is crucial to note that the attraction of the teaching profession is still shaped by diverse factors, including working conditions, socioeconomic backgrounds, and the structure of the educational system.

In Indonesia, perceptions of the teaching profession differ between societal and economic viewpoints. Socially, Indonesian teachers hold high status and receive considerable respect. They are esteemed in society and often considered role models, as exemplified by the saying "Guru, di gugu dan di tiru" (Teachers are listened to and followed). Additionally, from a religious perspective, teaching is associated with virtuous values. This societal recognition aligns with Indonesia 's fifth-place ranking in the 2018 Global Status Index (Varkey Foundation, 2018). However, this esteemed societal position does not necessarily mean that it is a profession that parents encourage their children to enter, as only 32 % express definite or probable support, according to the report. Despite this noble recognition, from an economic perspective, the status of teachers remains low compared to other professions and their counterparts in different countries. Teaching is viewed as a demanding occupation with limited financial rewards. Chang et al. (2014) explained that this lower status is rooted in various factors, including educational qualifications, income levels, teacher competencies, motivation to become a teacher, and certification. Without addressing these concerns and elevating the status of teachers, aspiring teachers might not prioritize teaching as a career due to a perceived lack of prospects. The oversupply of teacher graduates from over 420 teacher education institutions with discrepancies in quality further exacerbates concerns about graduate competence. The perception of inadequacy among teacher education graduates and the scarcity of permanent teaching positions contribute to relatively lower teacher salaries, predominantly for non-civil servants and part-time teachers (World Bank, 2020). Consequently, many teachers seek secondary employment, often in occupations with lower status, such as tricycle or

motorcycle taxi drivers and street vendors (Jalal et al., 2009). This lack of perceived prospects has hindered community, teacher, and school leader support for the teaching profession (The Head Foundation, 2018). The phenomenon of teachers maintaining side jobs raises concerns about teacher quality, ineffective teaching, insufficient professional development, and low student achievement. These interconnected issues highlight the intricate challenges surrounding the teaching profession in Indonesia and emphasize the need for comprehensive reform to enhance its status and efficacy.

In various global educational contexts, the perception and status of the teaching profession vary significantly, influencing both teacher availability and the quality of education they provide. Across the Middle East and North Africa (MENA) region, socio-cultural and religious norms tend to favor female teachers; however, concerns persist due to the shortage of female educators and their compromised status attributed to insufficient financial and non-monetary incentives (Ayyash-Abdo, 2000). In contrast, the teaching profession is considered rewarding in high-performing countries. For instance, in Finland, teaching ranks as a prestigious occupation, with teachers often enjoying lifelong careers within schools (Sahlberg, 2011). Similarly, Singapore positions teaching as an attractive, well-compensated profession, with most student teachers choosing to pursue it upon graduation (World Bank, 2010). Darling-Hammond (2017) affirms that teaching ranks as the most sought-after career among young people in Finland and Singapore. In the UK, policy efforts to attract and retain teachers have focused on sustainability rather than recruitment, emphasizing the need to cultivate high-quality ITE programs to support new teachers in navigating challenges and remaining dedicated to their profession (Hulme & Wood, 2022). In these high-performing countries, teacher preparation is conceptualized as an ongoing continuum, with the admission process to ITE acting as the foundation for sustained commitment and ongoing endeavors to enhance the teaching workforce and professional standards.

Students enrolled in ITE programs are typically expected to enter the teaching profession. Nevertheless, researchers have identified numerous factors that influence these student teachers' career intentions, encompassing aspects such as job satisfaction, school policies, workload, prospects, interactions with parents, practicum experiences, and the learning environment within teacher education (Rots et al., 2014; Sinclair, 2008; Struyven & Vanthournout, 2014). Some student teachers who initially pursued ITE without the intention of becoming teachers might not choose teaching as their career path after graduating (Roberts et al., 2009). In addition, student teachers might choose teaching as their career intention but not as a priority but viewing it as a side job and a stepping stone to better opportunities or as a last resort (Suryani & George, 2021). The emphasis on teaching as a priority is significant due to its potential consequences; teachers balancing multiple jobs could inadvertently compromise teaching effectiveness and hinder students' learning processes (Muijs et al., 2014; OECD, 2005). Darling-Hammond (2000) highlights a positive correlation between teaching experience and teaching quality. This means that teachers who perceive teaching as a mere stepping stone to alternative careers might influence their teaching performance and contribute to higher turnover rates. However, it remains unclear whether those who consider teaching a backup option will eventually prioritize it as their chosen career path, especially when faced with the decision between teaching and other career avenues.

To address this gap in understanding, this study seeks to offer deeper insights into the career priorities of student teachers. This involves examining the reasoning behind their career intentions and considering the contextual factors that shape their decisions. In this regard, this study aims to specifically investigate student teachers in Indonesia, with a focus on identifying the proportion of individuals who exhibit strong motivation to commit to teaching as their primary career choice. Therefore, this research provides a clearer understanding of the extent to which teaching is prioritized among aspiring teachers in the Indonesian educational landscape. This purpose is translated into the following research inquiries:

1) What is student teachers' career intentions and the percentage of student teachers prioritizing teaching as a career priority?

2) What is student teachers' reasons for choosing or not choosing to be a teacher as their career intention?
3) Are there any differences in participants' views between private and state universities?

This paper is structured into several sections. This section begins by presenting the methodology and materials used, followed by an explanation of the sampling process. The subsequent section outlines the results obtained for each research question. In the Discussion section, the findings are analyzed in context, providing a comprehensive overview of the issue. Subsequently, this paper addresses the study's limitations and discusses its implications. Finally, the article concludes by summarizing key points and providing recommendations for future research.

Methods and Materials

A mixed methods explanatory sequential design was conducted to investigate student teachers' career intentions (Teddlie & Tashakkori, 2009). Initially, a descriptive survey was conducted to quantify the proportion of students interested in specific career intentions. Then, selected student representatives were interviewed. These interviews aimed to uncover the underlying reasons for students choosing to pursue teaching or opting for other paths. Through qualitative analysis, these interview findings provided explanations and deeper insights into the quantitative results. After the survey and interview findings are presented, a joint display will illustrate the integration of quantitative and qualitative findings, followed by meta-inferences. This technique, as described by Younas et al., (2021), offers a rigorous and transparent synthesis of both quantitative and qualitative findings, facilitating the generation of relevant insights. Mixed-method studies often featured joint displays and the US Federal Government recommended them as best practices for mixed-methods design (Creswell et al., 2011).

The questionnaire aimed to measure student teachers' career intentions, including options for roles such as teacher, entrepreneur, practitioner (e.g., tour guide or translator), researcher, and 'others' for unlisted career aspirations. Survey career choices were based on graduates' profiles in teacher education. It is important to note that in the questionnaire, roles such as lecturers are categorized as 'others' due to differences in job nature and workplace settings. In addition, participants selecting 'others' had the opportunity to specify their career intention if their choice was not in the provided options. For the qualitative strand, interviewees were asked about their career intentions and elaborated on their motivations (refer to Appendix A for survey and interview guidelines). After the quantitative data were gathered, the third- and fourth-year students who represented each class were interviewed to obtain the qualitative data. The survey data were analyzed using descriptive statistics to calculate the proportion of student teachers choosing a particular career. The interview data were analyzed using reflexive thematical data analysis (Braun & Clarke, 2006, 2019, 2020)

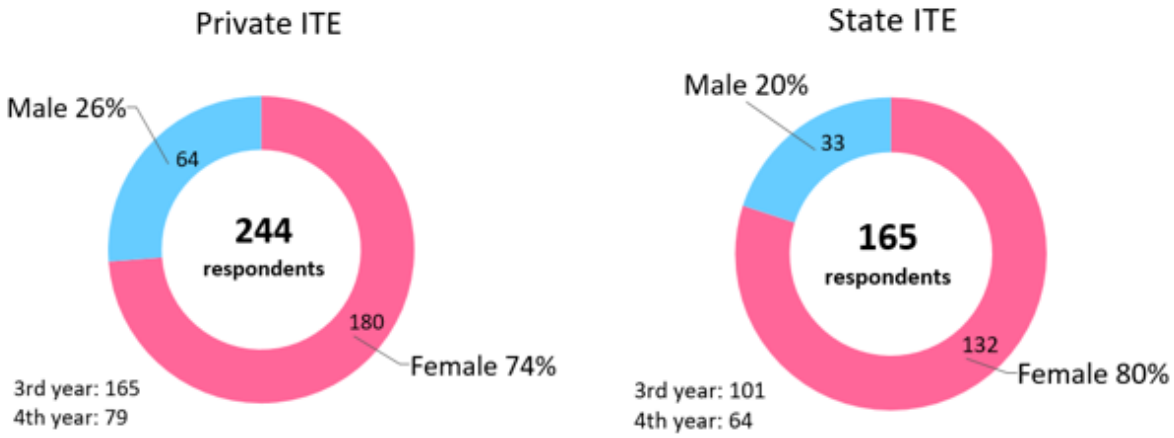
During the data collection phase, student teachers were provided with research information and consent forms as part of the survey. Participants were guaranteed the voluntary nature of their involvement, with the freedom to withdraw at any time. They were also assured that their data would be exclusively used for research purposes and their identities would remain anonymous. Ethical approval for the study was obtained from the university ethics board. To maintain objectivity and prevent potential researcher bias, the researcher employed triangulation and had participants review the results. Throughout the study, the researcher maintained a reflexive approach to data analysis, keeping in line with the guidelines outlined by the British Educational Research Association (British Educational Research Association (BERA), 2018). Throughout the entire research process, the researcher prioritized the safety and well-being of the participants and emphasized the importance of data protection.

Sampling

The study was conducted in two undergraduate-level English teacher education programs located in urban areas, each affiliated with well-accredited universities. These universities, one private and one state institution, were intentionally chosen to represent different landscapes of higher education in Indonesia. This distinction is crucial because each type embodies specific characteristics. Specifically, state universities have a more competitive admission process, requiring candidates to excel in national entrance exams to secure a spot in these government-funded institutions. As a result, state universities are regarded with a higher level of prestige. Furthermore, the relatively modest tuition fees subsidized by the government, lead to a diverse student body from various parts of Indonesia. Conversely, private universities have greater autonomy in their admission procedures, including testing and selection protocols. However, these institutions typically have higher tuition fees than state universities. It is important to note that teacher education in both private and state universities generally falls under the Faculty of Education. At the program level, private and state teacher education programs have similarities in terms of educational qualifications (bachelor's degree), program duration (four years), and structural framework (including coursework, practical fieldwork, and the composition of a mini thesis). Participants were chosen using purposive sampling. All third- and fourth-year students in private and state teacher education programs were invited to participate in the survey, resulting in a total of 409 respondents from both types of universities. In private ITE, the response rate was 94.9% (244 out of 257), while in state ITE, the response rate stood at 77.8% (165 out of 212). The overview of the survey respondents' demographics illustrated in Figure 1.

Figure 1

Demographics of Survey Respondents



The interview participants were selected to represent different classes within the university, and those who volunteered were then invited to participate in the interviews. These interviews uncovered the rationale behind the career intentions of 14 student teachers. It is important to highlight that this study primarily explored general career intentions and did not specifically investigate any differences in career intentions between male and female participants. The demographic details of the interviewees are presented in Table 1.

Table 1

Demographics of Interview Participants

Interview (N=14)	Number of participants
Gender	
Male	2
Female	12
Year of study	
Year 3	8
Year 4	6
Teacher education program	
Private	8
State	6
Age	
20-21	8
22-23	6

Findings

Qualitative and qualitative data were collected to explore the students' career intentions. In this section, the survey findings illustrate the proportion of student teachers' interest in a particular career intention to answer research question one. After that, the survey findings will be grouped based on the category of teacher and non-teacher career intention to focus on the number of students who intend to become teachers. The interview findings will then explain student teachers' reasons for becoming teachers or other career intentions to answer research question two. The differences between private and state teacher education to answer research question three will be discussed in every part of the result presentation and summarized in the integration of the findings.

Student Teachers' Career Intentions

The survey results indicated that a relatively small proportion of student teachers, 25.4% for private and 37% for state teacher education, intended to pursue teaching as a career, implying that teaching was not the primary career choice for most student teachers. (see Table 2)

Table 2

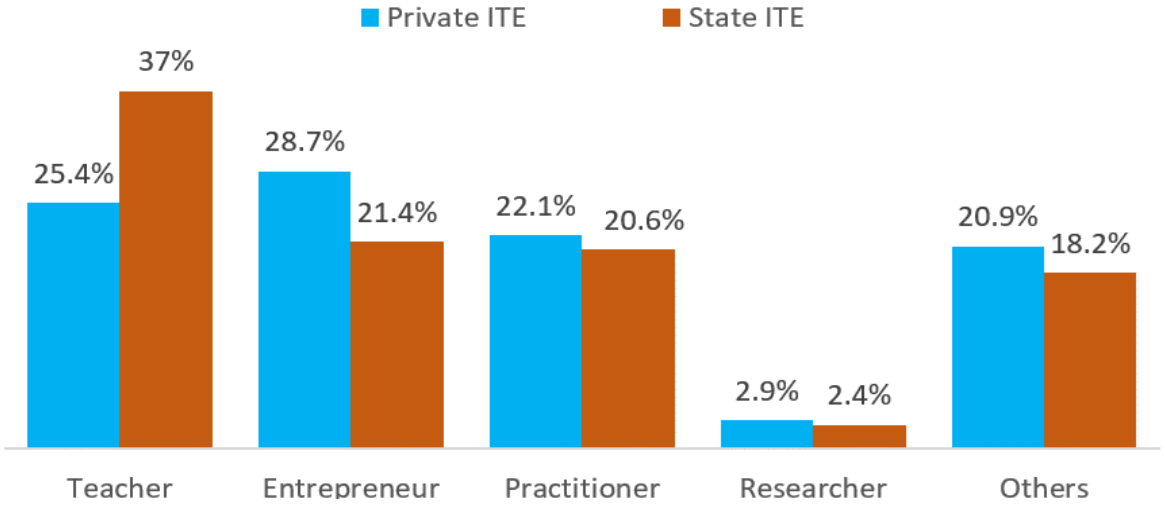
Questionnaire Results of Career Intention

Institution	Teacher	Entrepreneur	Practitioner	Researcher	Others
Private: 244	62	70	54	7	51
	25.4 %	28.7%	22.1%	2.9%	20.9%
State: 165	61	36	34	4	30
	37%	21.4%	20.6%	2.4%	18.2%

A comparison of all types of career intention results between private and state ITE is illustrated in Figure 2. The graph shows that while the teacher career intention in state ITE has a higher percentage than in private ITE, the portion of other career intentions in state ITE is lower than that in private ITE. In addition, even though teacher graduate profiles include researchers in the option, this is the least favorable career choice for ITE in both programs. Perhaps because being a researcher requires a postgraduate qualification and is not an immediate career option for a graduate from a bachelor's degree program.

Figure 2

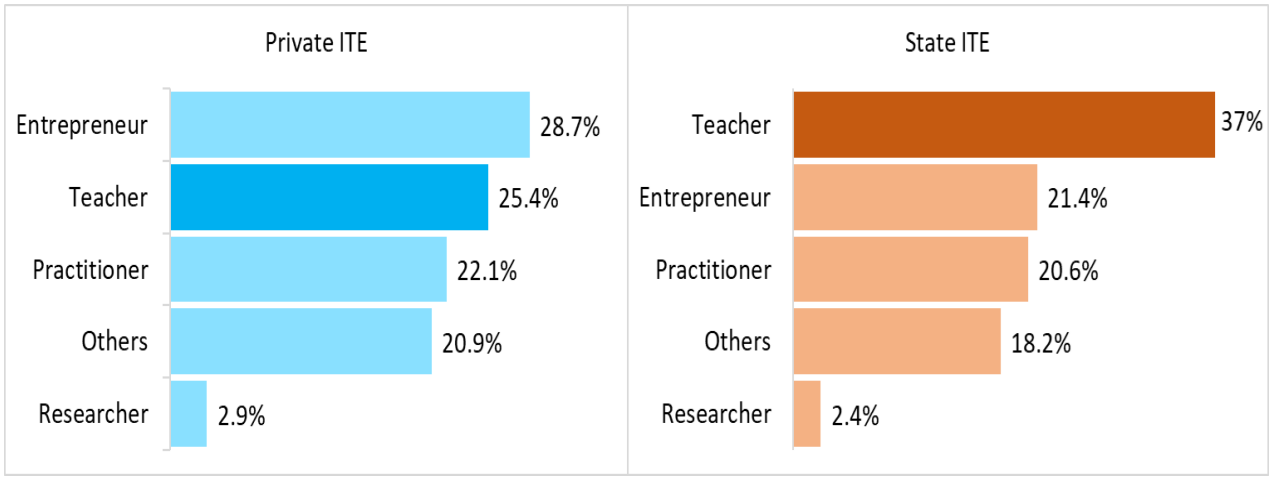
Findings of Career Intention at Private and State ITEs



The small number of student teachers prioritizing becoming a teacher is surprising, given that ITE was previously dedicated to preparing schoolteachers. This finding implies a shifting view on the role of ITE that is viewed not just as training for the job of being an English teacher. ITE is widely perceived as valuable, similar to a general higher education degree that provides a first-degree pathway that leads to various employment and self-employment options. However, when priorities are sorted from the

Figure 3

Career Priorities at Private and State ITEs



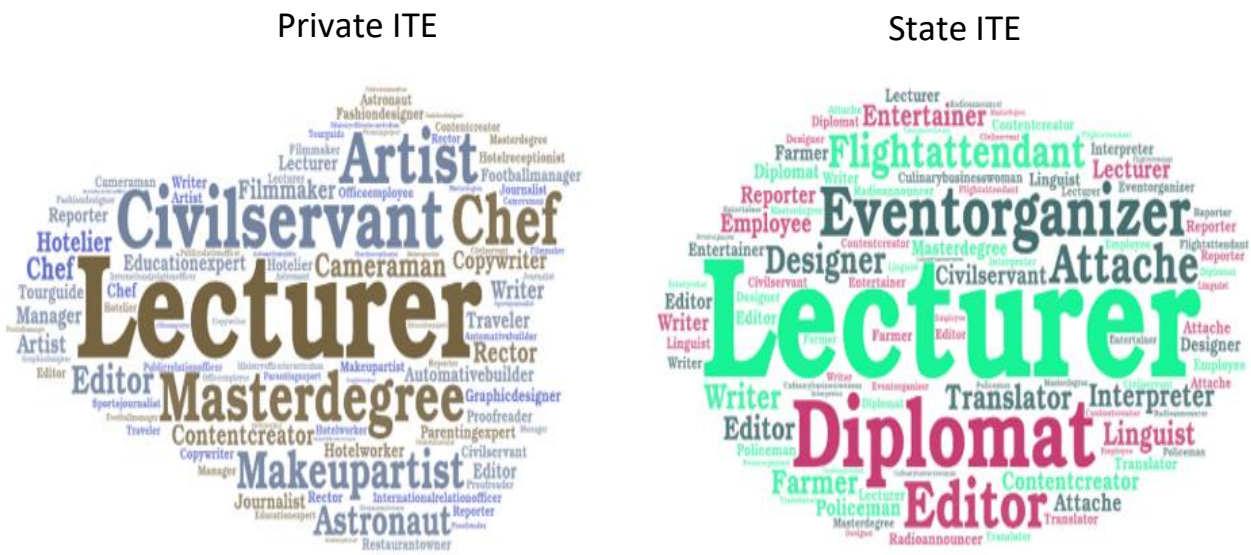
lowest to the highest score, a distinction in career intention priority emerges between private and state ITE programs, as shown in Figure 3

Student teachers in state ITEs prioritize teaching careers more than student teachers in private ITEs in which entrepreneurship is chosen as the primary career intention. Probably because entrepreneurship is one of the favorite subjects in private ITE, as told by an educator to the researcher. The educator mentioned that students were excited about the entrepreneurship project in private ITE, for example, when student teachers were assigned to design a product from a batik pattern and sell it.

Student teachers specified a wide variety of jobs in their responses when they chose careers other than those provided in the survey. The results for other career intention types specified by student teachers are visualized in the word cloud in Figure 4 (see the complete list in Appendix B).

Figure 4

Findings of Other Types of Career Intention

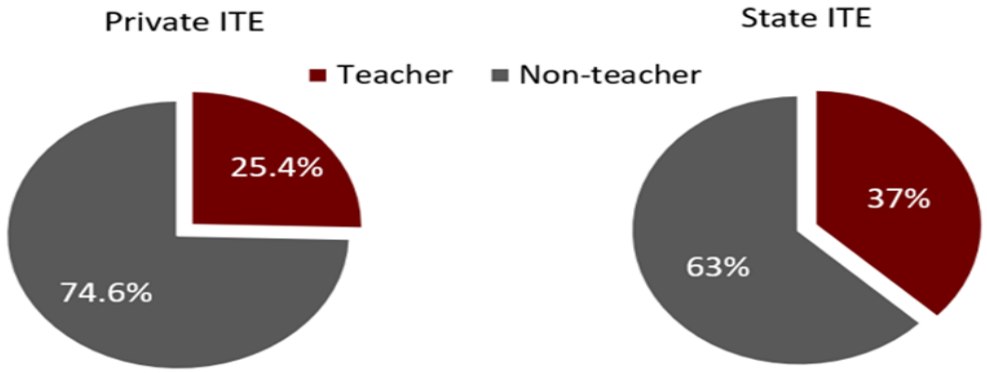


The graph shows the variety of kinds of jobs for student teachers. Notably, many student teachers expressed a preference for the career of ‘lecturer’ as an alternative, driven by the perceived prestige and differing job characteristics often associated with this role compared to that of a teacher.

To summarize the survey results, student teachers’ career intentions can be categorized into two groups. The proportion of student teachers who chose a career as a teacher is categorized as ‘teacher’. Meanwhile, the proportion of student teachers who intend to become entrepreneurs, practitioners, researchers, and others are grouped and combined into ‘non-teacher’. The words teaching and non-teaching job are not used in this context because they are ambiguous. Even though a lecturer in nature is a teaching job, student teachers chose lecturers in the option of ‘others’ due to the significant differences in the job description and work setting between teacher and lecturer. Figure 5 presents the percentage from each category.

Figure 5

Findings of Teacher and Non-Teacher Career Intentions at Private and State ITEs



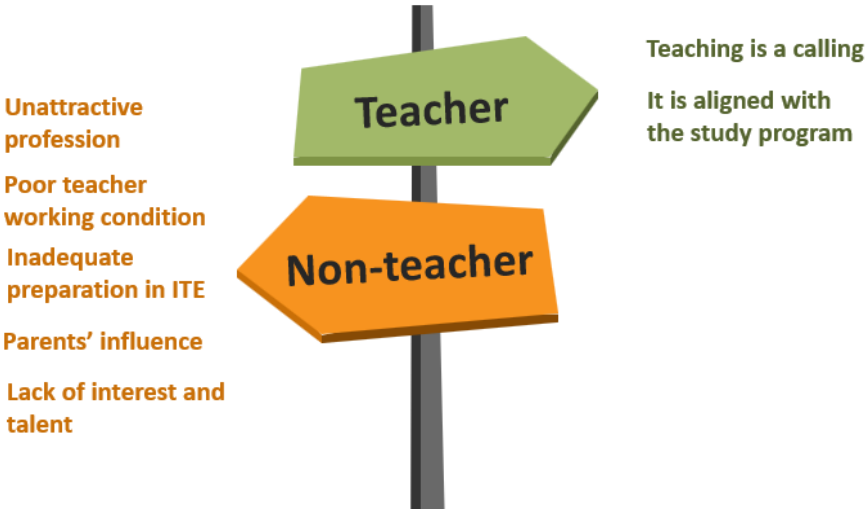
The results show that a small number of student teachers are interested in becoming teachers (25.4% in the private and 37% in the state ITE). Meanwhile, many student teachers were interested in non-teacher careers (74.6 % in the private and 63% in the state ITE). Following the survey, some participants volunteered for interviews to provide insights into their career intentions (N=14). These interviews complemented the survey data, offering a deeper understanding of their career motivations.

Justification of Student Teachers Regarding Their Career Intention

Most students did not consider being a schoolteacher a career priority. Seven of them were interested in the teaching profession as lecturers. The other five students planned to become researchers, employees. ministry staff, journalists, and curriculum developers. Only two of them wanted to become teachers. Similar to the survey results, the number of students who wanted to become teachers were also low in the interviews. The study did not find a particular pattern in the theme for student teachers' career intentions. Students had various reasons why they did not want to become teachers. The findings regarding the justification of student teachers' career intentions are presented and discussed under two sub-categories. First, students who want to become teachers consider that teaching is a calling and that the career chosen as a teacher is aligned with the study program. Second, student teachers who did not want to become teachers mentioned the reasons not to become a teacher, including being perceived as an unattractive profession, poor teacher working conditions, inadequate preparation in ITE, parents' influence, and lack of interest and talent. Figure 6 illustrates the main theme of the qualitative findings on why student teachers chose their career intention.

Figure 6

Justifications for Student Teachers' Career Intentions



Reasons for choosing to become a teacher. Students' voice in becoming a teacher is underrepresented in this study as they were only represented by two students. These students explained why they wanted to become teachers.

One student said that teaching was her calling, and she was destined to become a teacher. She added that fieldwork was the turning point in her passion for becoming a teacher.

> "Since I had a teaching practicum, it's like…, it appeared to me, maybe this is my destiny and my soul to become a teacher, and I feel more like devotion and responsibility for teaching…, educating students to be better. I had a calling since the fieldwork because I had never taught before, so I am excited about how to teach and handle students. In microteaching, our friends play the role of our students, and we are the teachers. It is less interesting for me because it is like a drama, pretending. In the fieldwork, we are really challenged on how to deal with students in the real world, not in a setup. I feel challenged…." (Student 5, State ITE).

For some students, practicum experience could discourage them from becoming teachers. The opposite effect could also occur, as shown in the quote above. The student teacher felt inspired to become a teacher after completing a teaching practicum.

Another student commented on the importance of focus and commitment to teaching as a career choice as the logical consequence of joining the teacher education program because it is aligned with the study program.

> "Initially, it was a bit of shock anyway. It seems hard to teach so many students in a class. However, if we do not focus on our choice, what path do we want to take? So, if we have decided to join teacher education and then focus on being a teacher, we should look for ideas to make a change. In this sense, teaching has many techniques, so much more to explore, explore yourself, learn techniques and approaches that can be actualized in learning in the class, I just want to focus on that" (Student 6, State ITE)

Reasons for not choosing to become a teacher. Schoolteacher is considered as an unattractive profession for several reasons. The first reason is the perception of the nature of the school setting and

teaching, such as the fixed schedule. Student 1 is more interested in being a lecturer because of more flexibility in the teaching schedule.

> "By being a teacher, you have to attend classes from Monday to Friday and be stuck in the routine and forget to improve yourself. I am just interested in being a lecturer. I think it is more flexible than the teacher. In my opinion, it is more fun to be a lecturer." (Student 1, State ITE)

One student also highlighted the limited opportunities for improvement and professional development. She noticed that many senior teachers did not improve themselves as they felt secure in their positions as civil servants.

> "I am an idealistic person, such as the lesson plan and things I want to do in the class, but if my senior colleagues are old and lazy to improve themselves, I tend to be influenced. I don't want to be like that" (Student 4, State ITE)

One student added that a lack of professional development might cause the teaching practices to be dull and uninteresting.

> "I saw how my friends taught in elementary school until senior high school, and it was not interesting. I think it is more interesting to be a lecturer" (Student 10, Private ITE).

In addition, being a teacher is considered 'not challenging' due to limited opportunities to explore new research activities.

> "Being a teacher doesn't have many research activities, and it's not mandatory or not much. I like being a lecturer because of many aspects, starting from researching to improve our knowledge as someone in the realm of education to our opportunity to dig again into learning or knowledge about education itself. It is broader than the teacher." (Student 7, Private ITE)

The second reason is teacher working conditions. One student mentioned that she lacked interest in becoming a teacher because of the complicated tasks and the administrative stuff a teacher had to do and the low income for non-civil servants.

> "Being a schoolteacher is complicated because of teaching and administrative duties as making an assessment, input scores, and fulfilling the school vision and mission. All must be burdened on the teachers. You feel more secure if you are a civil servant. Otherwise, the salary is just below standard" (Student 13, Private ITE)

Inadequate preparation from teacher education was mentioned as another reason. One student mentioned that she felt unprepared because the program practices lacked the classroom context.

> "Teaching demos in the program are expected to train us to be ready to teach, but during teaching demos from the beginning until the end of the semester, they were more like a presentation rather than teaching. So, I don't feel ready if I have to teach in front of many students in the class" (Student 11, Private ITE)

Parents' preferences were also a reason why student teachers chose a particular profession, as illustrated by this quote. Interestingly, this quote also represents a contrasting view of having a figure teacher in the family. A student feels inspired by her mother's role as a teacher, and even her mother prefers her to other kinds of jobs.

> "My mom wanted me to be a lecturer. Because I've seen the figure of a teacher from my mother, everything. So, I already have an idea of how I will proceed if I become a teacher or lecturer later. I can understand, and I have a picture of the job" (Student 3, State ITE).

On the contrary, having parents as teachers could also be a turnoff point for another student to join the teaching profession, as stated in this quote.

> "This is actually the effect of my parents. I saw them both as teachers, I am the only child, and I think that being a teacher is complicated. Since I was in Junior High School, I have helped them. Sometimes they said, 'Son, please help with this lesson plan, help this, help that….' I even helped my mother with the correction; I also helped my father. Sometimes, when I am at home, I cannot do anything other than help them out. So, being a teacher is really complicated" (Student 9, Private ITE)

In addition to reasoning from the nature of the job, personal preferences such as interest and talent were also mentioned as the reason, as shown in this quote.

> "I think I don't have the talents to be a teacher, maybe I am just not interested, or maybe both!" (Student 8, Private ITE)

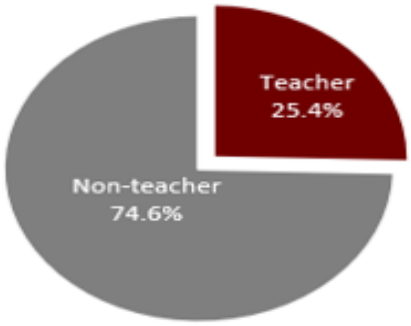
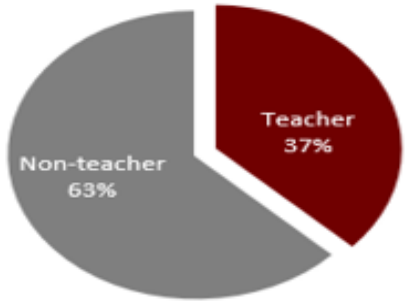
Apart from various reasons for not choosing a career as a teacher, most students were interested in becoming lecturers, as illustrated in the following quotes. Student teachers did not want to become teachers because of the difference in the nature of the job. Some students who wanted to become lecturers mentioned that being a university lecturer was perceived as a more attractive profession because it was more prestigious, had better pay, and had more possibilities to expand knowledge and career development. The findings indicated the possibility that student teachers had an interest in teaching. However, because of the perceived nature of the job, career opportunities, and teacher working conditions, they did not place teachers as a career priority. In the next section, a joint display will illustrate the integration findings of student teachers' career intention from the survey and interviews and the differences between private and state teacher education.

Similarities and Differences in Student Teachers' Career Intentions across Programs

The integration of the career intention findings is presented as a joint display in Figure 7. The survey results highlighted the division of the percentage of student teachers in which one part represents those interested in becoming a teacher and the other encompasses those inclined toward non-teacher roles. Interview excerpts provide the rationale for these choices. Meta-inferences further elaborate on and conclude the mixed-methods findings, addressing student teachers' career intentions. Additionally, the findings illuminate both the commonalities and disparities in participants' views on private and state teacher education.

Figure 7

Joint Display of Career Intention across the Program

Quantitative results showing the portion of student teacher's career intention	Qualitative interview excerpts explaining the rationale of the career intention choice	Meta inferences
Private University 	Being a school teacher is complicated because of teaching and administrative duties. I think I don't have talents to be a teacher, maybe I am just not interested, or maybe both. I saw the way my friends teaching in the elementary till senior high school, it is not interesting, I think it is more interesting to be a lecturer. I don't feel ready if I have to teach in front of many students in the class.	The career intention of students to become a teacher in private teacher education is lower than state teacher education proven with the survey results which showing lower percentage. None of private students who were interviewed showed interest to have teacher as career intention. Private students perceived school teacher as complicated, uninteresting and lowly paid kind of job. Students also claimed personal reasons such as having no talents, no interest, or not ready.
State University 	Maybe this is my destiny and my soul wants to become a teacher and I feel it is more like a devotion and responsibility for teaching. If we do not focus on our choice, what path do we want to take? so, if we have decided joining teacher education, then focus on being a teacher, we should look for ideas how to make a change. It is not flexible, by being a teacher, you have to attend the class from Monday to Friday and being stuck in the routine and forget to improve yourselves. My mom wanted me to be a lecturer.	The career intention of state students to become teachers is higher than private students as shown on the higher percentage in survey results. Two out of six students in the interview had high enthusiasm of being a teacher. They think it as a calling and consequence of joining teacher education. State students who did not want to become teachers perceived school teacher as boring and inflexible job. Personal reason such as parents' preference and personal style also became the reasons why they chose other kinds jobs as future career.

Discussion

This study explored student teachers' career intentions to understand the extent to which they prioritize teaching as their career choice. The survey findings show a low proportion of student teachers who want to become teachers, and the proportion is lower in private than in state teacher education. One plausible explanation is that the private teacher education program examined in this study emphasizes a broader range of career opportunities for its graduates than solely teaching. This implies that students enrolled in English language education programs at private institutions of teacher education are not strictly limited to pursuing careers as teachers. Student teachers could also become entrepreneurs or practitioners in English education, such as tour guides or translators. The program's curriculum in private ITE also accommodates student teachers' other interests by providing subjects such as entrepreneurship, tourism, and translation studies. This finding confirms a previous study, which indicated that universities often advertise the possibility of working in non-teaching occupations to attract student teachers to join ITE (Suryani & George, 2021). The value of being a teacher might not be strongly promoted because ITE could not guarantee a teaching job for their graduates as any study program graduate can also fill in a teaching position and become certified as a teacher. Therefore, teacher education in Indonesia is perceived more as a standard higher education institution, allowing students to choose any job rather than specializing in one profession. The high number of student teachers who chose careers other than teaching indicates a phenomenon of low motivation to join the teaching profession. This phenomenon is also related to the admission process, which is relatively easy and does not filter out candidates who have no interest in teaching. Masbirorotni et al. (2020) found that the most common reason why student teachers join ITE is that they have no other choice. Some of them may see teaching as a side job with flexible hours or as a last resort when they fail to find other opportunities. Another study by Suryani (2017, 2020) revealed that out of 657 student teachers who planned to become teachers, 636 of them (79.30%) also planned to have a second job, with 530 students (66.08%) intending to work simultaneously. This phenomenon of viewing teaching as an option rather than a priority might have serious implications for the retention rate and effectiveness of teaching and learning in the classroom.

The interview findings reveal various factors that influence students' career intentions. Some of the factors that discourage them from choosing teaching are negative perceptions of the profession, poor working conditions, parental influence, unsatisfactory learning experiences in ITE, and lack of talent or interest in teaching. On the other hand, a student teacher who chose teaching as her career cited her sense of calling and the alignment between her education and her job as her motivations. The interview results also reveal that specific factors can produce opposite outcomes for different student teachers. For instance, parental influence can inspire some student teachers to follow their parents' footsteps as teachers, while it can discourage others who have witnessed the challenges and difficulties their parents faced as teachers. One aspect that has shown inconsistent results with previous studies is the effect of the teaching practicum on student teachers' career intentions. Sinclair (2008) reported a negative influence, while a student teacher in this study felt positive and discovered a passion for teaching during the practicum. Teaching practicums can influence the career intentions of student teachers, as demonstrated in the studies conducted by Azkiyah & Mukminin (2017), and Kuswandono (2014). It can also foster the development of teacher identity after the practicum (Anspal et al., 2019; Flores, 2020; Lutovac & Flores, 2021) and reveal the gap between student teachers ' expectations and reality (Trent, 2019). This study also found that the learning experiences in ITE made some student teachers feel inadequate and unprepared for teaching. As a result, they lost confidence and doubted their self-efficacy and competency.

Student teachers' attitudes toward the teaching profession are influenced by their learning experiences in ITE, as previous studies have shown (Darling-Hammond et al., 2002; DeAngelis et al., 2013; Rots et al., 2014). However, these attitudes are not fixed and may change during their ITE studies (Rots et al., 2012). Nevertheless, this study 's findings are consistent with those of Roberts et al. (2009), who found that the proportion of student teachers who did not want to teach remained stable from the beginning to

the end of their studies. Moreover, this study sheds light on the reasons behind this lack of interest in teaching. It reveals that the students who did not intend to become teachers were those who did not join ITE to become teachers in the first place. Similarly, Suralaga et al. (2020) found that student teachers who join ITE merely to continue studying in higher education without any intention to become a teacher might not join the teaching profession because they do not commit to teaching. Hence, these studies indicate that the motivation for enrolling in ITE and the commitment of student teachers to the field of teaching are pivotal factors influencing their career decisions. Moreover, contextual factors, such as job opportunities and teacher working conditions in Indonesia, may also impact students' career intentions.

Job Opportunities as a Teacher

Policies, social, economic, and educational systems play a significant role in perceived employment opportunities. In Indonesia, teaching is an open profession. Graduates from any program, whether ITE (a four-year bachelor's degree for teacher education program) or other study programs, have the same opportunities to apply for PPG (Program Profesi Guru/Teacher Professional Education), a teacher training program for teacher certification. ITE graduates compete not only with other ITE graduates but also with graduates from other study programs who are interested in teaching jobs (Fibrianto & Yuniar, 2020). This policy may be one possible reason why ITE graduates anticipate job competition. Student teachers equip themselves with other skills and the possibility to do other kinds of jobs, such as being an entrepreneur. ITE also promotes non-teaching job opportunities to ITE candidates. Teaching is competitive, particularly for civil servants and permanent positions in urban areas. Although job opportunities are more open in rural and remote areas, poor infrastructure discourages teachers from committing to teach in those areas.

Teacher Working Condition

Teacher working conditions differ depending on the type of teaching position. In Indonesia, teachers are categorized into three types. The first category is civil servants who work permanently in state schools (for details about the statistics of schools and teachers, see Central Bureau of Statistics,(2021)). The civil servant position is attractive because it offers job security, undemanding work, short work hours (24 hours per week), and secure employment as they are entitled to work until 60 years of age and receive a pension from the government (Bjork, 2005). This secure position has a drawback, as civil servant teachers might lack the motivation to improve their professional development. Therefore, they are sometimes perceived as less advanced or creative than their private school peers. The second category includes private school teachers as non-civil servants with permanent positions in private fee-paying schools. Private school teachers' positions are also attractive, especially for those who work in a prestigious private school, because they are offered better pay and facilities. A highly paid teaching job in private schools comes with a consequence. Private school teachers are demanded to have good quality and performance as students have paid high school fees. Private school teachers are perceived to be more motivated for professional development because of constant supervision, and their permanent position is periodically evaluated. Nevertheless, it is common knowledge that private school teachers face more challenges when dealing with students in private schools because their characteristics differ from those in state schools (free of tuition) that implement a tight selection process.

The third category is part-time teachers, also called casual or honorary teachers. They are hired in a non-permanent position. This position is unattractive because part-time teachers have unsecured positions, poor welfare, and low pay. Part-time teachers usually only teach a few slots or a few hours weekly. Fresh graduates seeking teaching experience and teachers who have not yet secured a permanent position could fill this position. They hope that by working as honorary or part-time teachers, they will be offered a permanent position in the school foundation institution or an opportunity to apply as civil servants in the future. Those who view teaching as a stepping stone or a flexible second job might choose part-time teaching positions. Teaching is perceived as unattractive because secured

positions such as civil servant teachers are limited, similar to private teachers in highly reputable schools in big cities. This leaves a significant portion of in-service teachers with part-time positions. As an illustration, data from the Ministry of Education reports that by 2020, out of 937.228 teachers and non-civil servants, 728.461 are part-time teachers who are qualified but do not have permanent positions (Ministry of Education, 2021). Some part-time teachers have financial constraints due to low pay and uncertainty about their future; therefore, they have other jobs to make a living.

Teacher recruitment for civil servants is another main concern, especially for part-time teachers. Being a civil servant could be seen as the only hope of securing a position and better welfare. To accommodate this, the current policy stops centralized civil servant recruitment for teachers in 2021. It changes the system by recruiting civil servants into government employees through an employment agreement (Pangestuti et al., 2021). The government argues that the centralized recruitment, which then places the recruited civil servants in certain areas, is problematic because, after a few years, most of them request relocation to big cities or better areas, leaving some areas with few teachers. The new recruitment system applies an employment agreement, which can be extended based on the needs of teachers and their teaching performance. In comparison, civil servant teachers receive a pension, but teachers' employment with agreement does not have a pension scheme. The new scheme of government initiatives is expected to improve teacher welfare and quality.

The low proportion of student teachers prioritizing teaching raised concerns about ITE's effectiveness and factors that influence student teachers' career intentions, such as employment opportunities, perception of the teaching profession and teacher working conditions. This study confirms that in Indonesia, many student teachers join ITE without the intention of becoming teachers. For that reason, studies that explore student teacher motivation to teach, particularly in a context such as Indonesia, probably need to avoid assuming or making a sweeping generalization that all student teachers in ITE want to become teachers. The study may need to consider mapping the students' career intention before measuring factors influencing teaching among student teachers or exploring whether their motivation to teach is because of altruistic, extrinsic, or intrinsic factors. Measuring student teachers' motivation to teach from a population that may consist of some student teachers who do not intend to teach may result in misinterpretation, especially for the study context when the teaching profession is not seen as an attractive career intention.

Limitations and implications

The scope of this study is limited by the small and non-random sample of private and state universities. Thus, the results do not reflect the views of student teachers from different types of universities. Moreover, this study does not claim to represent the career intentions of teacher students in contexts other than Indonesia. However, this study may offer some insights for countries with similar situations. The findings of this study have both practical and theoretical implications. Policymakers may need to consider developing a coherent and continuous pathway for teacher education graduates to enter and remain in the teaching profession. This would enhance the perception of teacher education as a foundation for professional development and career advancement, rather than a mere recruitment strategy. Educators can also help emphasize and convey the importance of the teaching profession, especially considering government policies aimed at improving the working conditions of teachers. Hence, the teaching profession might be seen as an attractive and long-term career choice. This study strengthens the idea that personal values, environmental factors, teacher education, and contextual issues affect student-teacher career intention.

Conclusion

This study explores student teachers' career intentions and teaching as a career priority in private and state teacher education in Indonesia. This research contributes to a better understanding of student teachers' career priorities in Indonesia. The study found a low proportion of student teachers interested

in becoming teachers. The findings raise awareness about the critical role of teacher education in cultivating the value of being a teacher among student teachers and other relevant issues that affect their career intention, such as employment opportunities, perception of the teaching profession, and teacher working conditions. The contribution of this study in a broader context is to provide a deeper insight into the attractiveness of the teaching profession in developing countries such as Indonesia, which is still an issue due to some contextual factors. This study addresses the gaps in current research on how student teachers at ITE prioritize teaching as their career intention. Before this study, it was not easy to understand to what extent student teachers prioritize the teaching profession as a career intention because many studies reported that student teachers choose to become teachers because they view it as a side job and stepping stone for a better career. Future research is needed to investigate student teachers prioritizing teaching as their career intention with a larger sample and different study program backgrounds. Further research may also need to consider exploring factors from ITE that may influence student teachers' career intentions.

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Ethics Statement

In this study, all rules stated to be followed within the scope of the "Higher Education Institutions Scientific Research and Publication Ethics Directive" were followed. None of the actions stated under the title "Actions Against Scientific Research and Publication Ethics", which is the second part of the directive, have been carried out. The research was approved by the decision of the University of Bristol Ethics Committee with the number 82324.

During the writing process of the study titled "Teaching is (not) a career priority for student teachers: Empirical evidence from Indonesia", scientific, ethical and citation rules were followed, no falsification was made on the data collected. The Editorial Board of the Journal of JESMA has no responsibility for all ethical violations. All responsibility belongs to me, and this study has not been sent to an academic publishing environment for evaluation.

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Appendix A

A Survey and interview question of this study

Survey question

What kind of profession you are interested in after graduating from teacher education?

a. Teacher
b. Entrepreneur
c. Practitioner (such as tutor, tour guide or translator)
d. Researcher
e. Other

Please specify _____

Interview question

What kind of profession you are interested in after graduating from teacher education?

Why do you choose that kind of profession?

Why do you want/ do not want to become a teacher?

Appendix B

Other kinds of student teachers' career intention

Private ITE

1	Artist	14	Filmmaker	27	Lecturer	40	Master Degree
2	Astronaut	15	Football Manager	28	Lecturer	41	Ministry officer in curriculum
3	Cameraman	16	Graphic designer	29	Lecturer	42	Office employee
4	Chef	17	Hotel receptionist	30	Lecturer	43	Proof reader
5	Civil servant	18	Hotel worker	31	Lecturer	44	Public relation officer
6	Civil servant	19	Hotelier	32	Lecturer	45	Rector
7	Content creator	20	International relation officer	33	Lecturer	46	Reporter
8	Copywriter	21	Journalist	34	Make-up artist	47	Restaurant owner
9	Custom automotive builder	22	Lecturer	35	Makeup artist	48	Sports journalist
10	Editor	23	Lecturer	36	Manager	49	Tour guide
11	Expert in education	24	Lecturer	37	Master Degree	50	Traveller
12	Expert in parenting	25	Lecturer	38	Master Degree	51	Writer
13	Fashion designer	26	Lecturer	39	Master Degree		

State ITE

1	Attaché	11	Event organiser	21	Event organizer
2	Designer	12	Flight attendant	22	Event organizer
3	Diplomat	13	Content creator	23	Editor
4	Diplomat	14	Translator	24	Writer
5	Lecturer	15	Culinary business	25	Editor
6	Lecturer	16	Interpreter	26	Farmer
7	Lecturer	17	Linguist	27	Civil servant
8	Lecturer	18	Master Degree	28	Policeman
9	Lecturer	19	Employee	29	Radio announcer
10	Entertainer	20	Flight attendant	30	Reporter

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Psychological Impact of the COVID-19 Pandemic on Children with Disabilities and Their Families

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Psychological Impact of the COVID-19 Pandemic on Children with Disabilities and Their Families

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ABSTRACT
The current study aims to reveal the impact of the COVID-19 pandemic on children with autism spectrum disorder (ASD) in Egypt. It also focuses on the perceptions of their parents and the difficulties they faced during the pandemic. The study focused on collecting data from four to ten-year-old autistic children and their families, who frequently attended a day-care center in Cairo, Egypt. qualitative ethnographic method design was used in the study, with qualitative data collected from 20 families using semi-structured interviews. The Adaptive Behavior Scale (ABAS-11) was applied and analyzed using content analysis. The findings showed the pandemic had a negative impact on the psychological and behavioral aspects of children with ASD, as well as a negative psychological impact on their families. It calls for the continued need for parents and their children for counseling, guidance, and psychological support. This negative impact on families was because of the parents' lack of knowledge of the characteristics of their child with a disability. The study concluded that it is necessary to train parents on how to deal well with their children with disabilities, an outcome of this study, the researcher launched an initiative called 'The Specialized Mother Initiative' and has invited over 50 Egyptian institutions working with children with disabilities in over 15 governorates. Its aim is to train Egyptian families on the scientific method of dealing with their children with disabilities, and in particular, children with autism.

Keywords: Corona pandemic, Children with Autism Spectrum Disorder (ASD), psychological impact

Introduction

To prevent the outbreak of Covid-19, governments all over the world, including Egypt, have taken precautionary measures. These include the closure of public and private schools and centers and imposed curfews. These measures had a significant impact on children with ASD and their families. These children may quickly lose skills they have formed in the past. Therefore, it is likely that the precautionary measures put in place to prevent the outbreak of COVID have led to a relapse and increased the severity of the primary disorder symptoms, especially from the behavioral side, because of not being able to continue training and education. As families depend on specialists and teachers in schools and centers, the inherent characteristics of children with ASD, represented by deficits in communication and social interaction and restricted behavioral patterns, interests, and activities, make these children face difficulties because of changes in routine and environment related to the measures taken due to the pandemic, and an increase in stereotyped behaviors, opposition, and aggressive behavior toward self, objects, and others.

The COVID-19 pandemic has changed how the local and global c communities operate, these measures influenced the mental health and well-being of individuals with autism and their families. Individuals with ASD have high rates of combined physical and mental health conditions (e.g., digestive and sleeping problems, ADHD, anxiety, and depression) throughout their entire lives (Lai et al., 2019).

Studies have shown that the COVID-19 pandemic has a severe impact on the psychology and behavior of children with ASD. Negative behaviors have increased because of changing daily routines. These children also experienced an increase in the levels of anxiety and stereotypical movements, sleep disorders, and lack of social interaction. Families had a hard time as they could not have a break by sending their children to day-care centers (Eshraghi et al., 2020).
Therefore, this study aims to answer a set of important research questions:

- What happens when families spend the entire day with their autistic children?
- How does contribute to increasing their behavioral and communication problems?

Therefore, this research attempted to describe the negative effects that occurred on children with ASD during home isolation, and the psychological effects that followed the entire family from staying home for a child with ASD for a long time without rehabilitation. This paper explores the possible reasons for this negative impact on families, and ways to solve this, if the world is swept by new disasters that would disrupt daily life.

Impact of lockdown on children with ASD and their families

The Centers for Disease Control and Prevention (CDC, 2021) have classified people with ASD as those most at risk of developing COVID-19. Moreover, autistic people are at high risk because they have difficulty accessing information about the pandemic, understanding precautionary measures, or reporting symptoms. Autistic people also face other challenges; including problems in social communication, ADHD, and other problems that pose additional challenges to dealing with those cases during the COVID-19 (Eshraghi et al., 2020).

The vital need for similarities and adherence to routine are fundamental features for autism. These features have been linked to high rates of anxiety and depression experienced by individuals with autism (Baribeau et al., 2020). Changes in daily routines and restrictions on regular service disrupt several areas (e.g., physical, and mental health, and other family factors). Limited access to specific types of goodies may affect autistic individuals who suffer from eating disorders (Curtin et al., 2015); leading to reduced food intake, malnutrition, or digestive and constipation problems. Furthermore, restricted access to programs, activities, and preferred places contributes to reduced physical activity, a concern among individuals with autism, and high obesity rates (Must et al., 2017).

Given that the mother cannot deal and intervene with her child with autism spectrum disorder ASD well and that the child with ASD has one of his special characteristics that refuses to change the routine, and is locked in the house all the time, this matter became difficult for the child. As a result, behavioral problems, such as screaming and crying, increased significantly. In addition, eating and sleep schedule disorders have been reported. Some children reported sleeping for a very long time, and others did not sleep for a long time that reached 24 hours. With regard to eating disorders, some children refused some of the available types of food, and this constituted a great difficulty for families. The need to provide their child's favorite foods was problematic as due to shops' closure during lockdown. These difficulties that the child suffered from constituted difficulties for the entire family. Mothers would try calming the child down and please him. When it was difficult for her, she resorted to screens, whether television or mobile, in an attempt to overcome the behavioral problems that appeared strongly, such as aggression against himself or those around him by severe beatings and breaking household items and others. To avoid this, the child spent long periods in front of screens in order to entertain and distract him. This in itself has greatly negatively affected child's cognitive skills. This was also found in other literature (Slobodin et al., 2019;Schreck & Rochdale, 2020; Fitzgerald et al., 2016).

Asbury et al., (2021) indicated that to obtain a better understanding of the needs of children with ASD and their families, there is a need to identify factors that make compatibility easier (facilitators) and those that hinder compatibility (barriers) during the pandemic. This may result in recommendations that could help guide services by recognizing the perceptions of those children and their parents.

Colizzi et al., (2020) conducted a study to verify the negative impact of the Coronavirus outbreak on children with ASD and their families using an online survey directed at parents. The study also aimed to confirm whether there were any sociodemographic or clinical factors prior to the pandemic that would predict the negative impact of the pandemic on the well-being of people with an ASD and identify the needs of children with ASD and their families, by gathering parents' perceptions using open-ended questions as an initial step to improve the quality of healthcare services. 93.9% of the families reported that the outbreak of COVID-19 had a negative impact on their lives and their ability to manage daily-life activities, especially during leisure time (78.1%) and organized activities (75.7%). 19.1% of parents also reported that caring for their autistic children was one of the factors that increased their mental stress during the pandemic and, therefore, they needed to receive support from psychiatrists. As parents started to notice that their autistic children were having new behavioral problems, and due to the sudden curfew, 47.4% of the participants said they needed more health services during the pandemic, 30% needed more support at home, and 16.8% needed more support from the state during quarantine.

Moreover, a study by Jacques et al., (2022) explored the impact of the Coronavirus on children with special educational needs and disabilities, and their families. 241 families from the United Kingdom were involved in the study and were asked to answer a questionnaire about the impact of the Coronavirus on their health and their children's mental health. The study showed that both children and their families suffered from loss, anxiety, and behavioral and mood changes because of social changes due to the Coronavirus. Some families also reported feeling pressured and overwhelmed, which influenced the child's understanding and awareness.

Given the nature and characteristics of these children who suffer from behavioral problems, some may refuse to use sanitizers because of their smell or sticky texture. Moreover, some patients need sensory stimulation by placing objects in their mouths, which may increase the chances of developing Coronavirus (Hill, Zuckerman, Hagen, Kriz, Duvall, Van Santen, & Fombonne, (2014). According to a study focused on the Mental Health of Parents of Children with ASD during COVID-19 Pandemic, 94% of families with children with ASD had increased stress levels during the pandemic (Yılmaz, Azak, & Şahin, 2021).

However, the impact of changes on the routine may be mitigated by creating and jointly following alternative routines, integrating regular bedtime and morning schedules, paying attention to sensory

stimulation, giving adequate but limited exposure to the media, controlling time spent on the screen, paying attention to hygiene, eating regular meals, and staying hydrated, exercising on daily bases, and sleeping. Maintaining social networks (even online) is critical for autistic individuals and their families (Ameis et al., 2020).

Technology to facilitate multidisciplinary coordinated care.

For children with ASD, the shift toward the usage of online platforms may have a lasting impact on caregiving. Involving parents in early intervention given to young children can have long-term positive effects (Lai et al., 2018). Moreover, low-cost and intensity intervention programs focused on training parents on how to interact with their autistic children can have a direct effect on their social behavior and communication (Nevill, Lecavalier, & Stratis, 2018). Growing evidence indicates that caregivers can be trained to provide immediate interventions through parents online, and online training can influence parents ' knowledge, sincerity of intervention, social behavior, or communication skills for children (Lindgren et al., 2020). Additional support based on telemedical care for early intervention (via caregivers) and intervention targeting children, young people, and adults with autism using teleclinical trials should be developed and tested (Nicol, Piccirillo, Mulsant, & Lenze, 2020). These tools would significantly enhance access to services and support even after the COVID-19 pandemic (Cross & Hickie, 2017).

Online platforms can support the change to wards tailored service, away from a one-size-fits-all approach (Cross & Hickie, 2017). This can ensure that more autistic individuals have access to care and support personalized and graded care models. For example, developing a system for providing and monitoring support so that the most effective and least resource-intensive care is provided first. Some caregivers cannot access remote care while reconciling their additional workload during the pandemic. As we develop online care to improve peoples' access to it, we must bear in mind that it can lead to inequality in giving autistic individuals access to the needed care (Racine, McArthur, Cooke, Eirich, & Madigan, 2021).

Thus, to minimize the effects of the epidemic on individuals with autism at risk, complex physical and mental health care are required, including psychosocial and behavioral support for both the individual (Hill, Zuckerman, Hagen, Kriz, Duvall, Van Santen, & Fombonne, 2014). and their caregivers, who are also expected to experience high levels of stress and anxiety (Keenan et al., 2016). Data collected from 8000 parents and 600 autistic adults, using surveys, between March and April 2020 revealed that despite the severe tension, they were able to share their positive experiences adjusting to the pandemic; these included positive use of time, additional family quality time to practice hobbies, reduced access to social media and news, and exploration of activities that support relaxation. Once the restrictions placed by the pandemic are over, new models of care can be sustained and shared instead of returning to what people were familiar with and used to before the pandemic. The pandemic is an opportunity to vaccinate against stress (Lai, & Szatmari, 2019). Learning from COVID-19 means that people are well prepared for other crises in the future.

Therefore, for the Egyptian family and its child with disabilities in general, and the child with ASD, in particular, not to be exposed, it was necessary to follow two important and irreplaceable paths. The first way for them is the steer special education away from the narrow tunnel in which it runs and is limited to traditional sessions, and traditional methods of diagnosis, rehabilitation, and training, to a space of where the methods of technology and applications of artificial intelligence are beneficial. This could allow access to many applications and platforms, which would facilitate work for specialists. Secondly, involve the family in working with the child and consider the family as one of the most important members of the child's rehabilitation. This will lead them to understand the child, his needs and aspects of developmental delay, and ways to deal well with the child according to its individual needs, and this will benefit the family as well as the child.

Methods and Materials

The qualitative descriptive approach was used, which required a description of the phenomenon, and its suitability to the nature of the current research, as it aims to describe the psychological impact of the Corona pandemic on children with disabilities (autism) as a model, and on their families, during home isolation.

Search tools:

1. Stanford Bennett Intelligence Scale, fifth edition, modified by Mahmoud Abu El-Nil.
2. The Gilliam scale, third edition, for estimating the degree of ASD Translated by Adel Abd allah, Abeer Abo Elmaged.
3. The Adaptive Behavior Scale (ABS), seventh edition, translated by Dr. Safwat Farag, Dr. Nahed Ramzy.

The current research presents a summary of all study tools:

1. Stanford Interface Intelligence Test (fifth edition) (prepared and modified to an Egyptian context by Mahmoud Abu El-Nil, 2011)

A- The purpose of the scale:

It is an individual measurement to assess intelligence and cognitive abilities for an age spanning from (2-90) years. The scale is used to diagnose disabilities of all ages, learning difficulties, and progressive cognitive delay in young children, in addition to enrolling students in mentally gifted programs in schools.

B- Description of the scale:

The fifth edition consists of ten sub-tests distributed over two main areas (verbal and non-verbal) so that each field contains five sub-tests. Each sub-test consists of a group of mini tests of varying difficulty (starting from the easiest to the most difficult). Each of the mini-tests consists - in turn - of a group of (3) to (6) items or tasks of similar difficulty level, which are the items or tasks and problems in which the subject is directly tested.

The Stanford-Binet test (fifth edition) is applied individually to assess intelligence and cognitive abilities, and it is suitable for ages from (2-85) years and over. The overall scale consists of (10) sub-tests that are grouped together to form other tests, namely:

1. IQ test: It consists of two pathfinding tests, which are the Subject Strings/Matrix test and the Vocabulary test. This short scale is used with other scales or tests in conducting assessments such as the neuropsychological assessment.

2. Nonverbal intelligence test: This consists of five nonverbal subtests that are related to the five cognitive factors measured by the fifth image. Autistic disorder, some types of learning disabilities, traumatic brain injury, children with limited background in the test language and other conditions with language impairments, such as aphasia or stroke.

3. Verbal IQ test: This complements the nonverbal IQ scale and consists of the five verbal subtests related to the five cognitive factors measured in the fifth edition. The verbal IQ scale

may be fully standardized on ordinary respondents, as it is applied in some special cases. Those with poor eyesight, spinal deformities, or other problems that may prevent the nonverbal portion of the scale from being completed.

4. Total IQ of the test: It results from combining the verbal and nonverbal domains or the five factor indicators. The average time for applying the total test ranges from (45 to 75) minutes, while the application of the short task takes from (15 to 20) minutes, and the application of the domain takes about (30) Minutes each.

5. Method of grading.

   - Determine the chronological age of the examinee in year, month, and day.
   - Determining the base age of the examinee, as the examinee is left to determine the base age based on knowledge and assessment of the examinee, and the base age is defined as the age at which the examinee succeeds in all tests of that age.
   - Determining the maximum age of the examinee, where the examiner determines the top age of the examinee when he fails to answer the tests of a certain age and defines the top age as the age at which the examinee fails all the tests of that age.
   - Determining the mental age of the examinee, where the examiner determines the mental age of the examinee by adding the mental months obtained by the examinee on each of the tests that he succeeded in performing according to the standards of those tests, adding to it the base age.
   - Determine the standard score for the test, which is interpreted as follows:

   90-110 average.
   70—89 is below average.
   55-69 Mild intellectual disability.
   40-54.1 moderate intellectual disability.
   25-39.1 Severe intellectual disability.

Psychometric characteristics of the test's reliability were calculated for the different sub-tests by the two methods of re-application and split half calculated by the Alpha Cronbach equation (0.870 and 0.991)

2. The Gilliam Estimated Scale for the Diagnosis of Symptoms and Severity of ASD, third edition, GARS-3. Translated by Adel Abdullah, Abeer Muhammad 2021.

The third version of the Gilliam scale is a standard reference test used as a tool for sorting and filtering, diagnosing ASD, and identifying individuals them in the age range of (3:22) years. The scale consists of (58) items distributed into six subscales.

- Restrictive or repetitive behaviors: This includes 13 items that measure stereotypical behaviors, restricted interests, routines, and rituals.
- Social Communication: It includes nine vocabulary words that measure an individual's responses to social situations and contexts, and his understanding of the content of social interaction and communication.
- Emotional responses: It consists of eight items that measure the extreme emotional responses of individuals to daily social situations.

- Cognitive style: It consists of seven items that measure the fixed strange interests of individuals, and their characteristics and cognitive abilities.
- Inappropriate Speech: It consists of seven vocabulary words that describe deficiencies in the child's speech, and oddities or abnormalities in verbal communication.

Scale application:

The items of the scale are answered by the parents, the specialist, or those who know the child well and the behaviors that he performs, by choosing one of the four options available in front of each item, namely (yes, sometimes, rarely, no), which are corrected as follows: (3, 2, 1, zero), and thus the degree on the scale ranges between (0, 174) degrees. The six scales are applied together to children who have a level of verbal communication, whereas children without verbal communication are applied to the first four subscales only, the raw score for each sub-scale is then converted into percentile ranks and indicators of autism disorder. Considering whether the scale has been applied as a whole or four scales only, through the criteria tables for the scale, a score of (45) or less indicates that there is no ASD. A score of (55-70) indicates that the child has a mild ASD, and a score of (-71) 100) indicates moderate ASD, while a score of (101) or more indicates severe ASD.

Adel Abdullah and Abeer Muhammad (2021) verified the psychometric properties of the scale on a sample of children with ASD, as the sample reached (100) children with ASD, who attended day care centers for individuals with disabilities from cities Zagazig, Famous, and Husseiniya in Sharkia Governorate, whose ages ranged between (6-12) years. The results showed that the third version of the Gilliam scale for diagnosing the symptoms and severity of ASD in its Arabic form is characterized by good psychometric characteristics that can be relied upon in diagnosing the symptoms and severity of ASD.

3. The Adaptive Behavior Scale (ABS), seventh edition, translated by Dr. Safwat Farag, Dr. Nahed Ramzy

The American Mental Disorder Association's Adaptive Behavior Scale is a rating scale for the mentally disabled, emotionally incompatible, and impaired. It can be used similarly to other individuals with other manifestations of disability. It is designed to provide an objective and evaluative description of an individual's adaptive behavior. The term "accommodative behavior" was introduced and defined by the Association. American mental disability in the first editions of its guide to terms and classifications of mental retardation and is still used in the new edition of the guide, and the expression refers mainly to the effectiveness of the individual in dealing with the natural and social demands of his society.

The Adaptive Behavior Scale consists of two parts:

The first part: It is the result of a comprehensive review of behavioral measures available in the United States and England. The scale has been subjected to many modifications because of an in-depth analysis of the items. The items of the scale were evaluated and chosen based on the reliability of the correctors or estimators, and the effectiveness of the items in distinguishing between consensual behavioral levels, if the intelligence variable was applied.

It includes the first part of the Harmonic Behavior Scale according to progressive axes (or lines) and is designed to evaluate the individual's skills and habits in ten behavioral domains (which are interconnected groups of interrelated activities) that are important for improving personal independence in daily life. Below are these ten domains, illustrated by numbers, and what they include. It comprises 21 subfields, which are described as follows:

1. Independent work: (eating, using the toilet, hygiene, appearance, taking care of clothes, dressing and undressing, moving around, general independent behavior).
2. Physical development: (sensory development, motor development).
3. Economic activity: (money handling, budget planning, purchasing skills).
4. Language improvement: (expression, understanding, social language improvement).
5. Preparation and time.
6. Household activities: (cleaning, kitchen work, and other household chores).
7. Professional activity
8. Self-orientation: (initiative, perseverance, free time).
9. Take responsibility.
10. Socialization.

The second part included measures related to personality and behavior disorders, and the fourteenth section in this part, titled "Drug Use," is not actually a spoof field, but provides information about the person's harmonious behavior with the outside world. This second part consists of the following fourteen areas: (destructive violence, antisocial behavior, rebellious behavior, distrustful behavior, withdrawal, stereotypical behavior, abnormal behavior, inappropriate social behavior, unacceptable vocal habits, unacceptable antics, self-harm behavior, abnormal sexual behavior, psychological disorders, drug use).

Method

During the pandemic, the entire world was exposed to the Corona virus. Similar to many other countries, in Egypt, a nationwide lockdown was imposed on all sectors of work, schools, shops, etc., including special education centers like the Itqan Learning Center. These centers were significantly affected by the pandemic, because it was necessary to stop all rehabilitation programs and prescribed diagnosis. The fact that the most vulnerable children had to stay at home during these times, resulted in the need for the author as the director of the center to follow up with the children at home during quarantine and home isolation. Due to the restrictions, this had to be done through the online platform Zoom according to a schedule and a plan established to follow up with each case. This developed into a research project aimed at identifying the impact of the lockdown on ASD children and their families. As the center, like many other institutions, was unprepared for such circumstances, a greater understanding was needed for staff and families in aid of preparation and management of any for future lockdown or other national restrictions. As such, the researcher consulted the parents who welcomed the idea and cooperation with the researcher.

All participants in this study included parents whose families were receiving therapy from the Itqan Learning Center, which is owned by the researcher. The author is a practitioner-researcher and conducts this study as an insider. All participating families live in the vicinity of Greater Cairo, at a medium social, economic, and cultural level, and have home internet, The children were aged between 4 and 10 years, had a good level of adaptive behavior, and the child's IQ score was not less than 70.

To collect qualitative data for this study on children with ASD and identify the impact of isolation on them, the most appropriate method under the circumstances was the ethnographic method. Ethnography is a qualitative method for collecting data that is often used in the social and behavioral sciences. Due to the lockdown, the data had to be collected online via Zoom and video recordings. Video ethnography is a powerful tool for the study everyday activities and observations (Chen,2021). Data was collected through observations and interviews, which are then used to draw conclusions about the family's and individual's function. By observing the child within the context of the family, and regularly meeting the parent online, the author was able to follow up the child and assess the extent of development or relapse of the child's skills (Howlett, 2022).

Each parent completed 20 semi-structured interviews in approximately 5 months. This enabled building trust and rapport with the researcher and feeling comfortable in opening up about the challenges the families faced during home isolation. This was performed according to an organized project plan from December 2019 to April 2020, once every week for each family. The duration of each meeting is 60 minutes. The researcher met 20 families per week to follow up on each child and his/her family, their methods of dealing with him/her, and the problems that arose during the pandemic. At the beginning of the research period, the researcher applied the adaptive behvior scale used in the study, to identify the child's level before and during isolation, and to determine the impact of isolation.

The researcher would start the meeting by greeting the family and checking their well-being. She would give the family the family the details of the child during the week and the problems they may have suffered from.

The researcher will also answer any of their questions. To find out about the developments that occur to the child during isolation, she recorded observations and provided instructions to them. At the end of the research application period, the researcher applied with the family for the second time on the scale to determine the difference between before and during isolation. These meetings continued throughout the research period and continued after the study to provide support and guidance to the families.

Therefore, ethical research requires adherence to the technicalities of the ethics process. Application for ethical approval, providing participants with information about the research project and providing informed consent. Both recording tools, if used, and the transcribed data, if relevant, should be stored in a safe place in an encrypted form. Additionally, and to the degree possible given the specific research project, participants should be given anonymity. This is considered by the researcher that ethics is not only considered prior to the study but as a continuous process of competence.

Sampling

The current study sample consists of 20 children with ASD who are enrolled in the day care of the Itqan Learning Center, which is owned by the researcher, the study purposive sample was chosen intentionally due to the availability of a set of criteria necessary for the application of the study, which are as follows:

1. The chronological age ranges between 4and 10 years.
2. Intelligence is not less than 70 according to on the Stanford-Binet scale, (fifth edition with Prof. Dr. Safwat Farag's standardization).
3. Autism is not more than 70 according to the Gilliam Intelligence Scale, third edition.
4. The child has average verbal communication skills that can express his simple needs with a two-word sentence.
5. The child has an appropriate level of adaptive behaviour skills that help him socialize acceptably with guidance.
6. The child has a moderate skill in self-care.
7. Does not suffer from eating disorders.
8. Does not suffer from sleep disorder.

Because the researcher is a gatekeeper, she was very familiar with the children, in relation to their skills, abilities and development of the child's growth for years of rehabilitation and was very aware of the strengths and weaknesses of each child of the sample. All tests and assessments taken before the lockdown were carried out under her supervision, therefore, she was very familiar with all children in the sample., Out of 45 children, 28 children were identified who met the required criteria, and the researcher contacted each family of the 28 children individually to explain the research, aims and objectives and methods. It was clarified that participation in this study is completely voluntary, that

participants could withdraw at any time, and that the data will be treated with complete confidentiality anonymized and will be used only for scientific research.

Two families apologized because the area in which they live did not have fixed internet connection, and this may prevent their regularity in the application. Furthermore, 4 families suffering from unstable family conditions that may prevent them from following up well with the child were excluded, and two further families did not provide consent. Therefore, the sample was limited to 20 families who participated by providing full informed consent.

Ethical Considerations

Research should be responsibly organized and practiced, and research ethics is a tool for this purpose. Researchers and research institutions are both responsible for ensuring compliance with research ethics, and other research actors should behave in accordance with ethical norms and guidelines (NESH, 2022). It is argued that insider researchers always have a passion for the topic they have been working on (Saidin, 2016). Research ethics consists of common norms, derived from society's demands and expectations of research in a broad sense. Human dignity constitutes the core value in this context, and it is protected by three principles: respect for equality, freedom and autonomy, beneficence, protection from the risk of significant harm and unreasonable burdens, and justice in procedures and the distribution of benefits and burdens (Greaney, Sheehy, Heffernan, Murphy, Mhaolrúnaigh, Heffernan, & Brown, 2012).

As a practitioner researcher, I did not have an ethical board to seek approval from. However, as an insider and practitioner, I considered the following ethical issues to ensure trustworthiness and credibility and prioritize the best interest of the family and the child with ASD.

- Everything that will be done in the study is surrounded by a high degree of confidentiality and complete privacy between the family and the researcher.
- All the attached data are for the benefit of scientific research only and will not be publicly shared.
- In addition, the data that will be published is anonymized and does not provide information about the child and his family.
- The family has the right at any time to withdraw from the application if they wish.
- Telephone meetings, whether video or audio, are limited to the family and the researcher only, and are not recorded.

Findings

The current study concluded that after applying some dimensions of the first part of the adaptive behavior scale, only the following dimensions were applied: independent work, physical growth, economic activity, language development, preparation, and time. The researcher proves choosing only the first part without the second part of the scale, because the second part in many of its parts is not considered adaptive behavior for young children, who also suffer from ASD. Therefore, if the child is evaluated in this aspect and receives a high score, it is not considered evidence of poor adaptive behavior, because he is young, and these behaviors may appear from a young child and are considered acceptable.

The researcher argues that choosing the first five dimensions from the first part and abandoning the other four dimensions, the remaining three dimensions are the professional activity that measures the performance of the child in a job assigned to him, and because the child is young and has ASD, this dimension is not required of the child, and the second dimension is the self-orientation that Initiative, perseverance, and spending free time branch out from For the same reason, it was abandoned. The third dimension, which measures responsibility, and the fourth dimension, which measures socialization, were abandoned because they measure the child's relationships and interaction with others, and because we are in the period of domestic isolation, it is difficult to measure this dimension. After applying the five dimensions of the first part of the scale, the researcher obtained the following results:

Table1. Children's score on the first part of the scale

	independent work		**physical growth**		**economic activity**		**Language elevation**		**preparation and time**	
Child	before	during	before	during	before	during	before	during	before	during
1	47	26	22	13	2	0	11	2	8	3
2	44	20	20	11	1	0	10	5	8	2
3	39	18	21	12	2	0	9	2	7	2
4	48	28	19	10	2	0	8	1	6	2
5	35	21	22	11	2	0	7	3	8	2
6	45	20	23	10	2	0	12	7	7	2
7	40	15	19	10	1	0	12	9	6	1
8	39	19	18	10	2	0	7	1	8	0
9	46	22	20	12	2	0	9	5	7	0
10	41	20	21	13	2	0	10	7	7	3
11	44	19	17	12	2	0	11	8	8	2
12	35	15	21	12	1	0	9	2	8	2
13	37	21	20	11	2	0	6	1	6	1
14	41	21	22	13	2	0	10	1	7	0
15	46	23	22	13	2	0	10	3	7	3
16	39	19	21	12	2	0	12	3	7	3
18	42	20	16	11	2	0	10	2	8	2
19	46	23	17	10	2	0	8	1	8	2
20	37	17	22	11	1	0	12	3	7	2

Table 2. Detailed model for grades for case 1

		before isolation	**during isolation**
1	independent work	47	**26**
A		8	**4**
B	eating food	9	**3**
C	using the toilet	11	**7**
D	Cleanliness	8	**5**
E	The appearance	0	**0**
F	Garment care	11	**7**
G	Dressing and undressing	0	**0**
H	moving around	0	**0**
2	Independent work	22	**13**
A	physical growth	6	**6**
B	Sensory development	16	**7**
3	Motor skills growth	2	**0**
A	The economic activity	0	**0**
B	Money handling and budget planning	2	**0**

4	Buying skills	11	**2**
A	Language improvement	9	**1**
B	expression	2	**1**
C	comprehension	0	**0**
	The increase of social language	8	**3**

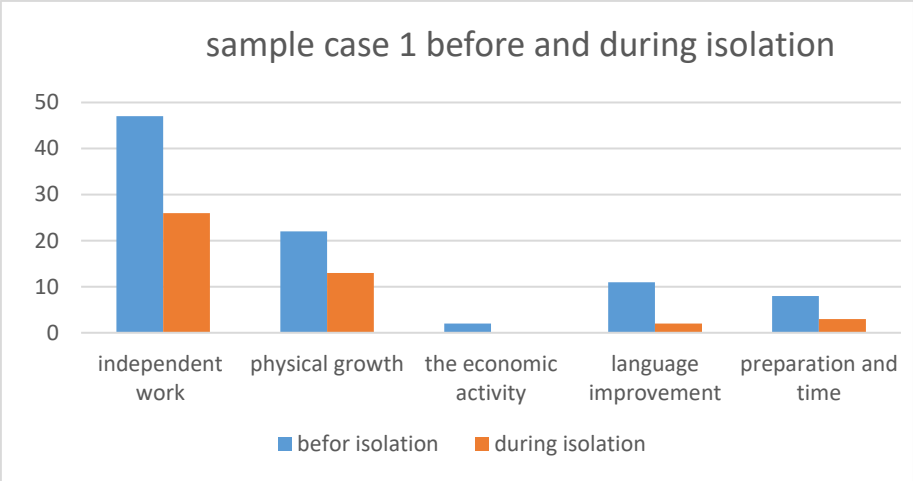

Figure 1. Case 1

As for the results of the researcher's follow-up of the cases, she noticed the presence of repeated complaints from families. The researcher identified these phenomena in two dimensions:
Child problems:

- Refusing the types of food offered according to what was available at the time of isolation, and searching for the child's favorite food, which was at times difficult to manage because of isolation and the closure of shops.
- Screaming and crying continuously without stopping.
- Inability to express, and the matter turns into self-harm, harm to others and domestic vandalism.
- Frequently repeating stereotypical behaviors, and the family finds it difficult to stop him or engage him in an alternative activity.
- Loss of skills in communication, language, and interaction with others.
- Great preference for screens.
- Sleep disorders, either sleeping for long periods, or not sleeping for long periods.
- Loss of weight due to not eating and increasing stereotypical behaviors.

Family issues:

- Home isolation was a source of great stress and anxiety for all families, but the presence of a child with ASD had a great psychological impact on the families.
- Because the family did not learn how to deal well with their child, and they depended very much on specialists. When the centers were forced to close completely, the families discovered that they could not deal with them. Whereas normally, the child would return from

the center exhausted and empty of energy, eat and sit for a while and watch screens with them until he/she falls asleep.

- The family felt a state of sadness, anxiety, guilt, fear for the child's future, and severe psychological pressure in case the children's behavioral problems increased.
- The researcher's meetings with the family were a psychological outlet for them to relieve psychological pressure, and to obtain instructions for intervention with the child.

Discussion

This study described the negative impact of the Corona pandemic on children with ASD and their families during the lockdown in Egypt. This period had greatly affected children from the psychological and behavioral side. Undesirable behaviors, crying and screaming due to the interruption in daily routine, sensory problems, and verbal communication problems. In addition, families with children with ASD faced many challenges because they were fully responsible for their children after they had complete dependence on specialists. It was early on during the pandemic that families were concerned about the child staying home all the time not being able to go out. Later on, families had other problems of not being able to deal with the ASD children, especially that they had more behavioral problems, aggression, eating and sleeping disorders, sensory disturbances, and the loss of skills they acquired because of not continuing the training. As a result, families resorted to consultations from the technical officials in the center on how to intervene positively, and there was a need for a complete and detailed explanation of intervention methods through video conferencing platforms, including scheduled meeting on Zoom. However, the prearranged and agreed-upon meeting represented an additional burden to the families. Therefore, some families stopped attending training sessions and gave children unlimited access to screens to reduce anger outbursts and behavioral problems. Hence there is an urgent need to involve the family in the intervention to a large capacity and in depth, to learn the scientific method of dealing with its own child.

Conclusion

The study concluded that the pandemic significantly affected children with ASD and their families. During the pandemic, children lost many social, behavioral, linguistic, sensory, selfcare, and communication skills due to the lockdown and not being able to receive adequate services. Therefore, it was necessary to have an alternative to providing care directly, using technology to guide families remotely and give them adequate support to help them accept their new responsibility. Despite all these attempts, the problem remained in the urgent need for direct education and heavy reliance on the experts for early diagnosis and rehabilitation services. This reveals that special education remains unique even in times of crisis.

Therefore, the researcher had to think of a way to overcome this crisis with families in the event of the continuation of the epidemic, or the emergence of new epidemics. Because of this study and its findings, the researcher launched the Specialized Mother Initiative. This is a comprehensive humanitarian specialist initiative that stemmed from a humanitarian societal responsibility, aiming to raise the awareness of a family that has a child with a disability on how to deal with it in a scientific and systematic manner that is beneficial to the child, the family and society. This is because the family is the real hero in the field of special education. It bears great concerns and challenges, and there is a significant need for support for families. Through the launch of a Facebook group, more than 50 Egyptian volunteers with special education qualification and experience, from more than 30 Egyptian institutions collaborated in organizing training for mothers with children with special educational needs throughout Egypt, including Cairo - Giza - Qalyubia - North Sinai - Aswan - Assiut - Sohag - Alexandria - Sharkia - Gharbia - Menoufia - Dakahlia - Damietta and- Fayoum.

Because of this study the findings initiated this this humanitarian initiative, with the help of 50 exporters and developed a program to teach them how to detect a disorder or deficiency in their child, and where and when to go for examination. This enables early intervention to support and empower mothers with

practical tools on how to face the challenges during the period of being at home, with support from a scientific method of follow-up the psychological, educational, religious and values of the child within the context of the family.

The initiative was also interested in transferring the experiences of the volunteer team to families in evaluation, diagnosis, rehabilitation and answering family questions through direct meetings that continue to occur once a month, and online meetings that take place four times a month via Zoom. Thus, the result of the study has a significant impact on families in the Itqan Learning Centre and beyond and are still ongoing. The volunteers continue to address the challenges that were raised during the lockdown and other challenges daily since restrictions have been lifted. It is hoped that this will continue, and the initiative will benefit more families, mothers due to the responsibilities that fall on them within the cultural context of Egypt and the Arab society.

Figure 2. Logo of the Specialized Mother Initiative.

Limitations and recommendations

Research limitations:

1. Observations and meetings were held online due to the national lockdown. It would have been best for observations to take place in person. Of course, due to the restrictions this was not possible and beyond the scope of this research.
2. Because the sample members are from the center and because the researcher is familiar with them, this form facilitated the conduct of the research and the participation of the family in it, However, if this was not the case, it would have been difficult to convince the families.
3. The number reached 20 families only, because some families did not have an internet network that would allow them to attend meetings.
4. The research sample ranges from 4 to 10 years which is the most regular and acceptable age in the center. Children outside this age range may also be affected by the lockdown, but this study had no access to other children but the center.

Recommendations:

Complementing this effort, the research recommends:

1. The need to train families to deal with their children and to know all the details of the child's strengths and weaknesses and the child's training needs.
2. The need for special education to move beyond the narrow tunnel (table and chairs) to the vast technological space that relies on mobile applications and electronic platforms that benefit rehabilitation, diagnosis, and training for mothers.
3. Full community awareness of the issues of people with disabilities and the provision of means to facilitate life for them, for example, by providing shops selling dairy products and eating without casein and gluten until the time of home quarantine.
4. Supporting the private family psychologically, as it suffers more than ordinary families by highlighting their suffering and challenges through the media. This will represent psychological support for them.

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Investigation of School Perception and Participation of Families whose Children Receive Special Education and General Education

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Investigation of School Perception and Participation of Families whose Children Receive Special Education and General Education

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ABSTRACT
Family participation is the cooperation of the family with the school and the active contribution of the family in the child's education process. The importance of family involvement is not limited to academic success. Families' participation in activities organized at school, their participation in parent meetings, and their support for school social activities also contribute positively to the child's social and emotional development. This study aims to compare the perceptions of families of normal developing and special education school-age children about school and their views on the possibilities and forms of their children's participation in education programs. In this study, the Family School Perception and Participation scale, which considers the parents of SEN and normal students of all ages and levels, was applied to the parents. Therefore, it is a quantitative study using a graded 5 Likert-type scale. A total of 366 parents, including 284 mothers and 82 fathers, participated in the study. According to the results, there is a significant difference between the scale scores of families whose children receive special education and those whose children continue to receive normal education. Furthermore, on the parent development and student development sub-dimensions, there was a significant difference between families whose children received special education and whose children continued to receive normal education. However, on the parent involvement and school perception sub-dimensions, there was no significant difference between families' scale scores.

Keywords: school perception, school participation, families, special education needs,

Introduction

Parental involvement refers to a process in which parents are involved in their children's learning process by the school and teachers or parents are directly involved in their children's education. Parents do their part to ensure that the student is assisted in the learning process as much as possible. This expression of participation refers not only to the parents who question the student's performance at school but also to the process of taking an active role in communication with their children to establish a healthy relationship. Educators and parents play a significant role in the educational success of students. Students need a positive learning experience to be successful in school. Although parent involvement has been researched as the subject of many studies, studies on parental involvement and "effective" parent involvement in the education of students are still insufficient. This is because educators have different views on effective parent involvement practices and how each can contribute to the educational process (Konokman & Yokuş 2016; Young & Growe, 2013).

Many studies have shown that students' academic success increases with the participation of their families. Research also shows that parent involvement works most effectively when viewed as a collaboration between educators and parents. Parents who both develop a positive attitude toward the school and help their children develop positive attitudes provide support to provide a safer and healthier educational environment for their students. In studies, parent involvement in school is stated as an important and positive variable in the academic and socio-emotional development of children. Positive interactions between family and school, which are two main areas of socialization, contribute positively to the socio-emotional and cognitive development of the child. Research findings showed a positive relationship between parental involvement in education and academic achievement. while improving children's self-esteem and academic performance, family involvement is also associated with positive school attachment and positive school climates for children. Research has also proven that programs focused on increasing parent involvement in education have positive effects on children, families, and school communities (Akyürek & Bülbül, 2023; Gettinger& Guetschow, 1998; Gonzalez-DeHass, Willems & Holbein, 2005; Özcan, & Aydoğan, 2014)

There is also a consensus about the positive impact of parental involvement on a child's academic achievement among the many studies that have been conducted with a larger or narrower population and have variously defined what parental involvement is. Effective communication between schools and families is crucial for understanding and addressing the individual needs of children with special needs. Open and clear dialog between school and family helps build trust, allows for insight and ideas to be shared about the child's abilities and challenges, and facilitates the development of special education plans (Avnet et al., 2019; Đurišić, & Bunijevac, 2017; Wilder, 2014).

Parents and families have a great influence on the success of children's education and upbringing. Parent involvement relates to their position at home (observing and supporting children's learning) as well as their participation in school activities (conferences, volunteer activities, parent meetings, workshops, and seminars). the importance of parental involvement is associated with the success of children at all levels. Primary school children gain more academic, language, and social skills. Secondary and high school students, on the other hand, have more positive attitudes toward doing homework and attending school. Studies show that family involvement is more effective than the socioeconomic and educational status of the family in increasing the academic success of children. Children of parents who read to their children, help them with homework, and support their children in matters they do not understand tend to be more successful than children whose parents do not help them. In addition, the involvement of families in education, in other words, family participation, is one of the strategies to increase the quality of education (Garcia & Rios, 2014; Gözde, 2007; Wong et al., 2006).

Parents' perceptions of school are related to their thoughts and feelings about schools. Parents' perception of school can be effective in their children's educational process and may affect children's attitudes toward school. Families' perception of school can affect factors such as the child's success, school participation, and family-school cooperation. Studies show that a positive perception of school by families has a positive effect on the child's academic success. Families' trust in school and teachers can increase the child's motivation and interest in school. In addition, families with a positive perception

of school can encourage their children to attend school regularly and be actively involved in school activities. Conversely, a negative school perception of families can have negative effects on the child's education. In cases where families do not care about school or have negative thoughts about school, children's interest in school may decrease and their motivation may decrease. This can affect the academic success of the child. Parents' perceptions of school are also important for family-school cooperation. Families with a positive school perception may be more willing to participate in school activities and communicate better with the school. It is important to support the child's education. As a result, parents' perceptions of school play an important role in the child's educational process. A positive school perception can affect factors such as a child's academic success, school participation, and family-school cooperation. Families' trust in school and teachers can increase the child's attitude and motivation toward school. Families' perception of school is an important factor for a child to have a successful educational experience (Avnet et al., 2019; Altuntaş, Demirdağ & Ertem, 2020; Linares et al., 2008).

The importance of parental involvement and school perception in the educational process has been recognized in both the general and special education. It is important to comparatively examine parental perceptions, including those of parents of children of different ages and levels of special education needs, due to obvious differences in traditions regarding parent involvement in general and special education. The benefits of productive home-school interactions are widely recognized, and knowledge of the factors that influence these relationships can improve schools' ability to meet the needs of parents of all students, including those with the most serious disabilities. This study aims to compare the perceptions of families of normal developing and special education school-age children about school and their views on the possibilities and forms of their children's participation in education programs. This study makes a substantial contribution to the field of education by shedding light on the complex dynamics surrounding the perceptions and participation of families with children receiving special education and general education services. In an era where inclusive education is increasingly emphasized, this study contributes to the ongoing dialog on how to create educational systems that meet the diverse needs of all learners. It underscores the importance of actively involving families in the educational process and highlights the potential for improved outcomes when this involvement is optimized. In summary, "Investigation of School Perception and Participation of Families whose Children Receive Special Education and General Education" enriches our understanding of family-school interactions in diverse educational settings.

Methods and Materials

Research Model

In this study, the Family School Perception and Participation scale, which considers the parents of special education needs (SEN) and normal students of all ages and levels, was applied to the parents. The study is a quantitative study using a graded 5 Likert-type scale. The scale is a data collection tool that lists a set of structured questions that respondents answer based on their knowledge and experience. Different types of questions may be included in the scale, depending on the research context and the type of information desired. Quantitative research scales are scales used in quantitative research where data are expressed numerically. These scales allow participants to rate their views or experiences on a specific scale. Quantitative research scales can generally be of different types, such as Likert-type scales, semantic differential scales, or rating scales. Likert-type scales allow participants to express their thoughts on a particular topic or situation within a specific measurement range. For example, responding on a scale from "strongly agree" to "strongly disagree". Quantitative research scales provide researchers with a solid basis for analyzing data and statistically evaluating results (Allen, Titsworth & Hunt, 2008). The use of these scales is important for finding answers to research questions, testing hypotheses, and understanding research data in general. Scales can be applied in two main forms; paper forms and online forms. The paper survey is a more traditional method of data collection and can easily result in data loss. Editing and processing paper forms are also cumbersome. Online surveys are usually created through data collection platforms such as Google Forms (Mallette & Barone, 2013).

Sample

A total of 366 parents, including 284 mothers and 82 fathers, participated in the study. The distribution of the participants regarding the type of school their children attend is given in Table 1 in terms of frequency and percentage. Of the 284 participating mothers, 95 children attended special education and 189 children continued normal education. Of the 82 participating fathers, 17 children attended special education and 65 children continued normal education. As a result, while 112 of 366 participants receive special education, 254 continue normal education.

Table 1. The distribution of Participating Parents by Education of the Child

			Child's education		
			Special education	Normal Education	Total
Parent	Mother	N	95	189	284
		%	26.0%	51.6%	77.6%
	Father	N	17	65	82
		%	4.6%	17.8%	22.4%
Total		N	112	254	366
		%	30.6%	69.4%	100.0%

Detailed information about the education levels of the participating families and the type of education the child received is presented in Table 2. Of the 112 parents who have children attending special education, 20 are in primary school, 11 are in secondary school, 19 are high school graduates, and 62 are university graduates. Of the 254 parents whose children receive a normal education, 73 are primary school graduates, 67 are secondary school graduates, 42 are high school graduates, and 72 are university graduates.

Table 2. Demographic Information on the Education Level of Participating Families

		Education level				
Child's Education		Primary school	Middle school	High school	University	Total
Special education	N	20	11	19	62	112
	%	5.5%	3.0%	5.2%	16.9%	30.6%
Normal Education	N	73	67	42	72	254
	%	19.9%	18.3%	11.5%	19.7%	69.4%
Total	N	93	78	61	134	366
	%	25.4%	21.3%	16.7%	36.6%	100.0%

Table 3 contains detailed information about the type of school children attend and their ages. Of the 112 children attending special education, 14 are in the age range of 3-6, 64 are in the 7-10 age range, 26 are in the 11-14 age range, and 8 are in the 15-18 age range. Of the 254 children receiving normal education, 14 are 3-6 years old, 75 are 7–10 years old, 141 are 11–14 years old, and 24 are 15–18 years old. When we evaluate the children of the participants according to their age, the age range where the number of children receiving special education is 7-10, while the age range where the number of children receiving normal education is 11-14.

Table 3. Demographic Information on the Age of Children in Participating Families

		Child's Age				
Child's Education		3-6	7-10	11-14	15-18	Total
Special education	N	14	64	26	8	112
	%	3.8%	17.5%	7.1%	2.2%	30.6%
Normal Education	N	14	75	141	24	254
	%	3.8%	20.5%	38.5%	6.6%	69.4%
Total	N	28	139	167	32	366
	%	7.7%	38.0%	45.6%	8.7%	100.0%

Data Collection Tool

The "Family School Perception and Participation Scale" developed by Yurtbakan and Akyıldız (2020) was used as a data collection tool. The scale consists of 26 questions and 4 dimensions. The Cronbach's alpha coefficient of the scale applied to 319 parents was found to be 0.907. According to Yurtbakan and Akyıldız (2020), the effect of demographic characteristics on families' perceptions and participation in school can be examined thanks to the scale, which measures families' perceptions and participation in school simultaneously. In this study, the aim of which was to compare the perceptions of the families of normal and special education school-age children about their school perceptions and the possibilities and forms of their children's participation in educational programs, the Family School Perception and Participation Scale was applied to 366 families. Considering the 4-factor scale with 26 questions obtained because of the analysis and the items under the factors, the factors were named as school perception 8 items, student development 7 items, parent development 7 items, and barriers to school participation (4 items) sub-dimensions. The Cronbach's alpha coefficient of the scale was found to be 0.929 in this study.

Data Collection and Analysis

The ethics committee approval of the study was obtained from the Publication Ethics Committee of Afyon Kocatepe University with the decision numbered 2022/172 dated 13.05.2022. Data were collected online via Google forms. After obtaining the necessary permissions and approvals for the implementation of the scale, the scale was transferred to the digital environment via Google forms using the scale items, and the scale link was sent to the families. The obtained data were transferred to SPSS and analyzed by SPSS.

To determine the test to be applied to compare the school perception of the families of normal and special education school-age children and the opportunities and forms of their children's participation in the educational processes, it was first examined whether the data were normally distributed.

Kolmogorov –Smirnov tests were applied to determine the normality of the data. and Shapiro-Wilk normality tests were applied, and it was determined that the data showed normal distribution. The analysis results are in Table 4.

Table 4. Normality Test Results

	Kolmogorov– Smirnov [a]			Shapiro-Wilk		
	Statistics	Df	Shallow.	Statistics	df	Shallow.
Total	,059	366	,004	,973	366	,000

To determine whether there is a significant difference between the perceptions of the families of normal and special education school-age children and their views on the opportunities for their children to participate in the educational processes, a sample t-test was conducted independent of the parametric tests. Detailed information about the test results is provided under the heading of findings. The independent sample t-test was used to test whether there was a statistically significant difference between two independent groups by looking at the means. This test is a parametric test.

Ethical Considerations

In this study, all rules stated to be followed within the scope of "Higher Education Institutions Scientific Research and Publication Ethics Directive" were followed. None of the actions stated under the title "Actions Against Scientific Research and Publication Ethics", which is the second part of the directive, were not taken. Quantitative data was collected electronically and there were was no ramification if they decided to opt-out at any time. The results and consent information were hosted on the researchers' personal account and safeguarded by a password.

Ethical review board name: Afyon Kocatepe University Social and Humanities Scientific Research and Publication Ethics Board
Date of ethics review decision: 13.05.2022
Ethics assessment document issue number: 2022/172

Findings

The research findings are presented in Table 5 considering the obtained data and analysis. The table contains the analysis results for each subdimension of the scale. The highest score that can be obtained from the scale is 130, and the lowest score is 26. According to the research data, the average scale score of families with children with special needs was 102.76, whereas the average scale score of families with children with normal development was 91.47. Because of the statistical analyzes, there is a significant difference between the scale scores of the families whose children receive special education and whose children continue to receive normal education.

Table 5. Independent Sample T-Test Results Regarding Scale Total and Sub-Dimensional Scores

Child's Education		N	Average	SS	t	sd	p
Total	Special education	112	102,7679	10,08967	7,924	364	,000
	Normal Education	254	91.4724	13.51113			
Parent	Special education	112	27.2321	3,46406	11,114	244,944	,000
Development	Normal Education	254	22,6339	4,03294			
Student	Special education	112	25,5000	4,17845	11,687	268,668	,000
Development	Normal Education	254	19.4370	5.36365			
Parent	Special education	112	15.4286	2,52453	-.042	226,345	,967
Involvement	Normal Education	254	15,4409	2,70457			
School	Special education	112	34.6071	3,81169	1,452	230,770	,161
Perception	Normal Education	254	33,9606	4.16821			

Significance value ($p<0.05$).

The highest score that can be obtained in the "Parental Development" sub-dimension is 35. The score for families whose children receive special education is 27,2321, and that for parents of children with normal education is 22,6339. In the "Parent Development" sub-dimension, according to the t-test results, a significant difference was found in favor of families with children in special education.

The highest possible score in the "Student Development" sub-dimension is 35. The average score for families whose children receive special education is 25,5000. The mean score received by the families of students whose children receive a normal education is 19.4370. In terms of significance value, the scores in this sub-dimension were low in both sample groups. However, when the two sample groups were compared a significant difference was found in favor of families whose children received special education.

The highest possible score for the “Parental Involvement” sub-dimension is 20. The mean score of families whose children receive special education in this sub-dimension is 15,4286. Families of children with normal education received an average of 15,4409 points. When we look at the significance value in Table 5 for this sub-dimension (p =, 967), no significant difference was found between the two groups. Parents in both groups scored similarly on the importance of their involvement in school activities and keeping in touch with the school.

The highest score that can be obtained in the "School Perception" sub-dimension is 40. The average score of families whose children receive special education is 34,6071, and the mean score of families whose children receive normal education is 33,9606. When we examine Table 5 for this sub-dimension, the significance value is p = 161. Although both sample groups received high scores for this sub-dimension, no significant difference was found between the two sample groups.

Discussion

Parent involvement in school is important for all parents and students, whether their child is developing normally or has special needs. Although the reasons or participation rates may differ, positive perceptions toward school and participation in school activities for all parents will both increase the quality of service that children receive from school and increase their academic success. While studies on family participation are limited in the literature, there are very few studies on school perception and participation of families whose children receive special and regular education.

Family participation, which aims to increase the success of children, includes the acquisition of many skills, from learning subject-specific skills to developing appropriate relationships within the family. Although the necessity of family participation has been determined by the provisions in the laws, it is still difficult to ensure participation in many countries in the field of practice today. When the studies on the participation of families of children with special education needs were examined, it was found that the variables affecting family participation (socio-economic level, education level of families, participation styles of families) were similar to the participation of families of children who did not need special education. Although the participation of the parents of children in need of special education in education is determined by the laws, there may be difficulties in ensuring the participation of the families. In particular, research should be conducted on how to ensure the participation of low-income families, families with different cultural characteristics, and families of children who need special education, and which way educators or educational institutions will follow in ensuring family participation (Keçeli-Kaysılı, 2008). According to the study findings, both groups of participants are aware of the importance of their participation in school activities and being in contact, and they are highly conscious of this issue.

Yıldırım and Dönmez (2008) emphasized in their study that only teachers and schools cannot provide sufficient education, and therefore parents' support is always needed. When parents are actively involved in their children's education, better outcomes can be achieved in terms of academic achievement, social development, and overall school well-being. Parental involvement and parents' perceptions of school are particularly important for the successful education and development of students with disabilities. Participation in school activities, meetings, and organizations means that parents have a positive attitude toward school, which helps increase children's sense of belonging. Students who encounter various problems related to their disabilities can cope with these emotional problems more easily with parent and school cooperation.

Family participation creates an effective learning environment. In the student development sub-factor, the parents of children receiving special education have higher scores on this factor, which supports this claim. Regardless of the type of disability, families have shown that they are conscious of the fact that their children's most important need is the education they receive and that their participation and perceptions are effective in their children's development. Families of children with special needs showed that they are aware of the importance of the school environment for the academic and social development of children and the value of their participation by obtaining a higher score on this factor (Hara & Burke, 1998; Uslu & Gizir, 2017). Children with normal development are more conscious and competent than their peers with special needs in following and fulfilling their responsibilities both at school and home. They can follow their progress and ask for help when needed. When we evaluate children with special needs from this perspective, they are less likely to follow their development and seek help in this regard. The willingness and consistency of parents to participate in school will have a significant impact on their children's academic, social, and personal development. According to the test results that the parents of children with special needs from the participant groups are more aware of the importance of their school participation in the development of their children.

Epstein (2010; 2001) emphasized that the families of all children with physical disabilities, socio-economically disadvantaged, or different languages and races should be more sensitive about school participation, and for this, all stakeholders should encourage parental participation if necessary. It has been observed that this study shows parallelism with the school participation factor of parents of children with special needs. Parents are not only students' first teachers but also educators' partners. Parents have an understanding of their children, and this understanding can be valuable for teachers when planning their learning experiences. Similarly, teachers can contribute to parents getting to know their children as they get to know students differently from their parents in a different environment. Educators have a responsibility to inform parents about the curriculum and their children's progress. In addition, parents can contribute to the school program and goals. Parents are active in motivating their children, making connections between what is learned in school and opportunities outside. Hence, the study findings indicate that school attendance is higher in participants whose children receive special education in terms of parental development because the parents of these children feel the need to

develop themselves more. Special education children also require rigorous repetition at home to generalize the skills they have acquired in school. Therefore, parents have a great responsibility to support their children's development at home. In this context, parents should always be open and willing to develop themselves to be sufficient for their children. We can say that the difference between the two participant groups is because of this reason.

Academic studies on family involvement and school perception have yielded various findings. These studies show that parent involvement has positive effects on school success. The active participation of families in school increases the academic performance of children and strengthens their commitment to the school. Students working in cooperation with their families support the learning process and increase their motivation. Parents' perceptions of school also affect their children's education. Families with a positive school perception increase their children's interest in school and participate more in school activities. This has a positive effect on children's school success. In addition, families' perceptions of school shape their attitudes toward supporting children's education and being in contact with the school. Some studies have revealed that family involvement also has positive effects on students' social and emotional development. The involvement of families in school increases children's self-confidence and helps them establish better relationships in the school environment. However, some studies also indicate that family participation in school may face some obstacles. In particular, factors such as time and resource constraints of parents, language barriers, and inadequacy of school communication channels can negatively affect family participation. As a result, academic studies show that family involvement and school perception have positive effects on children's education. The active participation of families in school and a positive school perception increase the academic success of children and contribute to their social and emotional development. Schools need to strengthen communication channels and reduce the obstacles that families may face to involve families in the education process (Acar, & Akamoğlu, 2014; Akyürek & Bülbül, 2023; Albez & Şükrü, 2017; Aslan, 2016; Çakmak, 2010; Deslandes & Cloutier, 2002; Lync & Stein, 1982; Taliaferro et al., 2009; Thomas et al., 2020; Vural & Kocabaş, 2016). This study shows that the idea that the school is a respectable place and that it is a place where positive attitudes are fostered by parents also affects students' school perception positively. Although there is no significant difference between both parent groups, this perception is high for both groups. This means that the participants see the school as a respected institution and have a positive perspective.

The findings of this study were consistent with the relevant literature mentioned above. Similar studies in the field support these findings. Many studies have revealed the reasons why families with children attending special education have higher parental involvement and school perception. When comparing parental involvement and school perception in special education and general education, it is important to consider the unique dynamics and challenges associated with each setting. While there may be some similarities, there are also notable differences. Parental involvement in special education often requires a higher level of engagement because of the unique needs and challenges of students with disabilities. Parents of children in special education may need to attend more meetings, collaborate with a larger team of professionals, and provide additional support at home. Parents of children in special education often play a more significant role in advocating for their child's needs and participating in the development of Individualized Education Programs (IEPs). They may have a more active voice in decision-making processes related to their child's education. Parents of children in special education may need to provide additional support and resources at home to reinforce concepts and skills learned in school. This can include specialized interventions, therapy sessions, or implementing specific strategies to address the child's unique needs. In special education, teachers may receive specialized training and have a more in-depth understanding of the unique needs of students with disabilities. This can contribute to a more positive perception of the school's ability to provide appropriate support and accommodations. Schools that offer special education programs may have access to a wider range of resources and support services, such as specialized instruction, assistive technology, and related services (e.g., speech therapy, occupational therapy). This can impact the perception of the school's ability to meet the needs of students with disabilities. In general education settings, the level of inclusion and integration of students with SEN may influence the school perception. Schools that prioritize inclusive practices and create a supportive environment for all students may be perceived more

positively. It is important to note that these points are general observations and may vary depending on the specific school, district, and country. Each individual's experience with parental involvement and school perception can differ. For a more detailed understanding, it is recommended to review specific research studies or reports that focus on comparing parental involvement and school perception in special education and general education settings.

The results of the literature review show that the school perception and participation of both families whose children receive special education and those whose children receive normal education have positive effects on the education process of children. Many studies also suggest that the active participation of families increases children's self-confidence, supports their academic success, supports their social and emotional development, and increases their motivation to learn. The school perception and participation of families receiving special education increased the satisfaction and motivation of children in the educational process. Studies have shown that the school's perception of families receiving special education increases children's self-confidence and learning motivation, and this positively affects their academic achievement. It has been emphasized that it facilitates their adaptation to school.

Result

The school perception and participation of families with children with special needs play an important role in the child's education process. The school perception of families with children with special needs includes factors such as being aware of the child's special needs, expectations for his/her education, and evaluating the support provided by the school. The active participation of families in school is also an important factor in the education of the child. Activities such as attending school meetings, communicating with teachers, and participating in school activities demonstrate the involvement of families in the school. The active participation of families with children with special needs in school supports the education of the child, strengthens communication, and ensures cooperation between the school and family.

Examination of parents' perceptions and participation in school is important for understanding the needs and expectations of both parents and the school for their child's education. In this way, cooperation and harmony between the school and the family can be achieved, difficulties in the education of the child can be overcome, and success can be supported. As a result, school perception and participation of families with special needs and normally developing children are important factors affecting the success of the child in the educational process. A positive school perception and active participation of families increase the child's interest in school, strengthen his motivation, and generally support his education. Therefore, this study investigated the school perception and participation of families whose children receive special and general education. The results are as follows:

1. There is a significant difference between families with children with normal development and those with special education needs. Families whose children receive special education are more actively involved in their children's educational process than families whose children receive general education

2. In the "Parent Development" sub-dimension; a significant difference was found in favor of families with children in special education. The family of the child receiving special education should exchange information by communicating with experts and other families regarding the child's education and development. To summarize, the development of families with special education children includes the process of acquiring knowledge and skills for the child's education, access to support resources, and emotional support. The development of families can strengthen their ability to better respond to the child's specific needs and to participate more actively in their child's education.

3. The scores in the child development sub-dimension were low in both sample groups. However, when the two sample groups were compared with each other, a result was found in favor of families whose children received special education. For families receiving special education, child development includes the education and support process for the child's special needs. This process advances the child's cognitive, social, emotional, and motor skills. Special education includes an education program designed for the individual characteristics and special needs of the child. The role of families is crucial for the development of children receiving special education. Families can provide support for the child's special needs by actively participating in the child's education. They can contribute to the education of the child by cooperating in the implementation of the special education program. To summarize, the development of children of families receiving special education includes the education and support process for the special needs of the child. The active participation of families and the use of supportive strategies to increase the child's motivation and support his/her strengths positively affect the child's development.

4. In parental involvement, the sub-dimension showed no significant difference. Parents' participation in school activities and being in contact with the school have a positive effect on the child's education and are important for the child's development. Parent involvement in school activities allows the child to feel more support and motivation in the school environment. By participating in school activities, parents demonstrate their active involvement in their child's education. This increases the child's self-confidence and strengthens his belief in success. Being in contact with the school is also important for the development of the child. Regular communication between parents, the school, and teachers ensures that the child's educational process is followed. Communication enables the exchange of information about the child's academic performance, social interaction, and behavior. In addition, parents' communication with the school facilitates the identification and implementation of support for the child's needs. The study results show that parents in general are aware of the importance of their participation in school activities and know that being in contact with the school increases the success of the child at school, increases his motivation, and enables him to participate more actively in the learning process. Simultaneously, such a parent involvement positively affects the child's a more positive experience in the school environment and overall attitude toward school.

5. Although there was no significant difference between both parent groups, school perception was high for both groups. Parents' perception of school refers to their attitudes and beliefs toward school and education. These perceptions affect parents' interest and expectations of their children's education. Parents' perceptions of school can also affect their children's commitment and motivation to school. In addition, parents' perceptions of school can also play an important role in a child's academic success. A positive perception of school by parents can contribute to a child's education. Parents with a positive school perception encourage their children to attend school, actively participate in school activities, and support their children's learning process. In addition, parents' perceptions of school can increase the child's motivation and success in learning. Conversely, a negative school perception of parents can have a negative impact on the child's education. Parents with a negative perception of school may prevent the child from going to school, avoid participating in school activities, and may not support the child's learning process. This may reduce the child's commitment to school and negatively affect academic achievement.

This study revealed that families play a pivotal role in shaping the educational experiences of their children, whether they are enrolled in special education programs or integrated into general education classrooms. Effective communication between schools and families, coupled with readily accessible support services, is pivotal in enhancing family engagement and fostering a positive perception of the educational process. Through a comparative lens, this study nuanced differences

in the experiences of families navigating the special education and general education landscapes. These disparities underscore the importance of tailored strategies and targeted support mechanisms to address each group's unique needs and challenges. The implications of this study extend far beyond its research context. It calls for the development and implementation of inclusive education policies that actively involve families in decision-making processes and recognize their invaluable contributions to their children's learning. In conclusion, "Investigation of School Perception and Participation of Families whose Children Receive Special Education and General Education" advances our understanding of the intricate interplay between families and schools in diverse educational settings. This study underscores the transformative potential of inclusive education practices and highlights the necessity of collaborative efforts among educators, policymakers, and families to create educational environments where every child can thrive. Ultimately, the findings of this study serve as a catalyst for positive change in the realm of education, advocating for equity, inclusivity, and improved outcomes for all learners.

Limitations

1. The data collected for this study primarily relied on self-report measures completed by parents. This introduces the potential for response bias, as participants may have provided socially desirable responses or may not accurately recall their experiences or perceptions.

2. The study employed a scale which only captures a snapshot of families' perceptions and participation at a single point in time. Longitudinal research would provide a more comprehensive understanding of how these factors evolve over time.

3. The study was conducted in a specific geographic area with a particular demographic composition. Consequently, the findings may not apply universally and might be influenced by regional or cultural factors.

4. While standardized scales and questionnaires were used to measure school perception and participation, these tools may not capture the full complexity of the experiences and attitudes of families. Qualitative methods, such as interviews or focus groups, could provide richer insights.

Recommendations

Based on the research findings and results, the research recommendations are presented below:

1. School management, who understands the importance of school and family cooperation, can organize activities and informative seminars for parents.

2. The school administration must inform the parents about the work of the school and use various means of communication (mail, telephone message, letter to the student, etc.).

3. The school should consider the demands and opinions of the parents, and make parents feel importance of their participation.

4. Parents should be informed about the individual situations of their children without delay.

5. A positive school environment should be created so that children with special needs do not experience emotional problems at school.

6. The family should be informed about the IEP prepared for children with special needs, and the family should feel that it is an important stakeholder in the IEP.

7. Activities that support families' school participation and school perceptions should be presented in the school climate.

8. A similar comparison study can be conducted using the mixed method with different demographic variables.

9. A needs analysis study can be conducted for education regarding the factors that negatively affect parents' school participation and school perception.

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Comparison of the Effectiveness and Efficiency of Teaching with Direct and Simultaneous Prompting in Teaching Concepts to Individuals with Autism Spectrum Disorder

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Comparison of the Effectiveness and Efficiency of Direct Instruction and Simultaneous Prompting in Teaching Hot, Cold, Hard, and Soft Concepts to Individuals with Autism Spectrum Disorder

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ABSTRACT
There are significant difficulties teaching concepts to individuals with ASD, primarily abstract concepts. Many studies, from sensory integration studies to occupational therapy studies, from the academic dimension of special education to the affective dimension, are trying to solve this problem. This study aimed to determine the effectiveness and efficiency of direct instruction and simultaneous prompting in teaching hot, cold, hard, and soft concepts to students with autism spectrum disorder. The research model is the parallel treatment model, which is a single-subject research model. The dependent variable of the research was determined as the concepts of hot, cold, hard, and soft, and the independent variables were the levels of direct instruction and simultaneous prompting. Daily probe, collective probe, and follow-up sessions were planned and implemented for the four concepts identified in the research for direct instruction and simultaneous prompting. For each concept constituting the dependent variable of the research, the researcher prepared tool sets that exemplify the target behavior and include opposite concepts. Concept tracking checklists, criterion-dependent measurement tools, application reliability, and social validity forms were developed and used to collect research data. The research was conducted with the participation of four 7-year-old students, two girls and two boys, with autism spectrum disorder, attending the Autism Studies Application and Research Center. As a result of the research, the direct teaching method is more effective and efficient than the simultaneous prompting teaching method in comparing the effectiveness and efficiency of four subjects in gaining the concepts in the application process.

Keywords: Autism spectrum disorder, direct instruction, concept instruction, simultaneous prompting, single subject.

Introduction

Concept learning begins with the individual's birth and continues throughout his or her life. While many learning experiences happen spontaneously in life, they are purposefully guided in some cases. Concept learning occurs more rapidly in the early stages of a child's life. No matter the learning method, concepts are generally learned in two stages (Doğanay, 2005). The first stage involves creating the concept, and the second stage involves acquiring the concept. According to Ülgen (2004), concept learning includes categorizing stimuli, forming mental representations, and organizing and participating in structuring activities. Concept teaching involves identifying the concept's related components and unrelated distinctions and creating its taxonomic classification. In addition, concept teaching requires the use of positive and negative examples of the concept (Özyürek, 1983; Vuran, 2008). The importance of concept learning in special education and how it works is much more critical (Koçak & Sarı, 2021b). Concept teaching studies, especially concrete concepts, can critically improve these individuals' sensory, language, and daily life skills, especially in teaching students with autism spectrum disorder (ASD).

There may be significant difficulties teaching concepts to individuals with ASD, especially abstract concepts. Many studies, from sensory integration studies to occupational therapy studies, from the academic dimension of special education to the affective dimension, are trying to solve this problem. Even in teaching concrete concepts such as hot, cold, hard, and soft to students with ASD, there may be difficulties for individuals with affective processing difficulties. Concepts such as hot, cold, hard, and soft can help individuals with ASD understand and express their environment (Rasmussen et al., 2022). Such concrete concepts can also help develop language and communication skills, and they can express what they feel and think more effectively (Knight et al., 2013). In addition, teaching concepts such as hot, cold, hard, and soft can help students gain daily life skills. For example, students can use concepts such as hot and cold when cooking and hard and soft when choosing clothes (Cadette et al., 2016). Concepts such as hot and cold can also relate to emotional expression and social interaction. Students with ASD can learn to empathize and understand others' feelings through these concepts (Ferris, 2015). Rasmussen et al., 2022; Albert and Troutman, 2006 claim that teaching concrete and sensory expression-facilitating concepts to children with ASD improves their sensory awareness and social interaction skills. Dogan and Ozen, 2022; Vuran, 2008 stated that teaching concepts such as hot, cold, hard, and soft also helps children gain daily life skills.

In general, the direct teaching method, one of the most frequently used teaching methods in the education of students with ASD, is skill-centered, and the learning it provides is teacher-led. It is based on teachers' face-to-face training in lessons (Güneş, 2022; Karabulut et al., 2021; Koçak & Sarı, 2021a). Direct instruction makes the student act independently by gradually withdrawing the clues of the behavior to be gained. In the acquisition of behaviors by direct instruction, the actions of the teacher and the student are arranged in advance. When teaching starts, all responsibility falls on the teacher, which gradually passes to the student. While doing this, the teacher asks the student about the sub-skills that the student already knows and reinforces the correct answers. Students with autism spectrum disorder (ASD) often need to go through a challenging and individualized learning process to learn new concepts. According to Kurt (2006), teaching a specific skill or concept to children with ASD using a step-by-step approach to organizing helps students acquire concept acquisition skills. Kristie Asaro-Saddler (2016) stated that this strategy/method helps students focus on a particular subject and increases their ability to function independently. There are studies on the use of simultaneous prompting, which is another teaching method. Teaching with simultaneous prompting (Tekin, 2000), an errorless teaching method, is a response prompting method used effectively and efficiently in teaching single-step and chain behaviors to students in various disability groups. In simultaneous teaching (Sazak et al., 2020), a systematic adaptation of pre-behavioral prompting and testing, the target stimulus, and the controlling prompt are presented together, and the individual takes the controlling cue as a model. In teaching with

simultaneous prompting, the individual is not allowed to react independently because the controlling prompt is presented in each trial.

Using cues with appropriate timing and intensity can increase student learning and improve independent living (Rasmussen et al., 2022). In particular, the use of teaching methods with prompts enables students to acquire many skills on their own (Yücesoy-Özkan & Altun, 2019; Aydın & Tekin-İftar, 2020). According to Batu et al., 2014; Kızılkaya & Sarı, 2021; Özkubat et al., 2021, the use of visual cues and concrete examples can improve conceptual understanding. These methods can be used in a student-specific way, considering the student 's age, interests, and preferred teaching method (Çay, 2019). Through comparative research, Koegel et al. (1999) found that conceptual skills can be learned faster when direct instruction is paired with simultaneous prompt instruction. Studies have also examined how these methods can be used with students of different ages with ASD and students from various cultural backgrounds and age groups (Charlop-Christy et al., 2002). According to Rogers and Vismara (2008) and Karasu (2009), the effectiveness of these methods can be affected by various variables, including the teacher's level of expertise, the unique needs of the student being trained, the teaching materials used, and the environment in which the training occurs. Direct and simultaneous prompt instruction can increase conceptual understanding, improve social and language skills, and enable independent learning easily and quickly in students with ASD.

Aim

This research compares the effectiveness and efficiency of direct and simultaneous prompting in teaching the concepts of hot, cold, hard, and soft to students with ASD. In line with this purpose, answers to the following questions were sought as subobjectives: (1) Does the level of acquisition of "hot" and "cold" concepts taught to Student 1 by direct teaching differ from "hard" and "soft" concepts taught using simultaneous prompting? (2) Does the level of acquisition of "hard" and "soft" concepts taught to Student 2 by direct teaching differ from "hot" and "cold" concepts taught using simultaneous prompting? (3) Does the level of acquisition of "hot" and "cold" concepts taught to Student 3 by direct teaching differ from "hard" and "soft" concepts taught using simultaneous prompting? (4) Does the level of acquisition of "hard" and "soft" concepts taught to Student 4 by direct teaching differ from "hot" and "cold" concepts taught using simultaneous prompting? (5) When concepts with independent variables are taught to students with autism spectrum disorder using direct instruction and simultaneous prompting, does the effectiveness of the two methods differ in the follow-up sessions held at the first, third, and fifth weeks after the instruction? (6) Do the efficiencies of direct instruction and simultaneous prompt instruction differ in teaching concepts that are independent variables to students with autism spectrum disorder? (7) What are the views (social validity findings) of the mothers of the students who were treated about teaching hot, cold, hard, and soft concepts to their students with autism spectrum disorder, and the methods and tools used in this process?

Methods

Research Model

Single-subject research is defined as studies in which the effectiveness of an application is evaluated within each subject by taking repeated measurements under standard conditions (Rasmussen et al., 2022; Albert & Troutman, 2006; Tekin, 2000; Karasu, 2009). In the study, which compares the effectiveness and efficiency of direct instruction and simultaneous prompting in teaching hot, cold, hard, and soft concepts to students with autism spectrum disorder, the parallel treatments model, a single-subject research model, was used. The parallel treatments model is an approach that includes statistical analysis, which is used to compare the effects and efficiency of two or more independent variables on two or more non-retroactive dependent variables in a certain period (Tekin, 2000). Tekin (2000) states that the parallel treatment model allows one to examine the relationships between different independent variables and compare the effectiveness and efficiency of these variables with the dependent variable.

The instruction sets for sampling the dependent variable were prepared at the same difficulty level using the parallel treatment model. The independent variable associated with the instruction set was then determined by neutral assignment. In accordance with the research method, it was ensured that the independent variables were used alternately. Practice sessions were repeated an equal number of times with the students.

The application steps of the parallel treatment model in this study are as follows: (1) The study's dependent variables were determined as hot, cold, hard, and soft. Instructional sets were created for the dependent variables of the study. In each toolkit, at the first level, one material exemplifying the target behavior and one material exemplifying the concept that has an antonym with that concept were used. (2) Both direct instruction and simultaneous prompting sessions were planned for the four concepts aimed to be taught in the study. First the teaching of the concepts of hot and hard were studied with the subjects. It was determined that the method to which the hot concept would be applied to which subject was determined by neutral assignment, and thus, it was determined that the soft concept would also be taught with the other method. (3) Then, the transformation of the independent variables is provided. Two independent variables were applied one hour apart in one day. The order in which the independent variables were presented was arranged in an unpredictable order by the subjects. (4) Subjects were not given terminology about the method used; however, a warning expression, an address, indicated that a different study was started and another followed one teaching method. (5) Practice sessions were arranged for each subject twice a week. When the criterion (8/10) was reached in three consecutive sessions in a subject and a teaching method, the application of the other method was terminated.

In the study, the parallel treatment model was arranged in the following order: (1) Baseline (first probe phase) data were collected for each subject to obtain at least three stable data points for the four concepts to be taught. After obtaining stable data points, the implementation phase, in which the concepts of "hot", "hard", "cold," and "soft" were taught, started with four subjects. (2) All four concepts were analyzed in three steps. The concepts of hot and soft were applied in the first step of the application sessions. Teaching was presented with the first five sets of 10 tool sets prepared for each step, and after this instruction was completed, a five-minute break was taken, and the post-teaching step was evaluated with the other five toolsets. (3) Except for the first teaching session, daily probe sessions were held with ten toolkits prepared to evaluate the concept's steps before the other sessions. The second full probe phase was organized after the 8/10 criteria were met at three consecutive points in the daily probe sessions. (4) In the second full probe phase, probe sessions were held on the concepts of "soft", "hot", "hard," and "cold". In these sessions, when stability was achieved in the probe data points for the concepts of "hard, cold", these two concepts were taught. The third collective probe phase was initiated after the 8/10 criteria were met at three consecutive points in the daily probe sessions. (5) In the third full probe phase, probe sessions were held for the four concepts studied. (6) Follow-up sessions were held in the first, third, and fifth weeks following the last probe session.

In this study, possible factors were tried to be controlled as described below. To control external factors, the subjects' parents and other individuals thought to be able to provide instruction were informed that no application should be made about the concepts thought to be taught. Since no preliminary evaluation is made in single-subject studies, as in group studies, the testing effect did not pose a threat in this study. For the measurement effect, the session recordings were monitored by an observer from a faculty member in the special education department, and reliability analyzes were calculated for the dependent-independent variable. For the parallel treatment model, starting the study with four or five subjects is recommended. Therefore, four subjects who met all the conditions were included in the study. The multi-probe effect has two dimensions. These are (a) carrier effect and (b) sequencing effect (Tekin, 2000). A carrier effect occurs when one application affects another. The sequencing effect is the effect of the previous application on the subsequent application. The use of more than one independent variable may result in the effect of multiple probes in the application process. A balanced distribution of independent variables was provided to control for the effect of multiple probes. The methods were presented in an order that the subjects could not predict.

Setting

To teach the concepts to students with autism spectrum disorder using direct instruction and simultaneous prompting, the probe, application, and follow-up sessions were conducted in a one-on-one teaching arrangement in one of the 40 square meters observation, evaluation, and individual training rooms of Necmettin Erbakan University, Autism Studies Application and Research Center. There was a table and two chairs suitable for the subject's height in the room where the practitioner and the subject could sit opposite each other. In the room where the studies were conducted, there was a material cabinet with a lid, a teacher's desk, and a chair. Each subject was planned to attend one session in succession with an interval of one hour twice a week. The teaching program was planned as follows: with Student 1 between 10:30 and 12:30 on Mondays and Wednesdays, with Student 2 between 13:30 and 15:30 on Mondays and Wednesdays, with Student 3 between 10:30-12:30 on Tuesdays and Thursdays, and with Student 4 between 13:30 and 15:30 on Tuesdays and Wednesdays. Since the transformation of the methods used in the research was carried out during the day, both methods were applied one hour apart.

Materials and Tools

The instruction sets used in the research were composed of concept cards consisting of pictures of real objects called target stimuli (positive examples) and distractors (negative examples). The same tools were used in direct and simultaneous prompt instruction and in organizing probe, instruction, and follow-up sessions. Each concept been taught was analyzed in three steps. For example, the steps for "hot" are as follows: (1) Show the card with the picture of hot from the toolkits consisting of two objects of the same type. (2) Show the card with the hot image from the toolkits consisting of two objects of the same type and different types. (3) Show the student's card with a hot picture from a toolkit consisting of two objects of different types.

A video camera was placed in the individual training room where the study was conducted to record the video in all sessions. Written materials were used for data recording. The Concept List was used to determine the target behavior, and a parental consent form was used for the subjects to participate in the research. Data recording forms for the teaching sessions, which were prepared according to both teaching methods, were used in the research. These forms included defining the concept, related and unrelated qualities, and measurement tool usage instructions. Application reliability data registration forms were used to record the research's application reliability data for instruction and application sessions, as well as direct instruction and simultaneous instruction with daily probe, collective probe, and follow-up sessions. In addition, the Social Validity form prepared by the researcher was used to determine the social validity of the research.

Dependent and Independent Variables of the Research

In the study, the dependent variable was defined as the subjects showing the tool that exemplifies the concept with the desired feature among the two tools shown to them at a level that meets the criteria of at least 8/10. Common concepts in preschool education programs that were unknown to all four subjects were chosen. Parents and teachers preferred to teach hot, cold, hard, and soft concept pairs from the concept pool.

Table 1. Information on subjects, dependent variables, and teaching methods used to teach these dependent variables.

Participants	Concepts Instructed by Direct Instruction	Concepts Instructed by the Simultaneous Prompt Instruction Method
Student 1	Hot	Hard
	Cold	Soft
Student 2	Hard	Hot

	Soft	Cold
Student 3	Hot	Hard
	Cold	Soft
Student 4	Hard	Hot
	Soft	Cold

The independent variables of the research were direct instruction and simultaneous prompt instruction. In direct instruction, which is an independent variable of the research, the environment is structured by the teacher. Positive and negative examples of the concept are presented to the students. Then, both positive and negative examples are tested (for example, "This is soft - This is not soft." After the presentation is made, "Which one is soft?", and "Which one is not soft?"). Teaching with simultaneous prompting, which is another independent variable of the research, is a teaching method in which the controlling prompt is presented immediately after the target stimulus ("Which one is cold?", "This is cold"). In this method, because students are not allowed to react independently during instruction, whether stimulus control transfer is provided or not was tested in probe sessions. The related and unrelated qualities of the concept and its positive and negative examples were determined for the concepts that this research taught. This arrangement is one-to-one for direct instruction; however, some arrangements have been made to present positive and negative examples of the concept together for teaching with simultaneous prompting. While teaching with simultaneous prompting in the teaching process of the application, positive and negative examples of the concept were presented together; however, no instruction was given on the negative example.

Experimental Process

The experimental process consists of teaching, probe (daily probe and full probe sessions), and follow-up sessions.

Full probe sessions are in which all target behaviors in the instruction sets to be taught in the study are evaluated together. The data obtained in the full probe session constitute the full probe phases. In this study, data were collected simultaneously on four antonyms been taught in each probe session. There was no other application on the days of full probe sessions. Only one collective probe session was conducted in one day. Three probe phases were arranged for each subject. The first probe phase was accepted as the baseline phase.

In the first collective probe phase, after three consecutive sessions of stable data were obtained for all target behaviors, the practice phase in which the "hot" and "soft" concepts were taught was initiated. In this phase, the teaching of these two concepts was terminated when three consecutive daily probe sessions for "hot" and "soft" provided 8/10 criteria. In the second collective probe phase, after three consecutive sessions of 8/10 criteria for the concepts of "hot" and "soft", and three stable data points for the not yet implemented concepts of "hard" and "cold", the application phase was started for the concepts of "hard" and "cold". The same procedure was followed in this application phase. In this phase, after three consecutive daily probe sessions regarding the concepts of "hard" and "cold", 8/10 criteria were met, and the third collective probe phase was held. In the third collective probe phase, three sessions on the concepts of "warm", "soft", "hard", and "cold" continued to work in the probe phase until 8/10 criteria were met in three consecutive sessions.

Daily Probe Sessions

Daily probe sessions are data collection sessions related to the concept worked on in the intervention session using both methods. The data collected in the daily probe sessions constitute the intervention data of the research. This study held daily probe sessions before the next teaching session. In this study, each concept is presented in three steps according to the analysis of the concept. In one teaching session, only one step was taught; however, a three-step evaluation was performed in the daily probe session. Ten tool sets were used in the daily probe session for each concept, consisting of three from the second

level and four from the third level. The toolsets used in the daily probe sessions were changed in each session, as in the collective probe sessions; selecting the same toolkits for two consecutive sessions was prevented. While the subjects continued the teaching sessions for the third step of the concept to be taught if they met the 4/5 criterion at three consecutive points in the post-teaching evaluation and the 8/10 criterion at three consecutive points in the daily probe sessions simultaneously, the teaching and daily probe sessions related to the concept studied were terminated. In the daily probe sessions, if the criterion of 8/10 was met at three consecutive points, but 4/5 at three consecutive points was not met in evaluating the steps after the instruction, the daily probe and teaching sessions were continued. In the daily probe sessions, the practitioner and the subject sat opposite each other in the room where the other applications were made. The practitioner stated to the subject, "... now I will ask you a question. You will show me what I am asking you with your finger," after giving the instruction, the response interval is 2 seconds. Ten toolkits used in daily probe sessions were presented to the subjects once. In daily probe sessions, no reinforcement was provided for correct responses to prevent learning, and no corrections were made for incorrect responses.

Intervention Sessions

The transformation of teaching methods in the teaching sessions was completed the same day after the teaching session was completed with one teaching method and the teaching session started with the other method. While transforming the teaching methods, the teaching methods were numbered, and lots were drawn between the numbers. The practitioner planned the practice sessions regarding the four concepts to be taught according to direct and simultaneous prompt instruction. While the concept of "hot" was presented to two of the subjects with simultaneous prompts, the concept of "hard" was presented by direct instruction, the concept of "hot" was presented to the other two subjects by direct instruction, and the concept of "hard" was presented with simultaneous prompting. After defining the teaching with the concepts of "hot" and "hard", the teaching of the other two concepts was started. In the concepts of "soft" and "cold", the concept of "cold" was taught to both subjects by direct instruction, while the concept of "soft" was taught using simultaneous prompt instruction. The other two subjects were taught the concept of "cold" with simultaneous prompt instruction, whereas the concept of "soft" was taught with direct instruction. By drawing lots, it was decided which method would teach which subject.

Each concept was broken down into three steps and then presented as the outcome of a concept analysis. For each step, ten tool sets were used. In both methods, the practice sessions in which the teaching will be conducted are structured in two parts. A teaching session was held in the first part, in which the first five tool sets were presented. The flow of concept presentation for direct and simultaneous prompt instruction in these sessions is shown in Table 1. In the teaching sessions, if the subject reacted incorrectly to the toolset in the first trial, another trial was conducted with the same toolset. If the subject responded correctly in all sets, five attempts were made. After teaching with the five-tool sets, a five-minute break was taken, and then the post-teaching evaluation was made with the second set. In the post-teaching evaluation, instruction was given once for each toolset to which the subject reacted incorrectly. If the subject responded correctly to all toolkits, five trials were conducted. If the subject met the expected 4/5 criteria in the post-teaching evaluation, the instruction and post-teaching evaluation continued until three consecutive sessions met the 4/5 criteria. In the post-teaching evaluation included in the teaching session, the next step was taught after the 4/5 criteria were met at three consecutive points. In the teaching and post-teaching assessment, the subjects' correct responses were consistently marked and reinforced with verbal reinforcers. Instruction was presented again regarding each toolset, and incorrect responses were ignored. In the second teaching presentation, correct responses were constantly reinforced with verbal reinforcements such as "well done" and "very nice". In contrast, incorrect responses were ignored, and the experiment was continued with the other tool set.

Table 2: Concept Presentation with Direct Teaching and Simultaneous Prompt Teaching Method

The following steps were followed using the Direct Instruction Method	**In teaching the concepts. In teaching the concepts, the simultaneous teaching method followed the following steps.**
1. Before starting teaching, the teaching environment is made ready. 2. The toolkit is placed on the table. 3. Beginning Teaching 4. Directing students' attention to the study 5. Presenting a positive-negative example of the concept 6. Waiting response interval time 7. Correct response is reinforced 8. Wrong response is ignored (If a wrong response is encountered during the application, the steps after 13 steps are followed.) 9. Asking for a negative example of the concept 10. Waiting response interval time 11. Correct response is reinforced 12. The experiment is repeated with the next set of tools. 13. An incorrect response is ignored 14. Presenting a positive-negative example of the concept 15. Asking for a positive example of the concept 16. Waiting response interval time 17. Correct response is reinforced 18. The wrong response is ignored (if this happens for the second time, the same cycle is continued with the processing steps after 13 steps.) 19. Asking for a negative example of the concept 20. Waiting response interval time 21. Correct response is reinforced 22. The wrong response is ignored (if the exact wrong response happens for the third time, the loop is not continued, and the next step is passed.) 23. The experiment is repeated with the next set of tools. "If the wrong reaction follows the presentation of the positive and/or negative samples, the same cycle is repeated; a second trial is made with the same tool set."	1. Before starting teaching, the teaching environment is made ready. 2. The toolkit is placed on the table. 3. Beginning Teaching 4. Directing students' attention to the study 5. Present the skill guide and controller prompt. 6. Wait for response interval time (2s) 7. Student response 8. The correct response is reinforced. 9. Continue with the next set of tools. 10. The incorrect response is ignored. 11. Trial repetition using the same toolset 12. Presenting skill instruction and checking prompt 13. Waiting for the response interval time 14. The correct response is reinforced. 15. Ignore the wrong response "Error correction for wrong response. Recorded as the number of attempts."

Follow-up Sessions

Follow-up sessions were conducted 1, 3, and 5 weeks after the last probe session. In the follow-up session, as in the full probe sessions, three tool sets for each of the first two steps of four concepts and four tool sets for the third step were randomly determined. Thus, an evaluation was made using 10 toolsets related to a concept. The toolsets used in the follow-up sessions were changed in each session. The dependent variables' presentation order in the follow-up sessions was arranged randomly. In the follow-up session, the subject and the practitioner sat at the table opposite each other. The practitioner asked the subject all the target stimuli determined once and waited 2 seconds for the subject to answer the question. In the follow-up sessions, no reinforcement schedule was applied to correct or incorrect responses of the subjects.

Research Group

The study group consists of the practitioner, participants, and observer. The prerequisite features sought by the study's aims in the participants forming the study group of this research are as follows: (a)The

participants to be trained in the study must have a diagnosis of autism spectrum disorder. Adequacy to enable the teaching of single-instruction instructions/skills. (b)Absence of behavioral problems that hinder the teaching process. (c)Ability to focus attention on visual, auditory, and tactile stimuli for at least three or five minutes. (d)Ability to choose among objects. (e) reacting to the name, (f) providing waiting behavior, (g) having toilet control.

The participants continued to study at the Necmettin Erbakan University Autism Studies Application and Research Center, and they did not have a concept teaching study in their previous educational life using direct instruction and simultaneous prompt instruction, the effectiveness and efficiency of which were investigated. The study participants were seven years old: two girls (Student 1 and Student 2) and two boys (Student 3 and Student 4) with autism spectrum disorder.

Table 3: Characteristics of the subjects participating in the research

SUBJECT	GENDER	AGE	DIAGNOSIS	ACCOMPANYING DEFICIENCY
Student 1	Girl	7	Autism Spectrum Disorder	None
Student 2	Male	7	Autism Spectrum Disorder	None
Student 3	Girl	7	Autism Spectrum Disorder	None
Student 4	Male	7	Autism Spectrum Disorder	None

The practitioner in the study group of this research has 20 years of experience with students with ASD and is a Ph.D. lecturer. The practitioner has studied autism, direct instruction, errorless teaching methods, and single-subject research.

The observer in the study group of this research has experience in direct and errorless teaching methods and has 22 years of experience working as a faculty member in the special education department. In this context, the observer was informed about the steps to be followed while applying both teaching methods, how these steps were performed, and the definitions of correct and incorrect responses.

Data Collection Tools and Analysis

In this research, the data are presented graphically. In the graph created, the number of sessions is on the x-horizontal axis, and the quantitative representation of the dependent variable is on the y-vertical axis. Research data, application reliability data, interobserver reliability data, effectiveness data, efficiency data, and social validity data are stated below.

Collection of Application Reliability Data:

The researcher prepared an application reliability form to evaluate the teaching within the scope of the research. In this prepared form, the steps of the stages in the sessions (The application steps observed for direct teaching are: (1) control of the tools and equipment to be used in teaching, (2) directing attention, (3) "This... This... is not..." regarding the positive and negative examples. .", (4) asking about the tool that exemplifies the concept, (5) waiting 2 seconds, (6) responding correctly to the subject's reactions, (7) asking about the tool that does not exemplify the concept, (8) waiting 2 seconds, (9) responding to the subject's reactions giving correct responses (10) and waiting 2 seconds between trials. The application steps observed for teaching with simultaneous prompting are (1) control of the tools and equipment to be used in teaching, (2) directing attention, (3) presenting the skill instruction, (4) presenting the controlling clue following the skill instruction, (5) responding correctly to the subject's reactions, (6) waiting 2 seconds between trials. Steps to be followed in simultaneous prompting and direct teaching probe and monitoring sessions: (1) Control of the tools and equipment to be used in teaching, (2) directing attention, (3) presenting the skill instruction, (4) responding correctly to the subject's reactions, (5) 2 seconds between trials has been determined as pending, and columns are marking whether these notifications have occurred or not. All application sessions were recorded with a camera, and two faculty member field experts determined by impartial assignment monitored 30% of them. Field experts followed the records and marked the steps that were fulfilled in the form given to them. When calculating the application reliability coefficient, the percentage of observed practitioner

behavior was divided by planned practitioner behavior. Implementation reliability was calculated by observers' evaluations of the videos they watched using the formula [(observed implementer behavior/planned implementer behavior) 100] (Erbaş, 2012). As a result of the calculations, it was determined that the application reliability in this research was 100%. The high level of practitioner reliability helped us conclude that the practitioner taught as planned.

Collection of Interobserver Reliability Data: Interobserver reliability is calculated by dividing the interobserver agreement by the sum of the interobserver agreement and interobserver disagreement and taking the percentage (consensus/disagreement x 100) (Miles & Huberman, 1994). The data recorded by the observer were compared with the researcher's records, and the inter-observer reliability was found to be 93% for the concept of hot and 96% for the concept of cold. The reliability percentages of the concepts related to the teaching sessions with the Simultaneous Prompt Teaching Method to Student 1 were determined to be 95% for the hard concept and 100% for the soft concept. Student 1's reliability percentages for the collective probe sessions were 92% for the concept of hot, 95% for the concept of cold, 94% for the concept of hard, and 95% for the concept of soft. Student 1's reliability percentages for the monitoring sessions were 100% for the concept of hot, 100% for the concept of cold, 100% for the concept of hard, and 100% for the concept of soft. The reliability percentages of the concepts related to the teaching sessions using the Direct Teaching Method to Student 2 were determined as 90% for the hard concept and 100% for the soft concept. The reliability percentages of the concepts related to the teaching sessions with the Simultaneous Prompt Teaching Method to Student 2 were determined to be 100% for the concept of hot and 92% for the concept of cold. Student 2's reliability percentages for the total probe sessions were 92% for the concept of hard, 97% for the concept of soft, 96% for the concept of hot, and 90% for the concept of cold. Student 2's reliability percentages for the monitoring sessions were 100% for the concept of hard, 100% for the concept of soft, 100% for the concept of hot, and 100% for the concept of cold. The reliability percentages of the concepts related to the teaching sessions with the Direct Instruction Method to student 3 were found to be 95% for the concept of hot and 95% for the concept of cold. The reliability percentages of the concepts related to the teaching sessions with the Simultaneous Prompt Teaching Method to Student 3 were determined as 93% for the hard concept and 97% for the soft concept. Student 3's reliability percentages for the collective probe sessions were 94% for the concept of hot, 91% for the concept of cold, 94% for the concept of hard, and 98% for the concept of soft. Student 3's reliability percentages for the monitoring sessions were 100% for the concept of hot, 100% for the concept of cold, 100% for the concept of hard, and 100% for the concept of soft. The reliability percentages of the concepts related to the teaching sessions with the Direct Teaching Method to Student 4 were determined as 91% for the hard concept and 96% for the soft concept. The reliability percentages of the concepts related to the teaching sessions with the Simultaneous Prompt Teaching Method to Student 4 were determined as 96% for the concept of hot and 94% for the concept of cold. Student 4's reliability percentages for the total probe sessions were 90% for the concept of hard, 98% for the concept of soft, 97% for the concept of hot, and 92% for the concept of cold. Student 4's reliability percentages for the monitoring sessions were 100% for the concept of hard, 100% for the concept of soft, 100% for the concept of hot, and 100% for the concept of cold.

Collection of Effectiveness Data: The effectiveness of two teaching methods in teaching concepts that indicate quality to children with ASD was examined. The correct response numbers of the subjects for the efficacy data are shown graphically. On the graph, it was observed that the desired criterion was met in a shorter time with the teaching method.

Collection of Efficiency Data: To determine whether the two teaching methods differed in terms of efficiency, data were collected on (1) the number of attempts until the criterion was met, (2) the number of false responses until the criterion was met, and (3) the total time until the criterion was met.

Collecting Social Validity Data: A Social Validity Form was created by the researcher to determine the social validity of the research and the functionality of the target behaviors to be gained in the research, the suitability of the tools and methods used for the subjects, and the changes that occurred in

their children during the study. The social validity form was completed by the people responsible for the education and care of the children participating in the study, as they could constantly follow the changes in their children and spend the whole day with them. The social validity form was given to the parents in sealed envelopes on the day that each mother was shown two teaching sessions with her children. The parents filled out the forms and left them.

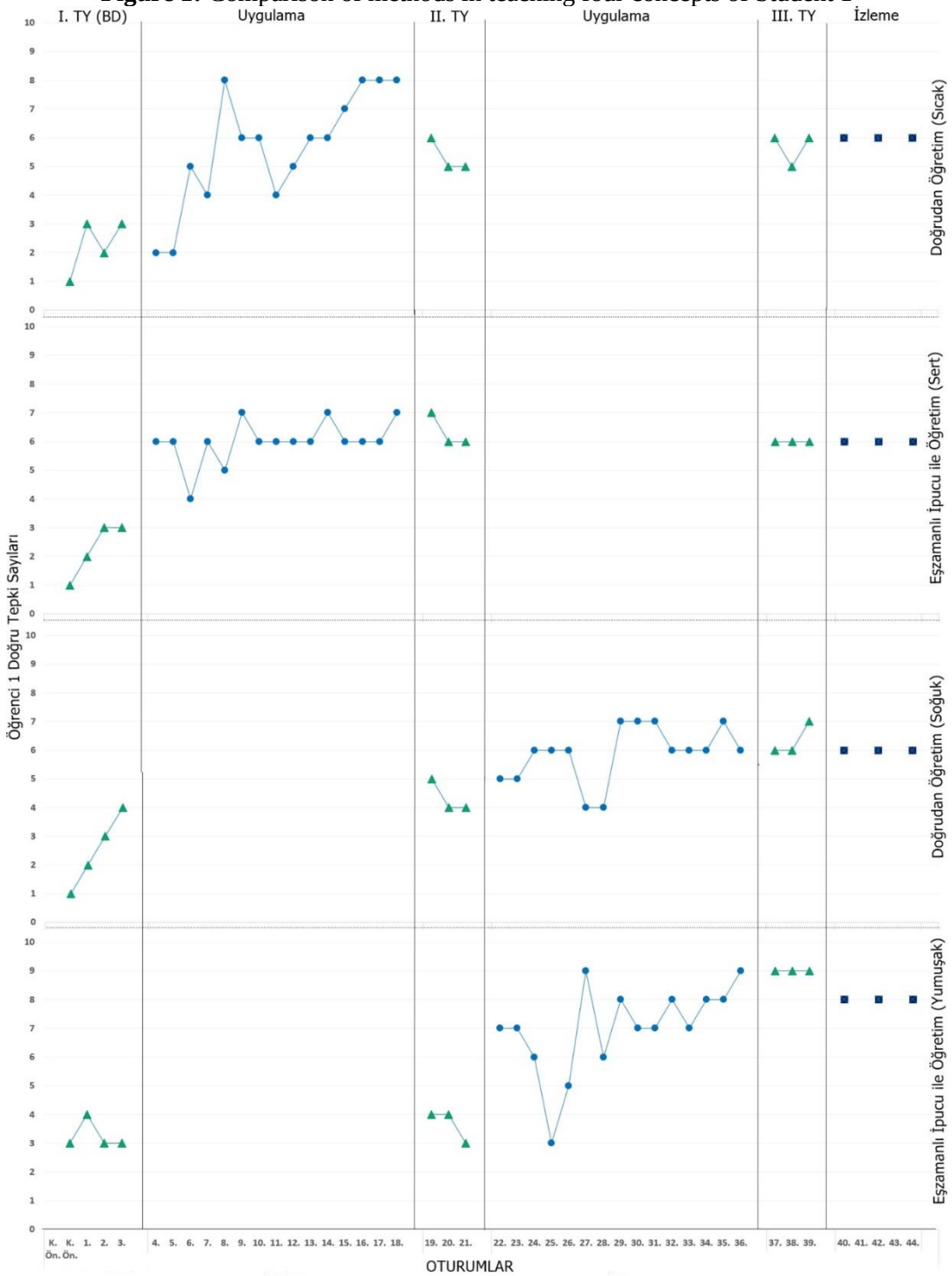
Ethical Considerations

"Higher Education Institutions Scientific Research and Publication Ethics Directive" was followed. This study was found appropriate by the Necmettin Erbakan University Social and Humanities Ethics Committee with the decision dated 12.04.2023 and numbered 2023–151.

Findings

The first of the sub-objectives was to determine the acquisition level differences between the "hot" and “cold "concepts taught to Student 1 by direct instruction method and the "hard" and “soft” concepts taught using simultaneous prompting. The findings and interpretations of the research statement are presented below.

Figure 1: Comparison of methods in teaching four concepts of Student 1



The graphical analysis interpretations of the data for student 1 to determine whether the acquisition level of the concept differs are as follows;

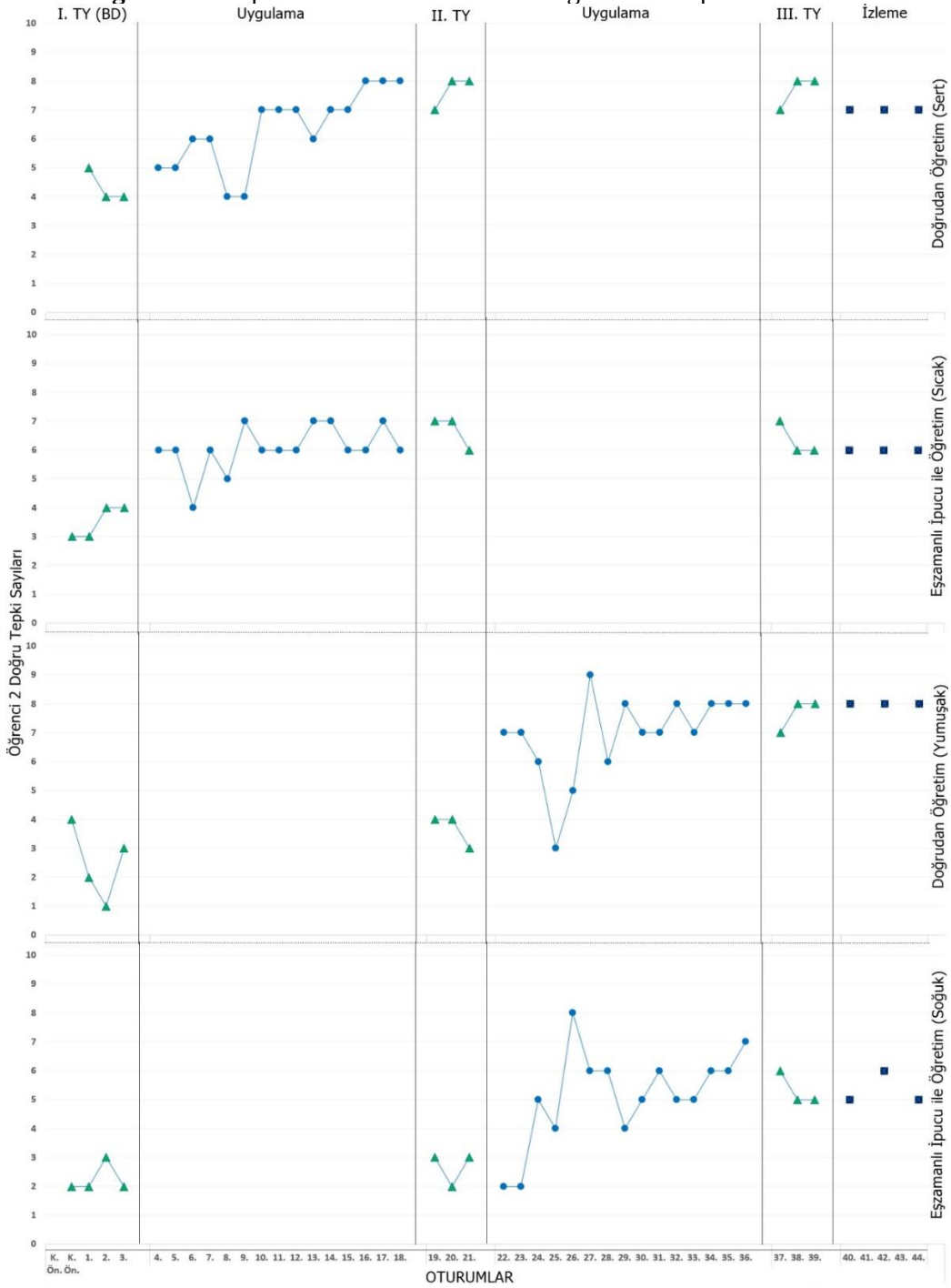
The impact of simultaneous prompting in the teaching of the concept of "hard" and the direct method in the teaching of the concept of "hot" on the participant was examined, and the average number of correct responses before teaching the concept of "hard," which is taught using the simultaneous prompt teaching method, was 2.7/10. The teaching process assessments had an average score of 6/10. The post-teaching evaluation average was 6.3/10. The average of the collective probe session after the teaching was 6/10 for three weeks, and in the evaluation made for the follow-up once a week, it was 6/10 in the

first week, 6/10 in the third week, and 6/10 in the fifth week. This result shows that although the teaching does not meet the criteria, it has continuity. The average of the correct response number before the teaching of the concept of "hot", which is taught with the direct instruction method, is 2.7/10, the average of the evaluations of the teaching process is 5.7/10, and the average of the post-teaching evaluation is 5.3/10. The average collective probe session after the teaching was 5.7/10. In the evaluation for the follow-up assessments made for three weeks and once a week, it was 6/10 in the first week, 6/10 in the third week, and 6/10 in the fifth week. This result showed that although the instruction met the criteria, its permanence was not permanent.

When the effect of simultaneous prompting in the teaching of the concept of "soft" and the direct method in the teaching of the concept of "cold" on the participant is examined, the average number of correct responses before the teaching of the concept of "soft", which is taught with the simultaneous prompt teaching method pre-teaching collective probe session, was 3.3/10, the average baseline level was 3.7/10, the average teaching process was 7/10, and the post-teaching evaluation average was 9/10. In the evaluation made for the follow-up, it was 8/10 in the first week, 8/10 in the third week, and 8/10 in the fifth week. This result shows that the teaching met the criteria and has continuity. The average of the number of correct responses before the teaching of the concept of "cold", which is taught with the direct teaching method, the average of the pre-teaching collective probe session is 2.5/10, the average of the beginner level 4.3/10, the teaching process average is 5.9/10, and the average of the post-teaching session is 2.5/10. It was seen that the average of the evaluation was 6.3/10. In the evaluation made for the follow-up, it was 6/10 in the first week, 6/10 in the third week, and 6/10 in the fifth week. This result showed that although the instruction met the criterion, the follow-up sessions did not continue in line with the criterion.

The second of the sub-objectives was to determine the acquisition level differences between the "hard" and “soft” concepts taught to Student 2 by direct instruction method and the "hot" and “cold” concepts taught using simultaneous prompting. The findings and interpretations of the research statement are presented below.

Figure 2: Comparison of methods in teaching four concepts of Student 2



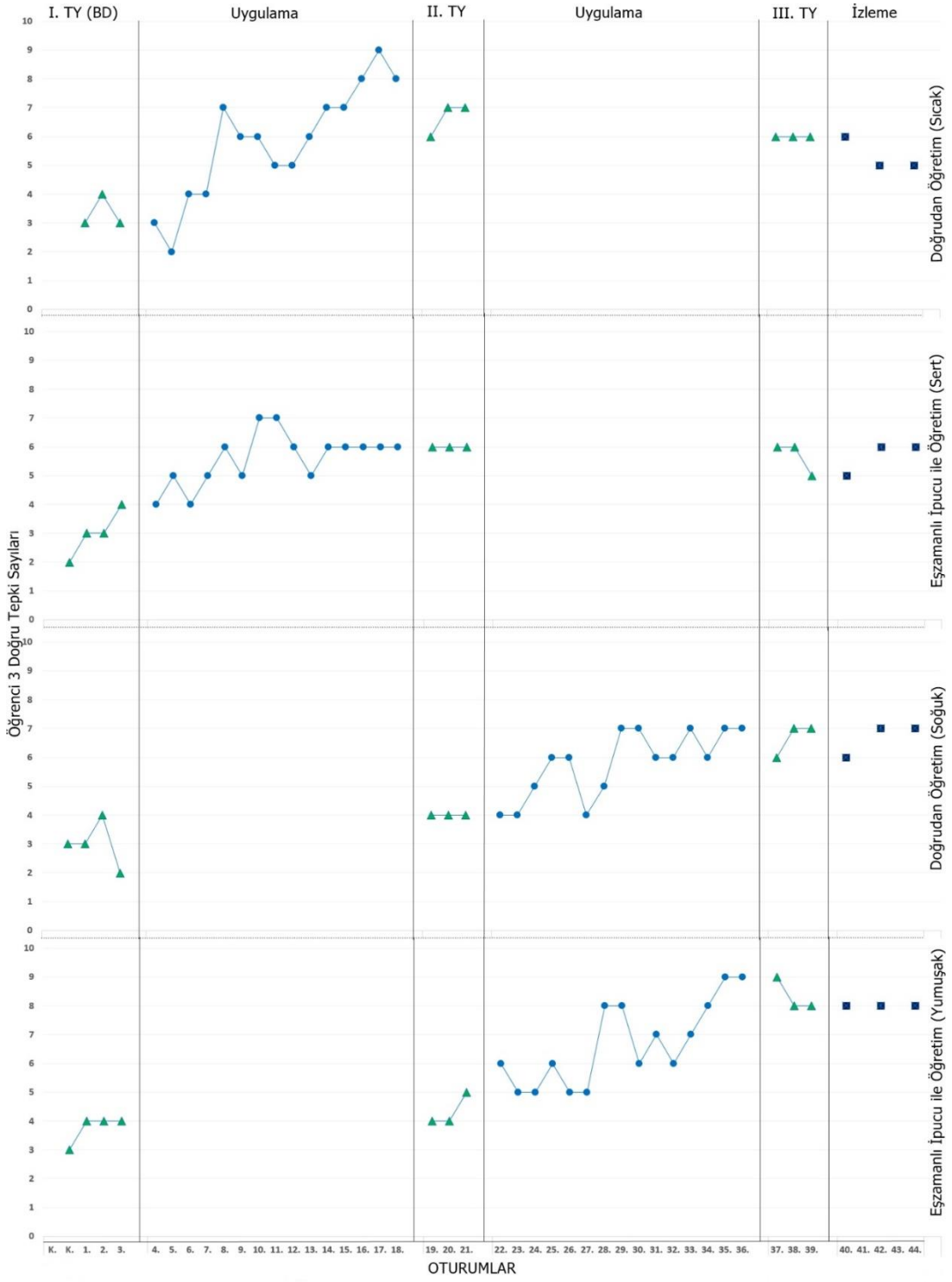
The effect of teaching methods with simultaneous prompting in teaching "Hot" and in teaching "Hard" is examined, and the average number of correct responses before teaching the concept "Hot", which is taught with the simultaneous prompt teaching method, is 3.7/10. It was observed that the average of the teaching process evaluations was 6.1/10, and the post-teaching evaluation average was 6.7/10. The average of the collective probe session after the teaching was 6.3/10 for three weeks, and in the evaluation made for the follow-up once a week, it was 6/10 in the first week, 6/10 in the third week, and 6/10 in the fifth week. This result shows that although the instruction does not meet the criteria, the level of learning is continuous. The average of the correct response number before the teaching "hard", which is taught with the direct teaching method, is 4.3/10, the average of the teaching process evaluations is 6.3/10, and the average of the post-teaching evaluation is 7.7/10. The average collective

probe session after the teaching was 7.7/10. In the evaluation made for the follow-up, it was 7/10 in the first week, 7/10 in the third week, and 7/10 in the fifth week. This result showed that although the instruction met the criterion, the follow-up sessions did not continue in line with the criterion.

The effect of simultaneous prompting and direct teaching methods in the teaching of the concept of "soft" and "cold" on the participant is examined, and the average of the number of correct responses before the teaching of the concept of "cold", which is taught with the simultaneous prompt teaching method, was 2.3/10. The average of the pre-teaching probe session was 2.7/10, the average of the baseline was 5.1/10, and the average of the post-teaching evaluation was 5.3/10. In the evaluation made for the follow-up evaluation for three weeks, once a week, it was 5/10 in the first week, 6/10 in the third week, and 5/10 in the fifth week. Although this result shows that the teaching does not meet the criteria, the learning acquired is continuous. For the evaluation average of the number of correct responses to the concept of "soft", which is taught with the direct instruction method, the average of the pre-teaching collective probe session was 2.5/10, the average of the baseline was 3.7/10, the teaching process level was the post-teaching evaluation average was 7.7/10. In the evaluation made for the follow-up evaluation once a week for three weeks, it was 8/10 in the first week, 8/10 in the third week, and 8/10 in the fifth week. This result shows that the teaching met the criteria and has continuity.

The third of the sub-objectives was to determine the acquisition level differences between the "hot" and “cold "concepts taught to Student 3 by the direct instruction method and the "hard" and “soft” concepts taught using simultaneous prompting. The findings and interpretations of the research statement are presented below.

Figure 3: Comparison of methods in teaching four concepts of Student 3



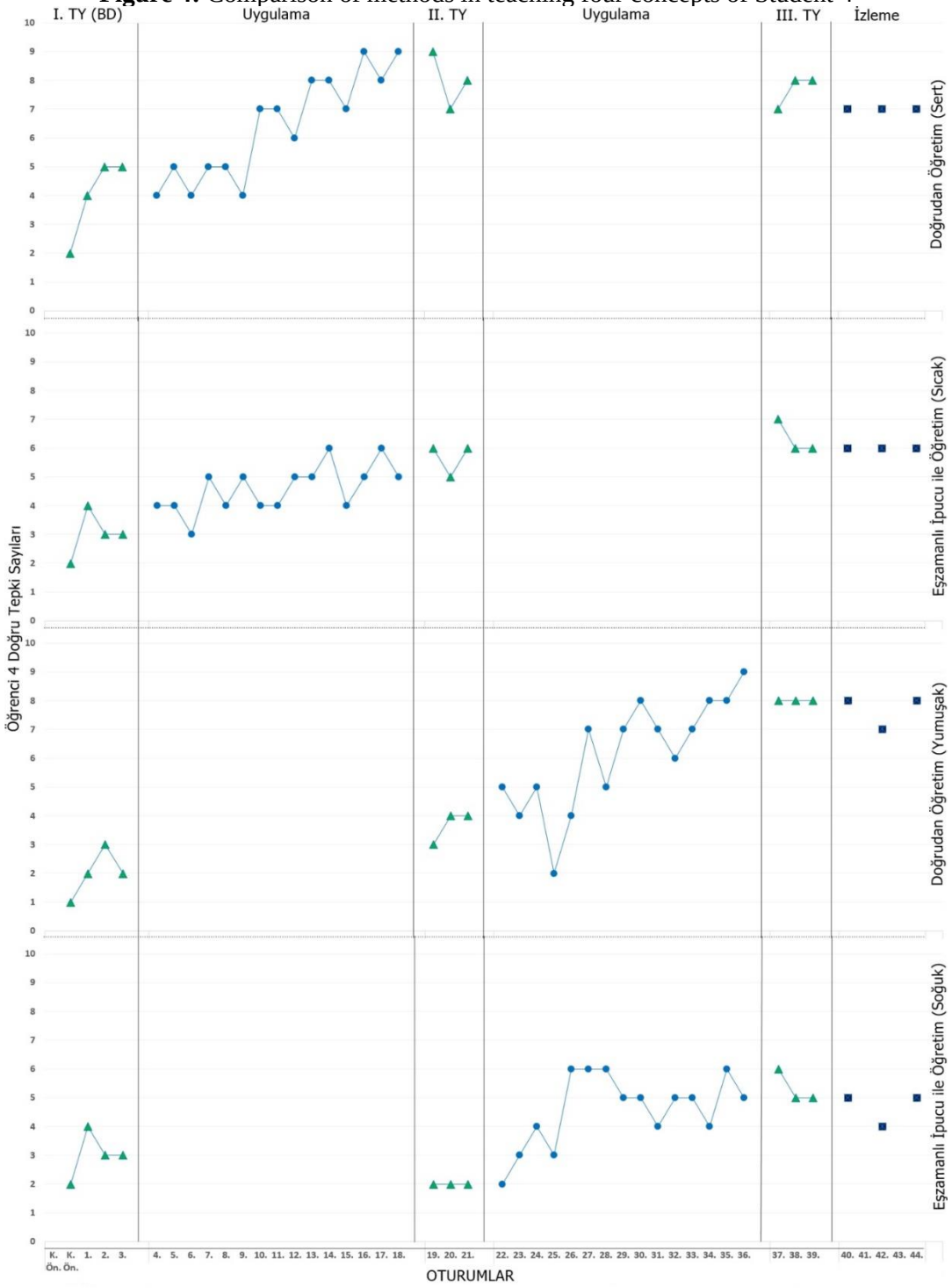
The average number of correct responses before the teaching of the concept of "hard", which is taught with the simultaneous prompt teaching method, was 3.3/10, the average of the teaching process evaluations was 5,6/10, and the post-teaching evaluation average was 6/10. The average of the collective probe session after the teaching was 5,7/10 and in the evaluation made for the follow-up evaluation made once a week, it was 5/10 in the first week, 6/10 in the third week, and 6/10 in the fifth week. This result shows that although the teaching does not meet the criteria, it has continuity. The

average of the correct response number before the teaching of the concept of "hot", which is taught with the direct instruction method, is 3,3/10, the average of the evaluations of the teaching process is 6,2/10, and the average of the post-teaching evaluation is 3.3/10. The average collective probe session after the teaching was 6.7/10. In the evaluation made for the follow-up, it was 6/10 in the first week, 5/10 in the third week, and 5/10 in the fifth week. This result showed that although the instruction met the criterion, the follow-up sessions did not continue in line with the criterion.

The average number of correct responses before the teaching of the concept of "soft", which is taught with the simultaneous prompt teaching method pre-teaching collective probe session average was 2.3/10, the average the baseline level was 2.7/10, the average of teaching process was 5,1/10, and the post-teaching evaluation average was 5,3/10. In the evaluation made for the follow-up evaluation once a week for three weeks, it was 8/10 in the first week, 8/10 in the third week, and 8/10 in the fifth week. This result shows that the teaching met the criteria and has continuity. The average of the number of correct responses before the teaching of the concept of "cold", which is taught with the direct teaching method, the average of the pre-teaching collective probe session is 2.5/10, the average of the beginner level is 3,7/10, the teaching process average is 6.9/10, and the average of the post-teaching session is 7,7/10. In the evaluation made for the follow-up evaluation once a week for three weeks, it was 8/10 in the first week, 8/10 in the third week, and 8/10 in the fifth week. This result shows that the teaching met the criteria and has continuity.

The fourth of the sub-objectives was to determine the acquisition level differences between the "hard" and “soft” concepts taught to Student 2 by direct instruction method and the "hot" and “cold” concepts taught using simultaneous prompting. The findings and interpretations of the research statement are presented below.

Figure 4: Comparison of methods in teaching four concepts of Student 4



The average number of correct responses before teaching the concept of "Hot", which is taught with the simultaneous prompt teaching method, is 3/10. It was observed that the average of the teaching process evaluations was 4,6/10, and the post-teaching evaluation average was 5.7/10. The average of the collective probe session after the teaching was 6.3/10 for three weeks, and in the evaluation made for the follow-up, it was 6/10 in the first week, 6/10 in the third week, and 6/10 in the fifth week. This result shows that although the instruction does not meet the criteria, the level of learning is continuous. The average of the correct response number before the teaching of the concept of "hard", which is taught with the direct teaching method, is 4/10, the average of the teaching process evaluations is 6.4/10, and the average of the post-teaching evaluation is 8/10. The average collective probe session after the

teaching was 7.7/10. In the evaluation made for the follow-up evaluation once a week for three weeks, it was 7/10 in the first week, 7/10 in the third week, and 7/10 in the fifth week. This result showed that although the instruction met the criterion, the follow-up sessions did not continue in line with the criterion.

When the effect of simultaneous prompting and direct teaching methods in the teaching of the concept of "soft" and "cold" on the participant is examined, the average of the number of correct responses before the teaching of the concept of "cold" which is taught with the simultaneous prompt teaching method was 3/10, the average of the pre-teaching probe session was 2/10 the teaching process average was 4,6/10, and the average of the post-teaching evaluation was 5.3/10. In the evaluation made for the follow-up, it was 5/10 in the first week, 4/10 in the third week, and 5/10 in the fifth week. Although this result shows that the teaching does not meet the criteria, the learning is continuous. For the evaluation average of the number of correct responses to the concept of "soft", which is taught with the direct instruction method, the average of the pre-teaching collective probe session is 2/10, the average of the baseline is 3.7/10, and the teaching process level is 6.1/10. The post-teaching evaluation average was 8/10. In the evaluation made for the follow-up, it was 8/10 in the first week, 7/10 in the third week, and 8/10 in the fifth week. This result shows that the teaching met the criteria and has continuity.

The fifth sub-problem of the research, "When the concepts with independent variables are taught to students with autism spectrum disorder using direct instruction and simultaneous prompt instruction, does the effectiveness of the two methods differ in the follow-up sessions to be held in the first, third, and fifth weeks after the instruction?" The findings and interpretations of this statement are as follows.

In this study, in the first, third, and fifth weeks after the teaching of the skill of demonstrating qualitative concepts with the desired characteristics was completed, follow-up sessions were held, and monitoring data were collected to evaluate whether the learned target behaviors retained their permanence. For Student 1: While the concept of "hot" met the criterion in direct teaching, it fell below the criterion in the follow-up sessions, the concept of "hard" was below the criterion in both simultaneous prompting and follow-up sessions, and the concept of "cold" was below the criterion in both direct instruction and follow-up sessions. It was observed that the criterion was met both in the teaching with simultaneous prompts and in the follow-up sessions. For Student 2: While the concept of "hard" met the criteria in direct teaching, it fell below the criterion in the follow-up sessions, the concept of "Hot" was below the criterion in teaching with simultaneous prompts and in the follow-up sessions, the criterion was met in the direct teaching of the concept of "soft" and in the follow-up sessions, the concept of "cold" was below the criterion in both teaching and follow-up sessions. For Student 3: While the concept of "hot" met the criterion in direct teaching, it fell below the criterion in the follow-up sessions, the concept of "hard" was below the criterion in both simultaneous prompting and follow-up sessions, and the concept of "cold" was below the criterion in both direct instruction and follow-up sessions. The criterion was met in the teaching with simultaneous prompting and in the follow-up sessions. For student 4, while the concept of "hard" met the criterion in direct teaching, it fell below the criterion in the follow-up sessions. The concept of "hot" was below the criterion in teaching with simultaneous prompts and in the follow-up sessions. In the direct teaching of the concept of "soft" the criterion was met at a rate of 2/3 in the follow-up sessions, It was observed that the concept of "cold" was below the criterion in both simultaneous prompting and follow-up sessions.

The sixth sub-problem of the research, “Does the efficiency of direct instruction and simultaneous prompting differ in teaching concepts that have an independent variable to students with autism spectrum disorder?” The findings and interpretations of the statement are as follows.
In this study, the effectiveness and efficiency of teaching with simultaneous prompting and direct teaching were compared to determine whether the two teaching methods differ in terms of efficiency, Data were collected on (a) the number of trials until the criterion was met, (b) the number of false responses until the criterion was met, (c) the total time until the criterion was met. The data on these variables for the four subjects participating in the study are as follows.

Table 5. Efficiency data for concept teaching using direct instruction and simultaneous prompts

	direct instruction						simultaneous prompt				
Participant	Target Behavior	Number of Sessions	Number of attempts	Number of incorrect responses Positive Example	Negative Example	Süre (min: sec)	Target Behavior	Number of Sessions	Number of attempts	Number of incorrect responses	Duration (min: sec)
Student 1	*Hot	15	288	76	86	100:12	Hard	15	224	26	87:36
	Cold	15	275	22	81	97:42	*Soft	15	208	32	82:00
Total		*30*	*563*	*98*	*167*	*197:54*		*30*	*432*	*58*	*169:36*
Student 2	*Hard	15	341	36	41	114:26	Hot	15	171	18	72:45
	*Soft	15	286	88	82	98:20	Cold	15	222	12	68:12
Total		*30*	*627*	*124*	*123*	*212:46*		*30*	*393*	*30*	*140:57*
Student 3	*Hot	15	269	55	62	95:12	Hard	15	188	44	77:33
	Cold	15	271	36	61	92:14	*Soft	15	168	48	72:08
Total		*30*	*540*	*91*	*123*	*187:26*		*30*	*356*	*92*	*149:41*
Student 4	*Hard	15	301	62	54	107:32	Hot	15	199	26	68:58
	*Soft	15	269	58	51	93:14	Cold	15	203	16	74:12
Total		*30*	*570*	*120*	*95*	*200:46*		*30*	*402*	*42*	*143:10*

The target behaviors of the participants, the number of teaching sessions for these behaviors, the number of trials in these sessions, and the total duration of these trials are given. Based on the knowledge that efficiency can be interpreted in student and target behaviors when teaching is effective (meeting the criterion), hot, hard, and soft concepts, except for the cold, which were taught by direct instruction method, met the criteria, the number of attempts, the number of wrong responses, and the application times were higher than the simultaneous prompt. While it is effective and efficient at the teaching level for direct instruction, it is labor- and time-consuming in terms of time and number of attempts. While two of the students (Student 1, Student 3) met the "soft" teaching success criterion, which is one of the concepts taught with the simultaneous prompt teaching method, the teaching success criterion was not met for the other three concepts (hot, hard, cold). Compared with direct instruction, the number of attempts, wrong responses, and application times were fewer. At the same time, it can be claimed that it is effective and efficient only for the concept of "soft" teaching level for simultaneous prompts. It is an economical method in terms of time and number of attempts. In the applications using simultaneous prompting, compared with those made with direct instruction, four subjects were effective only in the concept of "soft". The number of attempts, session times, and wrong response numbers are lower in teaching with simultaneous prompting. As a result, direct instruction is found to be more efficient in teaching. Simultaneous prompting is more efficient in terms of the number of trials, session durations, and number of wrong responses.

What are the views (social validity findings) of the parents of the students who have been taught hot, cold, hard, and soft concepts to their students with ASD, and the methods and tools used in this process?

The social validity study is based on (a) the functionality of the parents of the children participating in the study to learn the concepts for their children, (b) whether the teaching methods and materials used are suitable for their children, (c) the changes that occur in their children during the study and the experiences in this process, (d) which teaching method is more suitable for their children. All four parents who participated in the study stated that the concepts taught were important for their children and that it was positive for their children to use them correctly in school and daily life. Again, the parents who participated in the study stated that they could participate in another study similar to this study conducted under any circumstances. All of the parents used the concepts their children learned correctly at home and while playing; they even stated that they observed that they created a game similar to the work done to teach these concepts to the children around them. The parents stated that they did not encounter a situation that they did not like during the study; on the contrary, they stated that their children's vocabulary increased, they were able to use question patterns (which?), their children worked more regularly at the desk, and they understood the instructions better. All parents stated that direct teaching sessions were better for their children. They stated that their children learned to make comparisons better, and they did not forget what they had learned because the opposite concepts of the concepts taught were also presented in this method. All of the mothers stated that the large number of materials used in the study was positive for their children; thus, they stated that they could use the concepts they learned in the objects around them.

Discussion

In this study, the effectiveness and efficiency of direct instruction and simultaneous prompting in teaching the skills of showing the hot, cold, hard, and soft concepts to students with ASD and the permanence of the skills acquired first the third and fifth weeks after the end of the instruction was investigated.

The findings obtained from the research showed that the effectiveness of direct teaching and simultaneous prompting and teaching methods of concepts (hot, soft, hard, cold) for four subjects in teaching concepts, the effectiveness of teaching, and the effectiveness of teaching varied between concepts. It was seen that the subjects were effective in a single concept for students 1 and 3 in the teaching step. Among the peers, it was seen that for students 3 and 4, it was effective in both concepts taught with the direct teaching method in the teaching step. In terms of the variation in the teaching methods of the subjects, it was seen that the "direct teaching method" was effective in teaching the concept of "hot" in the teaching step for students 1 and 3. Simultaneously, it was observed that the "hard" and "soft" concepts were determined in the teaching of the "hard" and "soft" concepts in Students 2 and 4. It is seen that the "direct teaching method" is effective because it meets the criteria. Therefore, the "direct teaching method" in the teaching step for students 2 and 4 among the subjects was more effective on the concepts taught to the other subjects (S1, S3). Therefore, this finding is also consistent with previous studies (Akgün and Gürsel, 2022; Oktav and Yıkmış, 2022; Yenioğlu et al., 2022; Şafak and Bilgiç, 2021; Tufan et al. 2020; Çay, 2019; Özlü and Yıkmış, 2019; Root et al., 2017; Kot et al., 2017; Batu et al., 2014; Rockwell et al., 2011;). According to the findings of the collective probe sessions and post-teaching follow-up sessions after the end of the teaching, the concepts of "hot" and "cold" for Student 1, "hard" for Student 2, "hot" and "cold" for Student 3, and "hard" for Student 4 met the teaching criteria. However, in the follow-up sessions of the teaching, they did not meet the criteria, and it was not consistent. In the evaluations made for the follow-up evaluation of Student 2's "Soft" concept, it is seen that the criterion has been met. It also showed that the instruction met the criteria and had continuity. In the evaluations made for the "soft" follow-up evaluation of Student 4, it was seen that the criterion was met in the third and fifth weeks. However, it was observed that the criterion was not met in the first week, and it showed that the instruction met the criterion and had continuity. Among the peers, it can be stated that the "direct teaching method" was effective in the teaching of a single concept (soft) in Students 2 and 4, according to meeting the criteria of collective probe and follow-up session.

In contrast, the "direct teaching method" was ineffective in teaching other subjects and concepts because it did not meet the criterion. However, it was observed that the subjects continued the target behaviors gained in the follow-up sessions held in the first, third, and fifth weeks after the end of the instruction. Direct instruction is also effective in ensuring permanence. Güneş (2022), Aydın and Tekin-İftar (2020), Özlü and Yıkmış (2019), Root et al. (2017), Batu et al. (2014) show that direct instruction is also effective in ensuring permanence.

In the research findings regarding the effectiveness of simultaneous prompting in teaching the concepts of "hot, soft, hard, cold"; only the concept of "soft" was found to be effective in teaching (Student 1 and Student 3). In the teaching of the concepts of "hot, hard, cold" (Student 1, student 2, student 3, student 4), it was observed that the simultaneous prompting teaching method was not effective since the teaching on the effectiveness did not meet the criteria. However, it shows that acquired learning is continuous.

The research findings showed consistency in teaching the students' names and single-step behaviors. The findings of the study showed differences in the follow-up sessions and the continuity of the permanence of the target behaviors with studies of Yücesoy Özkan and Altın (2019), Metcalfe (2017), Tulis (2013), Ferris (2015), Doğan and Özen, (2022), Atıf Ünal and Toper (2021), Collins et al (2017), Swain et al. (2015), Yücesoy (2011) regarding the teaching method with simultaneous prompts, academic skills, objects, and symbols. However, three subjects did not meet the criteria in the follow-

up sessions held in the first, third, and fifth weeks after the end of the instruction. The continuation of the acquired target behaviors (soft) showed continuity in ensuring the permanence of the instruction with simultaneous prompting. In addition, in the social validity findings, the opinions of the parents about the method that is more suitable for their children are also in favor of direct instruction. In this study, 15 sessions were held for both concepts, and in the last three-day probe session, it was attempted to obtain correct responses that would meet the 8/10 criterion in a row.

In this study, the direct teaching method of the taught concept teaching on the subjects was more effective than simultaneous prompt teaching. The number of attempts, the duration of the sessions, and the number of wrong responses were less in simultaneous prompting (See Table 5), and direct instruction was more efficient. Efficiency in terms of the number of false responses was due to the skill instruction being presented first while presenting with the simultaneous prompt, and then the controlling prompt without allowing a wrong response, while the efficiency in terms of session times and the number of attempts was because there was no oral presentation about it except for showing the negative example. The negative example was not provided because there is no need for evaluations.

Result

The findings obtained as a result of the study examined whether there was a difference in the teaching of the concepts of hot, cold, hard, and soft applied to Student 1, Student 2, Student 3, and Student 4 between the direct instruction method and simultaneous prompt. The following results were obtained in this study.

1) The direct teaching method was effective in a single concept for students 1 and 3 in the teaching step of the subjects.
2) Among the subjects for students 3 and 4, it was seen that it was effective in both concepts that were taught with the direct teaching method in the teaching step.
3) In terms of the variation in the teaching methods of the subjects, it was seen that the "direct teaching method" was effective in teaching the concept of "hot" in the teaching step for students 1 and 3.
4) In Student 2 and Student 4, it was seen that the direct teaching method was effective in teaching the concepts of "hard" and "soft".
5) Therefore, among the subjects, it was stated that the "direct teaching method" in the teaching step for Student 2 and Student 4 was more effective on the concepts taught to the other subjects (S1, S3).
6) Findings about the effectiveness of teaching with simultaneous prompting; only the concept of "soft" was found to be effective in teaching (Student 1 and Student 3).
7) In this study, it was seen that the simultaneous prompting method was not effective for Student 1, student 2, student 3, and Student 4 in teaching the concepts of "hot, hard, cold".
8) The results in terms of efficiency in this research: Considering the number of attempts, session durations, and the number of wrong responses, it was revealed that the direct teaching method was more efficient than the simultaneous prompt teaching method.

Limitations and Recommendation

The limitations of this study are outlined below:

1) Teaching the concepts of hot, cold, hard, and soft
2) A group of four student subjects with a diagnosis of autism spectrum disorder
3) Teaching processes with direct teaching methods and simultaneous prompting
4) Necmettin Erbakan University Autism Studies Application and Research Center is the limitation of our study, which was to be conducted two days a week for each subject.

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On the concept of internationalization: Socially just research collaborations between the UK and MENA countries

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On the concept of internationalization: Towards a socially just research collaboration between the UK and MENA countries

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ABSTRACT

This paper argues for a wider range of critical perspectives to be brought to bear on the phenomenon of internationalization. We argue that the role of internationalization research should be to promote reciprocity and respect between academics and students from different systems. This paper was developed as a discussion piece for the Re-Knox Conference in Cairo (August 2022). It is based on a process of independence and co-reflexivity regarding three of the authors' research projects. It conveys and illustrates three principles regarding theory and method that we found valuable for understanding how research that builds a more sustainable, equitable, and cooperative form of higher education could be developed. The goal is to unpick and transform the destructive, exploitative, and negative relationships that are embedded in internationalization and affect all parties.

Keywords: Higher education, epistemic justice, comparative analysis, MENA countries, China, UK, Criticality.

Introduction

To further advance the understanding of internationalization, the research underpinning this exploratory paper aimed to develop insight into how we could enhance and deepen research in this field. Our investigations led us to conclude that critical theory beyond the dominant, so called, Western universities and countries was needed to address issues pertaining to justice (Kim, 2009). We propose that to achieve this, research in this area should: a) broaden the conceptual scope by incorporating literature from outside the more mainstream studies of internationalization, including works on decolonization, and concepts emerging from the global south (Dados & Connell, 2012; Campbell & Neff, 2020), and perspectives developed by marginalized groups such as disability scholars and feminists; b) analyze any phenomena related to internationalization they encounter in their research in the context of their actual or potential contribution to generating hierarchical relations between nations, people, institutions, and knowledge; and c) recognize and acknowledge, through reflexivity, the historically unequal relations or biases embedded in knowledge production, even when it is intended to promote social justice.

The notion of criticality proposed by Santos (2014), which is 'premised upon the idea that there is no way of knowing the world better than by anticipating a better world' based on knowledge and research practices that 'provide intellectual instruments' for 'unmask(ing)' harmful processes *and* practices that 'sustain' and legitimize injustice along with the 'political impulse to struggle', is helpful in framing our argument (p viii). We do not want to exclude Western critical perspectives but instead advise underpinning theories, practices, methods, and empirical findings with principles that assure questions of justice addressed. Our suggestion is to widen the range of perspectives used, their geographical sources, and the standpoints of scholars and research participants, as suggested by Chen (2010) and Smith et al. (2018). Whilst we believe that these principles are broadly important for any research in internationalization, this paper was developed for the Re-Knox (2022) conference in Cairo and was thought through as principles that could underpin research between the UK and the MENA countries.

The three principals were derived from a process of independent reflexivity on one research project by each author (described in more detail in the next section). This was followed by joint co-reflexive writing and discussions focusing on the framing, methodologies, analysis, findings and theorization of the projects. The process effectively led to co-reflexive writing akin to that described by Sobande and Wells (2021), through which we generated new understandings by combining our experience and our work by reflexively entwining them. We focused on what was important for producing a critical understanding of internationalization. This has enabled us to learn from the connections and contradictions between them. It is distinct from combining research through reading as the authors and researchers have more direct engagement with one another's work and thought processes and self-determine their representation within the context. The discussion was driven by our overarching aim to embed and promote values and practices toward greater global social justice through research.

In the next section we explain the authors' contributions to the paper and introduce their individual projects. Next, we explore the importance of developing critical concepts of internationalization for social justice drawing upon the literature (Andreotti et al., 2018). Subsequently, the methodology we used in our projects is elaborated before evidencing and describing the findings: the three principles derived from our collective analysis. In the discussion and conclusion, we return to consider their combined contribution and their implications. Finally, we reinforce our call for deeper understanding of the phenomenon of internationalization and that a more sustainable, equitable and cooperative form of international higher education is needed (Engwall, 2016).

Author Contributions and Projects

Each of the three authors has explored how the concept of internationalization as conceived or articulated by UK universities, explains how research participants become positioned and (dis)valued in the UK, China. The analyzed findings from very similarly organized qualitative biographical interview studies with postgraduate students, graduates and academic staff who have worked or studied in the UK system. All three authors contributed to all aspects of the paper in equal measure.

Andrea Abbas's analyzed data from research conducted with her colleagues (Monica McLean and Melanie Walker) explores the development of the careers of 6 international and 8 national academics over a period of ten years. The overall study interrogated longitudinally the impact of funding changes in the UK system on the careers of academics working in the social sciences and humanities. She draws upon findings relating to the way participants perceived the impact of the universities criteria regarding their international research profiles on their success and failure in feeling valued and getting promoted in UK universities.

Jie Gao contributed an analysis based upon a comparative study of Chinese Professionals who were graduates of UK and Chinese universities. He investigated how UK international undergraduate education compared with Chinese home education, in terms of its impact on graduates' careers and professional identities in China. The participants were 11 UK-educated graduates and 10 Chinese-educated graduates who are lawyers in China and, 11 UK-educated graduates and 11 Chinese-educated graduates who are ICT (Information and Communications Technology) professionals in China. The analysis compares what the professionals believe the respective forms of undergraduate education have contributed to their career development and professional identities in China.

Gihan Ismail contributed an analysis of her qualitative study involving 22 Arab doctoral students and Arab graduates from UK universities; and 6 UK supervisors of Arab students. Her study explored participants' perspectives on the value of UK doctoral education and the actual and potential impact and relevance of UK doctoral education upon returning to their local contexts. The analysis provides insights into issues pertaining to an understanding of the complex relationship between knowledge, ethics and power and highlights the challenges and opportunities involved in the education acquired in international settings.

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Rationale for the expansion of critical concepts for the study of internationalization

In higher education literature, the term internationalization is mostly used to refer to a trend of now well-established practices, strategies, and actions that relate to having more internationally focused activities in universities. These were initially associated with the so-called Western universities (a term confusingly applied to North American, European, and Anglophone universities including Australasia). The activities have grown exponentially over the past forty years (Sperduti, 2017; Tight, 2022). Even at the earliest stages of university development, scholars traveled and communicated internationally as it was embedded in the construction of universities and is still important to most involved (De Ridder-Symoens, 1992; McLean, 2006). However, the size, significance, and range of activities, alongside the variety of countries, people and universities involved has altered, and the process has accelerated with technological developments (e.g., internet and travel) since the 1980s, as measured by a host of indicators (Lee, 2021). Activities include international student recruitment, student and staff exchanges, research collaboration, knowledge exchange or transfer, the recruitment of staff from more diverse nationalities, exchanging or transferring skills, setting up branch campuses in other countries and having joint programs across countries (Crossley, 2022; Ge, 2022; Lee, 2021).

For some universities in Europe, North America, and Australia, internationalization underpins business models for running universities and is associated with the marketization of higher education and the economization of knowledge (especially for the neo-liberal university systems which are dependent

upon monies raised by such activities) (Bamberger, Morris and Yemini, 2019). For example, the more marketized universities of the US (United States), the UK and Australia, are increasingly funded by the fees paid by international students. Aspects of internationalization have become important key indicators of quality in national and global university league tables and those universities aspiring for high status, shape the structures of universities to support internationalization activities, This includes regions where the modes of internationalization and the funding and ideological structures might be different, such as in Africa, Asia and South America (Crossley, 2022; Lee, 2021; Pan, 2021; Tight, 2022). Consequently, in these universities there are international offices, pro-vice chancellors or vice principals for internationalization, faculty and department personnel who are responsible for internationalization, performance indicators linked to it and money and resources that are targeted to support these activities (Whitley, 2012; Henard, Diamond and Roseveare, 2012). While success in doing this brings reputational rewards in league tables and increases in international students and fees, the range of such activity and the rewards are hugely variable both within and between countries (Bedenlier, Kondackci and Zawacki-Richter, 2018). The governance of internationalization within university impacts status, pay, recruitment, mobility opportunities, and so forth. Internationalization also shapes how governments fund research nationally and the forms of funding available for different universities and students within the system (Guan and Abbas, 2022).

Increasing connections and growing activities between universities, students, and scholars across the globe are mostly agreed to be a good thing, including the authors' work. However, the focus of this paper concurs with critiques of the currently dominant models of internationalization and contrasts its position with research that sees the number of activities and the rise and fall of these activities in various parts of the world as evidence of change or indicators of actual or potential growing equity. Instead, we align with scholarship that challenges the validity of the current form of internationalization and the implicit and explicit claims of its value to the world (Gacel-Ávila, 2021). Such research suggests that embedded within western universities (their practices, knowledges, pedagogies, funding models, quality systems, value systems and so forth) are injustices built on past values, advantages, and power differentials (Gerbert, 1993; Lincicome, 1993; White, 2015). The so-called elite or world-leading universities of the West were facilitated by the massive financial rewards they reaped from colonization: violence, the obliteration of peoples, and cultures, the appropriation and use of their resources and the devaluation or destruction of their knowledge and education systems (Santos, 2014). The logic and development of internationalization continue this process (Quijano, 2007; Mignolo and Walsh, 2018; Walker, 2020; R'boul, 2022). A single example illustrates a complex and multifaceted process: wealthy international students from poorer countries transfer fees that could be bolstering and developing the resources put into universities in their home nation, to elite universities usually in Western countries or other wealthier institutions (Marginson, 2007). The concepts of elite, world-leading, and excellence are powerful, in attracting money and draining resources from poorer countries toward the richer Western university systems (Firoz, 2016). The investment of money from colonization on which the universal education systems and university research of the West were built, results in success that is, with some exceptions, treated as a glorious achievement and celebrated purely as evidence of the excellence and superiority of Western science and education.

The competitive agenda and ideology underpinning internationalization positions universities in rivalry with one another and invisiblizes the source of the West's success. International activities are scored and ranked in terms of quality as defined by Western-dominated league tables (Hertzig, 2016). Recruiting international students and having international staff scores highly on league tables even though being able to do this is highly linked to the wealth of a nation, which is influenced by its unfairly earned advantage in the reputation stakes. Hence, internationalization has been incorporated into what has been termed the competition fetish of the global higher education system (Naidoo, 2018; Lepori et al, 2015; Matić, 2019). This is generated by something akin to Hoeschele and Kennet's (2010) model of the economics of abundance, which is based upon a false sense of scarcity. Knowledge from low-

ranked countries in league tables that potentially adds to the global abundance of knowledge is given low or worthless status and silenced or absented. In addition, the nations that are dominant in the league tables, or more accurately, specific groups within those countries and internationally, continue to unfairly benefit. Hence, critical perspectives on internationalization are required to explore what a fairer system might look like.

There are a range of perspectives that can be utilized. De-colonizing or de-imperializing perspectives are important (See the works of Connell, 2007; Chen, 2010; le Grange, 2016). Critical studies on the development and role of universities and internationalization are helpful (Collini, 2012; Kim, 2009; Marginson, 2022; Carpentier and Courtois, 2021; Lee and Stensaker, 2021; Spiro, 2014; Trahar et al, 2016; Wheelehan & Moodi, 2021). Importantly, other intersecting inequities become embedded in international systems in complex ways and to understand this: feminist perspectives (Arya, 2012; Morley et al., 2020; Pereira, 2017, Xu, 2009); those challenging ableism in the academy (Boda, 2022; Mireles, 2022); LGBTQI+ based analysis and perspectives (Capobianco, 2020); work interrogating how race and ethnicity generate inequity (Bhana, 2014; Kim, 2009; Sun et al, 2021); and, social-class or economically informed critiques need to be drawn upon and understood through different national lenses.

There is not one critical concept of internationalization that is likely to suits all purposes, although there may be underlying epistemological agreements that could be reached, as argued by Danermark (2019) in presenting a framework for interdisciplinary research. Given the scale of the problem, the amount and type of research needed can at best be a collective endeavor based on a shared mission to read, utilize, apply, reference, link and develop critical perspectives and methodologies from across the globe. It is to such a project that our paper speaks, and we believe that researchers could develop sets of principles to underpin it. We offer three examples for illustration and discussion.

Methodology

The analysis conducted for this paper combines three separate studies that were specifically analyzed to explore the research question: How can participants' experiences and perspectives inform socially just approaches to internationalization? The studies were particularly well-suited to address this question because each of them revealed injustices stemming from the participants' encounters with the internationalized higher education in British universities. The brief outline of the studies describes the sample and the focus of each project.

We discuss the three methodologies employed to gather the data and explain how the three data sets were analyzed independently before being combined to generate the themes that informed the principles presented below. Although the studies shared similar methodologies, there were slight variations to account for their respective purposes and sample characteristics. Volunteer participants were recruited for each study using a mixture of purposive and snowball sampling (Denzin and Lincoln, 2018). All the participants were interviewed using semi-structured interview techniques and we each had a broad biographical approach to understanding participants' experiences of studying and working in UK higher education, in relation to the concept of internationalization. The interviews were recorded, transcribed, and analyzed thoroughly through developing open coding and then analytically themed (Denzin and Lincoln, 2018). For Abbas and colleagues, participants were interviewed for two hours in the first year to incorporate a biographical understanding of their lives, followed by a career-focused interview. They were interviewed for one hour in the subsequent three career-focused interviews. There were 2-to-3-year intervals between all four interviews, and they took place between 2011 and 2021. Gao's participants were interviewed with a similar initial longer biographical interviews, but follow-up

interviews were broken down into shorter conversations. There was more of a two-way interaction over a period of a year. This was important for building trust with a group of participants who were less familiar with the qualitative interviews. Ismail's biographical interviews were one to two hours long and each participant (students, graduates and supervisors) was interviewed once. The interviews were semi-structured, and a similar process of data transcriptions, coding and analysis was followed.

Each of us coded data based on an overarching theme of internationalization. This was done independently and coded using the qualitative data software, NVivo. We then each wrote about each of the themes and what we felt they meant and then exchanged them. Once we had thoroughly read one another's analysis we had several shared meetings in which we reflexively discussed commonalities and differences in the themes of our individual studies, and these led to the generation of the principles for developing a critical understanding of the concept of internationalization of higher education.

Findings and Discussion: three principles for critical understandings and more just forms of internationalization

To develop work that engages with the problematic nature of internationalization is important because each time we normalize current understandings of the concept in our research, we inadvertently play a part in perpetuating the oppressive processes. Our work shows that a critical understanding of this extremely large issue, internationalization, can be developed through our comparatively small individual research projects. It also demonstrates how through the combined development of principles we increase the validity of our individual arguments.

Principle 1: Expanding the conceptual landscape for internationalization research

In this section, we emphasize the value of a diversity of critical theories generated by scholars from a variety of national contexts, in raising questions that promote justice.

Ismail chose the concepts associated with the critical pedagogy of Paulo Freire (1974, 1996, 1997) to interrogate participants analyzed data. She kept to the fore the goal regarding her desire to empower students and supervisors. She identified what Freire (ibid) defines as oppressive systems that stereotype students and lead supervisors to misjudge or misrecognize students and their previous education in Arab countries.

The supervisors' data demonstrated a prevalence of stereotypical views about Arab students and their national contexts, e.g., gender-based oppression, religious conservatism, lack of discipline, and lack of knowledge. They saw students' existing knowledge as being infused with this (but mostly, not their own). Institutional policies regarding supervisors' responsibilities to generate a particular kind of thesis in a defined time, also compounded the forces preventing supervisors' genuine and open engagement with their international students. Consequently, students' experience and understanding were rarely given a space. The critical consciousness that Freire (ibid) sees as necessary for challenging the unjust conditions did not transpire, because it would involve a discussion of students' and supervisors' different understandings and a collective interrogation of any light these different perspectives shone on the situations studied. In addition, students trust in the capacity of the UK systems of supervision to find solutions for the local social problems and issues of Arab countries prevented such relationships. Most students and graduate participants arrived in the UK with internalized images of their existing knowledge being low in the international hierarchy. This gave the students a sense that they were academically incompetent, and they accepted the superiority of Anglophone or British ideas they encountered.

The critical analysis produced, helped to identify and articulate the mechanisms by which the dehumanization of supervisors and students occurs as they pursue the apparently pragmatic, but actually materialistic, goals of universities (to get students through the system). Overall, she found that there was the objectification of students and their past experiences (as representing a prejudiced and inferior education system) and that this minimizes the possibility for genuine knowledge exchange between supervisors and students. Upon returning home, the graduates initially maintained their commitment, believing that the dominant Anglophone theoretical knowledge and methodologies they had become competent to use could fix the social problems of Arab societies and blamed their academic systems for resisting change. However, the ability to fix things did not materialize even for graduates who had been in their home country for many years.

Ismail's use of Freire highlights the ethical implications of unequal power relations embedded in international engagement (Liu, 2022; Buckner & Stein, 2019) and challenges the equality and neutrality ostensibly embedded in practice and rules regarding academic encounters in internationalized contexts. This illustrates the importance of critical research into internationalization because it is not enough to understand the quality of doctoral supervision through the lens of host countries. We need research to explore holistically what people and countries benefit from internationalization. The lack of development of relevant knowledge and skills through the doctorate for the students' home context needs urgent consideration. While Peck (2021) recently decried the lack of attention to the pedagogical approach in international doctoral education in British universities, for impairing genuine knowledge exchange due to the absence of authentic collaborative scholarship, we need more of this type of research. Ismail's Freirean analysis goes beyond this and articulates that the double oppression of supervisors and students has consequences for both partners.

Gao critically conceptualizes internationalization through a comparison of UK-educated and Chinese educated graduates, working in Chinese law and IT, using the concept of youki. Youki, also called Shiyo, is a Japanese translation and adaptation of the Marxist term aufhebung. It emphasizes the process of progression and development either for individuals (Senuma, 1930) or society and the Japanese nation (Kubo, 1913). It was developed in the late 19th century and early 20th century. It describes a process of transformation, whereby change involves taking what is valued and applicable and discarding what is not. Among Japanese scholars of that period, Kurata (1953) particularly emphasized the use of youki to understand and internally reconstruct the then influx of Western knowledge alongside traditional Japanese knowledge and philosophy and in doing so generate a new dialectic.

The use and development of this concept arise from Gao's analysis of, and engagements with, graduate participants' reflections on their previous educational, social, and employment experiences (from when they chose their university to their current employment context at the time of the research). Youki generates a conceptualization of how each graduate continuously acquired, reconstructed, reformed and applied their knowledge. It illuminates what knowledge transfer discourses often conceptualize as general contexts (e.g., acquired in the UK and applied in China) as needing more attention concerning the lived subjectivities and perceived layers of context that are brought to bear as graduates who undertake the process and enact knowledge transfer. Youki conceptualizes this as a process that begins with graduates choosing their degrees and learning knowledges in the UK or China, which integrates into their identities, decisions, and practices in diverse ways. It is affected by the context in which they learned it and then reconfigured in the enactment of identities and knowledge in their different career contexts.

One example illustrates how context can be influential: two participants educated in the same university and who worked in similarly prestigious Chinese law firms had significantly different perceptions of the embedded ideologies of their UK law degrees. Conceptualized as a process of youki, Gao's analysis identified whether participants associated the knowledge acquired in the UK with 'Western values and

ideologies' depended on whether they engaged with students from a diversity of international contexts in their studies or not. Similarly, IT participants who worked in distinct types of Chinese businesses had different views on whether their UK-acquired knowledge was globally applicable. Those whose companies mostly employed domestic graduates or handled domestic cases, saw UK-educated participants' modes of working, (e.g., forms of team collaboration, and their professional standards) as opaque and unacceptable. UK graduates in these firms doubted the applicability of their UK knowledge in China.

The theory of youki argues that what is usually called knowledge transfer is more accurately seen as a process of knowledge generation that occurs when students return to their home countries. It takes place through dynamic interactions, which are best understood through critical evaluation of the way knowledge is generated through reflection and readjustment in Chinese contexts. In practical terms, universities should contextualize what they study for international students' contexts, which would also improve UK students' understanding of international contexts. Graduates would have liked to have gained some support in gaining the reflective and critical skills needed to adapt to UK-learned knowledge, skills, and professional identities (including ethics, ways of relating and so forth).

Abbas and colleagues drew upon the work of British sociologist Margaret Archer's (2007, 2012) understanding of the morphogenetic society. In contemporary fast-changing morphogenetic societies, it is assumed that the form and direction of the internal reflections, decisions, and actions of individual academics are affected by university and society contexts but also that individual decision making is increasingly prevalent in shaping lives. Also collectively, decisions have the power to impact upon contexts and societies and alter them. As educational, employment, living, social and personal contexts are more likely to change, there are fewer blueprints that allow intergenerational continuity in terms of what decisions are made. Change can be toward or away from generating justice. Internal conversations, that take place in people's heads to evaluate the situation (alone or in consultation with others), and reach decisions involve balancing out competing and concordant concerns and pressures. However, in our interviews we found university criteria and preoccupations, such as the need for their staff to be international researchers are highly influential in shaping what academics do and how they feel about themselves. The need for universities to survive financially in neoliberal universities is reflected in the criteria for promotion.

Archer (2007) identifies and explores distinctive styles of internal conversation and decision-making according to people's key concerns. The predominant mode of decision making is the focus of people's life projects, the four involve: remaining part of their existing community, natal or collegiate group (communicative reflexive); moving on and up the career ladder (autonomous reflexive); being driven by a commitment to values and ideals (meta- reflexive); and, when rational decision-making breaks down (fractured reflexives). Most people have all of these in their repertoire. Regarding internationalization, for this paper Abbas generated an analysis that illustrated that all academics in their study had careers that were affected by internal conversations and decisions based on their need to be international (Pásztor, 2015) and to contribute to the internationalization agenda of the various universities in which they worked. Sometimes this was part of their project as a meta-reflexive as promoting the research they valued, for example, social justice for women in Asia or a generating a theoretical perspective that was globally accepted was part of a values driven life project and the accompanying decision making (Archer, Ibid). Personally, it affected academics' decisions about what (not) to do, people's (in)confidence, and even their health. However, it also plays a role in generating hierarchies between academics from different countries in enacting their careers. The insights developed in relation to this are illustrated in relation to principle 2.

Principle 2: To contextualize and analyze the phenomena of internationalization in relation to its actual or potential role in generating hierarchical relations between nations, people, institutions and knowledge in other parts of the world.

Here, the importance of using theoretical lenses to identify the hierarchies generated using the internationalization processes studied is illustrated.

International academic work is not normally judged on ethical grounds or the production of just outcomes (de Wit, 2020). Being international for Abbas and colleagues' interviewees involved activities such as publishing in internationally renowned English language journals, presenting at international conferences in English language, and bringing in money for international projects carried out and published in English. Although this approach can be highly ethical and beneficial in some respects, internationalization work can also cast international colleagues as instrumental to a nationally born academics career end and the process of being involved in international projects with renowned UK scholars can inadvertently make international colleagues and their work invisible. Also, controversially, three of the six international lecturers who were part of this study and whose positions in UK universities enhanced their universities' international league table scores (as judged by the measure of international staff and students), felt their international identity was not valued by their UK universities and their systems of promotion. For example, a southern European male lecturer said his most important and impactful work that he wanted to do to give back to his birth country, was not valued and he had to do things he thought were of lesser public and personal value to maintain his UK system-defined notion of international reputation. Another female international lecturer who thought her international identity was beneficial for her international students did research in different countries and concluded after attempting promotion that she was not the right type of international to help her with promotion. There is often a mismatch between what international participants valued regarding the contribution they could make and what their universities wanted from them. Many of the international staff had or felt that the internal conversations they had about internationalization. were linked to their not being promoted or recognized for the international contributions they valued. In two cases, not getting promoted when they felt they had spent years building what they deemed international work, was linked by participants to declining mental health and well-being. The demand to be internationally renowned to gain promotion also impacted upon UK born academics who chose to focus on the teaching aspects of their careers.

Principle one and two combined illustrates the important work critical theory can do in identifying how the process of internationalization and its enactment in universities can end up reinforcing a range of hierarchies including those between many academics. Nationality is important but participants indicate it is also experienced differently according to other aspects of identities.

Gao's study challenges the UK and Chinese government narratives, which both tend to see international students as largely beneficial to both countries (despite the prominent counter narratives which we don't have the capacity to go into in this paper). However, these accounts focus on the economization of outcomes.

Since 2010, Chinese returnees from UK education have been seen as important to the Chinese Government in bringing back 'advanced [western] knowledge needed for the development and re-establishment of China in the new era' (Opening statement, 19th National Congress of the Chinese Communist Party, 2017). This is evident in policies and incentives (e.g., housing and finances) to attract Chinese returnees to priority locations and businesses. Such explicit favoring from the Chinese government suggests that overseas returnees and education are more valuable than domestic graduates and education. However, the senior manager research participants challenged this binary and absolute view of overseas returnees and domestic graduates, claiming that they were valuable in diverse ways and in relation to distinct positions and tasks within their workplace.

Furthermore, in generating social identities and positions daily, the level of internationalization that UK-educated participants could present was far from straightforwardly valued. More than half of the UK-educated participants believed they needed to suppress or exaggerate what they see as making them international graduate-employees, to gain acceptance and recognition from their peers and clients. They would avoid clothing choices such as Western-styled cufflinks, consciously use fewer English words and terms, even with other UK-educated colleagues, and tread very carefully when discussing social events. Being perceived as 'Westernized' could impair their identities, hinder their relations with clients and place them hierarchically lower than Chinese-educated graduates.

Like Gao's research, Ismail's study challenges the normative evaluation of the value of internationalized programs in the UK, which sees doctorates as a proxy for status and indicative of a drive for change in the students/graduates' national contexts. The tripartite data collected from students, graduates, and supervisors helped Ismail unpack the experiences and outcomes from multiple perspectives. The UK supervisors' views echoed the long-standing position of privilege of 'English-language knowledge' and its association with quality and status for those who choose to (or can) receive their education in the UK.

> *'… western and English language knowledge is extremely prestigious globally and Britain has a good reputation globally for the quality of education. Therefore, if you can take this knowledge back to your own country, that will raise your status and value in your own country… the knowledge is in English. So, they have the benefit, Britain benefits them in this.'*
>
> *(Richard, Social Sciences)*

Similar findings can be found in the mainstream literature on international education (Madge, Raghuram & Noxolo, 2015), supporting arguments for the value of North-South (or Western to others) knowledge transfer. However, the use of other voices problematizes this commonly accepted impact of this knowledge. Arab graduates' perspectives combined with those of British supervisors create a much-needed nuance and an understanding of the ways in which Anglophone knowledge impacts (or not) the returnee's national context. This quotation is only a small example of the value of this data. This participant had pride in completing their UK PhD, but this coexisted with their questioning of the practical use of doctoral knowledge and training in their national setting.

> *'I have been here in (my country) for 5 years now and I did change, literally, nothing… because in management things come from up and go down. So, maybe the decision-makers do not want this. They just want the simple and traditional way of doing things...'*
>
> *(Hisham, graduate, Management)*

Such narratives indicate a paradox that goes beyond the economic (better employability) and cultural (status and prestige) benefits for international doctoral students, and we believe this supports our call for a more concerted effort to understand the value of critical perspectives for critical insights as well as for analysis that focus on the value of internationalized education for all partner countries and persons.

In the study of the internationalization of doctoral education in the UK, only recently has there been scholarly interest in studying the expectations and challenges of international doctoral students (Cadman, 2000; Russell et al, 2010; Young, 2009). However, the focus of this study is mostly on the challenges for British higher education with little to no focus at the added value for the returnees and the sending contexts (Montgomery, 2019; Liu & Lin, 2016). The critical perspectives developed by Gao and Ismail add to this.

Principle 3: Acknowledges and accounts for, through reflexivity, the historically generated unequal relations or biases embodied by the knowledge generated

It was in preparing an analysis for the Re-Knox conference that our ideas about an international project based on critical theories emerged. Viewing the manifold relationships and articulations, we need to

chase through our data to really understand how participants' lives become mechanisms for generating a form of internationalization, that appears to benefit the already advantaged parts of the world.

The phenomenon of internationalization is constituted by almost infinite configurations of diverse mechanisms, located in times, places and spaces across the globe and in history whereby its copious manifestations (both positive and negative) are sometimes noticed and often invisible (Beck, 2021). They are embedded within all of us as individuals, significant groups of people, governments and organizations' policies, universities and their cultures, pedagogies, curricula, and research practices combine with economic factors, thoughts, ideas and spaces. As none of our projects can capture this complexity, we propose that reporting our research and its findings along with any biases, injustices, and other factors that (re)generate hierarchies is important.

Our projects, like others before and after us, are necessarily focused on small parts of internationalization, but the point is to build on the diversity of critical perspectives from different positionalities. Our projects offer partial perspectives that should, as Sayer (2010) suggested, be judged in terms of their practical adequacy in providing a reasonable explanation for the injustices we identify in relation to how we have framed our research. Known and unknown biases shape us as researchers and influence every tool and heuristic device at our disposal, making all knowledge fallible and subject to re-evaluation. Therefore, systematic attempts to build a critical field require systematic mapping of and honest reflections on our efforts. A collective project involving colleagues globally should not be fueled by focusing on national interests, or by tinkering with small aspects of internationalization that facilitate the continued pursuance of national interests (for example, how to maintain a flow of students from sending countries) but be genuinely learning focused on how to turn studies of internationalization into a wider and mutually beneficial project.

Abbas and colleagues had known from previous research and literature that the expectation to be international weighed heavily on UK staff. However, through the analysis of the data for this project that we gained insight into the insidious and unjust nature of internationalization in relation to academics. Reflections lead Abbas to believe that this project would be enhanced by exploring how the UK version of internationalization interacts with other countries' academics and systems of promotion on health, well-being and the knowledge that is produced. There is clearly much collegiality, respect, goodwill, and rewarding relationships between international colleagues. However, alongside this, international people and phenomena (e.g., universities, knowledge, curricula) are positioned and any collaborative work includes and generates hierarchies. The perspective produced is partial but leans towards a more holistic and just understanding of international impact.

Gao’s research similarly raises many critical questions by prioritizing Chinese graduates’ perspectives on their careers post-university: an important perspective on internationalization (Song & McCarthy, 2018) as it challenges the common perspective in China and the UK. Transferred knowledge is deemed to be of less value or at the very least more complicatedly positioned, than a regular assessment of the value of UK higher education. At a simple level, once UK IT graduates return to China, they learn that Chinese companies value the speed of any initial code produced. In contrast, in the UK, they learned to prioritize correct code over speed. Chinese universities focused more on how to build a flexible/adjustable structure quickly and then apply debugging skills afterwards (to sort out the faults). The ideologies and identities that are developed in relation to the different forms of professional knowledge, practice, and dispositions through Chinese and UK education have much more complex impacts. This research provides a counterbalance to most research and indicates a need for more international perspectives; however, it is necessary to develop these ideas regarding how such approaches can be used for international good. However, a more comprehensive, nuanced, and complex understanding is needed to understand how to turn this work into an international good.

Similarly, Ismail’s engagement with the internationalized doctoral experience brought to the surface a perspective on the repressive aspects of internationalization for Arab students and those who supervise

them. Students remained submissive to being assimilated into learning and propagating the UK version of Western knowledge: through studying in the UK, working with their British supervisors, publishing in the English language, and then teaching updated Western knowledge to students in the UK if they took on teaching as part of their studies. Students' national knowledge was deemed unimportant and made invisible. Supervisors sustain the hegemonic epistemologies and pedagogies of the UK, because they must. For example, international students must be able to frame their research strictly within Western paradigms and learn the skills considered important. By having a process of doctoral supervision that does not include open debates about knowledge and cultural understandings of what knowledge is for, supervisors and students do not benefit from a rich cultural exchange. Students arriving in the UK have achieved strongly in their own countries before they arrive. This study illustrates that an important aspect of international education is its failure to draw upon and develop a form of critical consciousness that can inform the development of emancipatory practices in research and teaching in different educational systems, cultures, and contexts. However, as with the other two projects, this requires mapping and developing.

Conclusions

Our own projects did not originally seek to contribute to a project around bringing together internationalization and decolonizing research, something that has more recently been advocated by other authors, but our analysis led us to position this work within a collective effort toward critical understandings of internationalization. Based on this work, we argue that researchers could identify and map out what is understood about the impact of internationalization practices in various parts of the world and identify people working and studying in the respective parts of the higher education sectors within countries who relate differently to these agendas.

It can unite understandings of the negative and positive impacts located within all countries and seek to undermine the generation of unjust hierarchies in which there are winners and losers. We have selected theoretical frameworks from theorists of different nationalities. One of the key arguments that we want to present to our readers is the dire need for collaborative research in the field of internationalization of higher education.

We contend that we cannot depend on the unilateral Westernized lens of internationalization phenomena and that the contribution of multiple perspectives is pertinent to our nuanced understanding of its intricacies, particularly from those who have historically been marginalized. Our paper calls for more grass-roots movements for collaborative research between western and southern universities by those invested in generating new knowledge to inform new ways of doing the internationalization of higher education more collaboratively. We need to move beyond guidance on methodology, data collection, and analytical approaches (Secret et al., 2011), towards research that invests time in understanding the significance of North-South communication (Kahn, 2015; Delgadillo, 2016) and the value of reciprocity (Sutton et al., 2012).

Strengths and Limitations

A strength of our project is that it is built on the discussions undertaken for and at the Re-Knox conference in Cairo (August 2022). This provided a promising opportunity to initiate, not just research collaboration between MENA and British academics, it provided a place where all parties involved could find ways to work together, reflect on their positionality and commitments and create future trajectories. Haley et al (2022) pinpoint the danger of maintaining a western epistemic hegemony in such academic endeavors by imposing Westernized structural conditions but overlooking the cultural ones. The significance of our research is that it illustrates what might be achieved regarding the

development of underpinning knowledge that could drive the types of collaborations we call for. It illustrates the work that is needed if we are to produce international education and research that does not: a) consolidate further exploitation of the South by providing labor (an army of researchers from the Global South); b) create new markets for Western research or invest in research agendas that encourage research consumption in the South while increasing research production in the North (Al-Katatsheh and Al-Rawashdeh, 2011). Trust-building is critical in understanding the value of internationalization, collaboration, knowledge production, of constructing supportive mechanisms for fair and equitable international collaboration.

A limitation of the research underpinning our paper is that it was not generated specifically to address the question of how we operate more collaboratively to achieve the ideas we are advocating. In addition, it is in some ways contradicting its own values as scholars who are developing their research careers in western universities. Our methods, perspectives, and ways of approaching research are hopefully helpful, but they are shaped by this context.

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3. A note on ethics: All three projects were conducted in line with the University of Bath (UK) and the British Research Association ethical guidelines. For further information on ethics, please contact the authors.

Conflicts of Interest

The authors have confirmed that there are no conflicts of interest underpinning any of the three pieces of research underpinning this study.

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Investigation of the 7th and 8th Grade Science Curriculum Outcomes and Textbook Activities in terms of Scientific Creativity

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Investigation of the 7th and 8th Grade Science Curriculum Outcomes and Textbook Activities in terms of Scientific Creativity

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ABSTRACT

This study investigated the effect of the present science curriculum and textbook exercises on scientific creativity. This study used document analysis as a form of qualitative investigation. This study used data derived from the academic performance of students in the 7th and 8th grades, specifically focusing on the outcomes of the 2018 scientific curriculum and the activities presented in the associated textbooks. The descriptive analysis technique was applied to examine the results and activities, which are qualitative data. This study comprised an analysis of achievements and activities, concentrating on predefined themes within the sub-dimensions of the Scientific Structure Creativity Model. The study yielded findings that demonstrated a connection between curricular outcomes and textbook activities across all grade levels. In particular, these educational materials effectively included scientific knowledge and phenomena, thus promoting the development of creative thinking skills. It is essential to emphasize that the science curriculum and textbook mainly prioritize creative results and process aspects, whereas characteristics such as fluency, adaptability, and originality, which are crucial to creativity, receive comparatively less emphasis. Furthermore, it was determined that the goals of education and instructional materials for seventh- and eighth-grade students were congruent with the characteristics of scientific creativity.

Keywords: Science education, scientific creativity, curriculum, textbook, document analysis

Introduction

The education field has undergone significant changes due to the increase in global production and information competition. As a result, there is now a greater focus on cultivating individuals who possess multiple viewpoints, innovative thinking skills, analytical abilities, and developed creative capacities that align with societal demands (Kennedy & Odell, 2014). Cultivating competencies recognized as essential in the 21st-century has become a significant objective in contemporary education. These competencies are intended to reshape people in alignment with the demands and requirements of the current era (Karahan, 2021; Lai & Viering, 2012).

In today's world, designated by changing conditions and changing needs for individual abilities, the concept of education has shifted its emphasis to multiple skills. These skills encompass abilities such as adaptability, collaboration, communication, creativity, critical thinking, entrepreneurship, innovation, leadership, non-routine problem-solving, productivity, responsibility, self-management, and proficiency in information and media technology (Geisinger, 2016; Kylonen, 2012; Partnership for 21st Century Skills, 2019). These competencies are widely acknowledged as crucial factors that improve individuals' ability to engage in lifelong learning and develop their creativity (Dede, 2009; Trilling & Fadel, 2009). Consequently, in the contemporary context, it is imperative to cultivate individuals who can negotiate and react to dynamic circumstances successfully, exhibit openness toward novel ideas, cultivate their proficiencies, and generate innovative solutions to diverse challenges.

As emphasized by Trilling and Fadel (2009), one of the most critical skills required by modern education is the ability to demonstrate creativity and ingenuity. The competencies demanded by today's global economy include various areas such as the creation of products, providing services, marketing, and client service. Within this particular setting, the development of expertise in these specific areas by students will allow them to make stronger advances in their own development as well as in their prospective jobs. In a similar vein, the incorporation of science education in the curriculum will serve to enhance these abilities and reinforce the capacity of pupils for logical thinking, problem-solving, and analytical methods, thereby growing individuals who are more ready for the challenges of the years to come.

In basic terms, the integration of creative applications in the product creation process in educational activities can enhance the general standard of instruction. Due to this justification, it is vital for educators to exhibit willingness toward innovative methods for promoting activities and performances that support the cultivation of creative thinking abilities. In addition, curriculum, learning methodologies, and educational materials must be consistent with each other and reinforce the intellectual abilities and behavioral characteristics that define individuals. The curriculum provides an essential foundation for instruction, offering guidance for setting goals, content, methods, assets, evaluation processes, and the scope of the teaching process (Demirel, 2015; Oliva & Gordon, 2018). Textbooks, which correspond to the tenets stated in this fundamental plan, are created with the objective of assisting the achievement of these objectives and act as an essential tool of the educational framework. Textbooks represent an important part of schools as they have been carefully planned to correspond with established curricula, thus providing essential tools for gaining fundamental information. These books contain subject matter, knowledge, and interactive tasks that are essential elements of the process of learning (Sirin, Tuysuz & Oguz, 2022).

The primary source used by teachers for organizing their teaching methods was found to be textbooks explicitly developed for the course of study (Gulersoy, 2013; Unsal & Bakar, 2022). Textbooks have become widely accepted as a primary and essential educational tool used by both teachers and students inside educational institutions (Kolac, 2009). In the current circumstances, it may be asserted that textbooks play a pivotal role in aiding the effective execution of curricula. In this conceptual framework, it is of the most significant importance to give priority to the investigation of textbooks and curricula in schools that aim to promote creative thinking and skills among students, with a special focus on the viewpoint of science.

When evaluating scientific creativity, it is possible to use a comprehensive approach by examining both the curricula and textbooks used by educators and students. In this context, the problem statement of the research was determined as follows: "What are the distribution of science curriculum results and activities in 7th- and 8th-grade textbooks with regard to scientific creativity?". In the context of this research problem, the following sub-problems were formed:

- What is the distribution of the 7th-grade science curriculum objectives and activities of textbooks in terms of scientific creativity?
- What is the distribution of 8th-grade science curriculum objectives and activities in textbooks in terms of scientific creativity?
- How do the seventh- and eighth-grade science curriculum objectives and textbook activities compare in terms of scientific creativity?

The purpose of this study was to investigate to what extent scientific creativity plays a role in the development of science knowledge among individuals, especially through the execution of science curriculum results and textbooks published by the Ministry of National Education (MoNE) in 2018. In light of this explanation, the current investigation investigates the scientific imagination displayed in the achievements and textbook exercises of the 2018 science curriculum, which was implemented during the research period.

Creativity

The value and importance of creativity are continuously rising in today's society, which is characterized by rapid change and evolution. Creativity is an essential ability that serves a vital part in successfully adapting to the complicated and dynamic nature of modern life. This skill holds an essential place throughout different fields, including solving problems, developing innovative approaches, and promoting creativity, along with enabling flexible thinking and adaptability. Recognizing the significance of fostering and assisting creativity is an essential effort in navigating the complexity and competition of today's society, thus enhancing our awareness of the inherent worth of this fundamental skill.

The development of creativity has significant value in helping individuals make meaningful contributions to society and in promoting the generation of distinctive and original ideas. Creativity refers to the innate ability of individuals to generate new and socially significant creations, which manifest through gaining knowledge and participating in educational endeavors (McWilliam, 2009; Plucker, Beghetto & Dow, 2004). According to Andreasen (2009), creativity is the natural ability of individuals to see and recognize unique and new circumstances and occurrences. Creativity is an organized process in which humans produce novel and innovative products by conceiving diverse solutions to existing challenges (Astutik & Prahan, 2018). In the present situation, it is fundamental to encourage and promote the development of creative thinking in a manner that promotes the discovery of individuals' creative capabilities and contributes to the advancement of societal innovation.

The concept of creative thinking is complex and comprises different elements. Hence, scholars have endeavored to provide a systematic framework for its assessment and quantification to enhance comprehension and explain the nature of creativity (Ozkale, Kilic & Yelken, 2020). Various definitions and classifications in the literature involve the investigation and questioning of the creative individual (Guilford, 1968), the dynamic and evolutionary nature of the creative process (Benami, 2002; Guilford, 1968; Koberg & Bagnall, 1974; Torrance, 1963; Yavuzer, 1989), and the resulting creative work (Abra, 1997; Ausubel, 1964; San, 1993; Takala, 1993).

The growth of creativity is a manifestation of the constant interaction among an individual's creative mindset, the process of generating new concepts, and the resulting products of creativity. In his studies on creativity, Torrance (1966) discusses the abilities of individuals to take on problem identification, solution search, and theory formation. Erika (1974) emphasizes the importance of combining creative

thinking with new concepts as a critical aspect of creativity. Amabile (1996) illustrates the ability to understand the different phases that comprise the process of product creation and the significance of flexibility, sophistication, and navigating skills in promoting creativity. Higgins and Morgan (2000) highlighted the importance of creating knowledge originally. Albrecht (2005) highlighted the importance of implementing various viewpoints to recognize problems and expect creative possibilities. Landau emphasized the ability to integrate distinct relationships through the construction of new cognitive frameworks, thus encouraging the creation of new concepts and products (San, 2003).

According to Wallas (1926), creativity can be viewed as a method of problem-solving, including various phases, notably planning, incubation, realization, and confirmation. During the initial stages, the individual with a creative tendency participates in an in-depth examination of the problem, gathers pertinent knowledge, and generates numerous potential remedies. It is common for the ideas that are produced during this stage to stop short of producing the expected results or fail to reveal the intended creative thought. During the incubation phase, individuals are not involved in conscious thought about the subject at hand. Instead, the mind performs a subconscious analysis of the problem

During the incubation phase, mental procedures persist and operate subconsciously, leading to the emergence of a solution or concept in the mind during the moment of "realization." The development of this idea occurs entirely in the absence of conscious awareness. During the validation phase, the solution's accuracy, appropriateness, or efficiency is assessed. Following the conclusion of this examination, the answer undergoes reorganization or clarification, completing the creative process. The development of creativity has significant value for individuals as it allows them to make meaningful societal contributions and promote the generation of new and unique ideas. Creativity can be defined as the inherent ability of individuals to produce novel and socially significant creations, which are evident through the process of gaining knowledge and formal education.

Similar to how individuals engage in creative processes during the creation of significant discoveries, regular people also employ creative processes when addressing the challenges they face in their everyday lives (Dogan, 2011; Sak, 2009). According to Ozturk (2004), creativity can be observed not only in scientific innovations but also in the creation of unique designs or creative expressions. Creativity plays a significant role, particularly during the problem-solving process, specifically in generating a novel and innovative product by using an individual's knowledge (Paulus, 2000; Torrance, 1963; Yenilmez & Yolcu, 2007). Hence, it can be inferred that the integration of creativity in the production process leads to the creation of significant and captivating products (Csikszentmihalyi, 1996). Consequently, it becomes evident that the cultivation of creativity necessitates a continuous focus on the acquisition of knowledge and skills, as well as the generation of innovative outputs (Chapman, 1978; Rowe, 2007).

The evaluation of creativity involves considering ideas that go beyond the final result, with an emphasis on the qualities of creativity that extend beyond the product itself (Runco, 2014). Hence, it is imperative to consistently foster and endorse creativity to enhance individuals' capacity, bolster their aptitude for problem-solving, and cultivate novel viewpoints. Within the present framework, scholarly investigations underscore the necessity of tailoring approaches to managing creativity according to the distinct requirements of diverse domains, including art and science (Sak & Ayas, 2013). Hence, the imperative to approach creativity from an interdisciplinary standpoint underscores the need to provide a framework that integrates novel cognitive processes across several domains.

Scientific Creativity

According to Karakas (2016), the development of creative goods or ideas in the realm of science relies heavily on an in-depth comprehension of the subject matter. Scientific understanding and imaginative thinking are intricately intertwined, working in tandem to propel scientific advancements to higher levels. When addressing scientific challenges, individuals must employ scientific methodologies and techniques with inventive approaches to arrive at practical answers. Individuals must exhibit inventiveness, originality, and flexibility while engaging in this process. Additionally, individuals should approach instances and circumstances with advanced cognitive abilities. According to Rasul,

Zahriman, Halim, Rauf, and Amnah (2018), it is imperative for people engaged in scientific processes to effectively apply their knowledge to novel and diverse contexts, as well as show scientific creativity in problem-solving endeavors.

Previous research (Atasoy, Kadayifci & Akkus, 2007; Hu & Adey, 2002) has argued that scientific creativity entails the generation of technical products through cognitive processes informed by scientific knowledge. These products are specifically tailored to address scientific trends and problems. Furthermore, the evaluation of academic creativity is contingent upon the acceptance of a product by a particular group of individuals, with emphasis placed on the resultant outcome (Amabile, 1996).

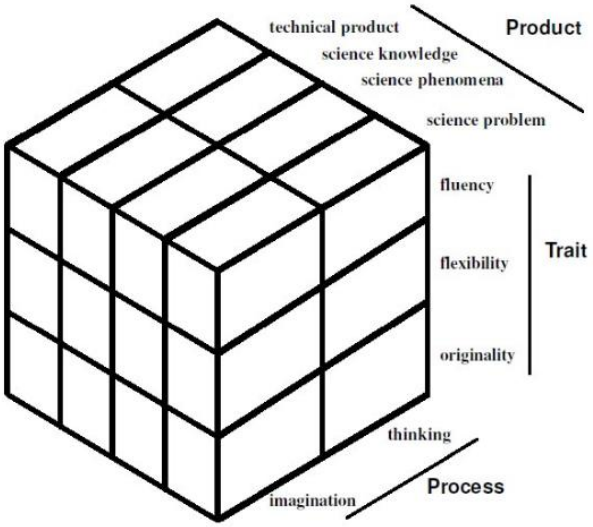
Utilization of innovative concepts throughout the design phase of product development creates unique and practical merchandise. Modifications transpire within the material in accordance with the requirements and desires determined during the product design procedure (Simon, 1996). During this process, individuals are required to generate innovative solutions by providing multiple viewpoints while developing resolutions to various challenges (Gupta & Sharma, 2019; National Academy of Engineering, 2010). Utilization of creativity in design processes by students, particularly within the area of science education, holds significant benefits in terms of improving scientific thinking capacity and enhancing their ability to produce solutions for real-world problems.

Scientific creativity is of greatest significance in the realm of science education because it plays a pivotal role in fostering students' scientific thinking abilities and facilitating a deeper understanding of scientific concepts. This pedagogical approach promotes active engagement among students, encompassing not only the rote memorization of knowledge but also active involvement in many cognitive processes, including issue definition, premise formulation, experimental design, and interpretation of results (Cheng, 2004; Demirhan, Onder & Besoluk, 2018; Meador, 2003; Sahin Pekmez, Aktamis & Can, 2010). According to Gupta and Sharma (2019), the instillation of creative thinking abilities in students enables them to effectively apply scientific knowledge to address real-world challenges and generate viable solutions. The studies conducted by Wahyudi, Verawati, Ayub, and Prayogi (2019) and Zulkarnaen, Supardi, and Jatmiko (2018) recommend that scientific creativity can stimulate students' curiosity and inclination to engage in exploratory activities.

The incorporation of many perspectives and the establishment of connections within the fields of science offer pupils a heightened level of interest and significance in the learning process. Moreover, the cultivation of scientific creativity has been found to enhance students' critical thinking and problem-solving abilities (DeHaan, 2009; Karaca, 2017; Liu & Lin, 2014; Treffinger & Isaksen, 2005). This facilitates pupils' acquisition of knowledge, encompassing theoretical understanding and practical application. Scientific creativity serves as a pedagogical framework that imparts the fundamental concepts of science and educates students on the effective use of information to successfully address and resolve practical issues.

To develop a more comprehensive understanding and evaluation of scientific creativity within the field of science education, Hu and Adey (2002) developed a conceptual framework known as the "Scientific Structure Creativity Model." This model facilitates an understanding of scientific creativity's fundamental parts and constituents, elucidating their interplay and the resultant creative process and outcome. The initial dimension of the "Scientific Structure Creativity Model" established by Hu and Adey (2002) encompasses the sub-dimensions of "imagination" and "thinking" inside the creative process. The second dimension comprises the sub-dimensions of "fluency," "flexibility," and "originality" as characteristics of creativity. Finally, the third dimension includes the sub-dimensions of "technical product," "scientific knowledge," "scientific phenomenon," and "scientific problem" as the elements of the creative product (see Figure 1).

Figure 1. Scientific Structure Creativity Model (Hu & Adey, 2002)



The creative process dimension of the concept encompasses the cognitive processes of creative thinking and imagination. Divergent thinking refers to the cognitive capacity to generate multiple solutions or responses to a given problem using an array of perspectives. Within the realm of imagination, the paramount element is imagination, which is the generation of a cognitive occurrence or events using existing objects or thoughts (Hu & Adey, 2002; LeBoutillier & Marks, 2003). To determine the degree to which a situation is the outcome of creative thinking, one can assess the dimensions of fluency (the ability to generate multiple ideas), flexibility (the ability to generate diverse ideas in response to the same stimulus), and creativity (the ability to generate novel and unique ideas). These dimensions define the nature of thoughts, as outlined by Guilford (1986), Hu and Adey (2002), and Torrance and Goff (1989). In the fluency dimension, people generate many ideas and propose detailed solutions to the problem (Hu & Adey, 2002; Jaarsveldt, 2011). They also express their thoughts verbally or in other ways.

In the dimension of flexibility, individuals demonstrate the ability to effectively adjust to various circumstances or settings by considering the situation from diverse viewpoints and generating novel concepts (Hu & Adey, 2002). Conversely, in the dimension of originality, individuals engage in inventive endeavours while seeking solutions to problems, recommending ideas or products that have not been previously attempted or produced, and presenting novel solutions that have not yet been generated (Hu & Adey, 2002; Jaarsveldt, 2011). Fisher (1995) posits that a child's elevated intellectual vigour indicates a commensurate amount of creativity. The framework's creative product component emphasizes technical products that originate via the application of creative thinking. The items mentioned above ought to possess a foundation of scientific knowledge, be intrinsically linked to a scientific occurrence, and be purposefully crafted to address a scientific quandary (Hu & Adey, 2002; Ustundag, 2014).

The integration of scientific knowledge into these products facilitates students' comprehensive understanding of science while simultaneously fostering their acquisition of scientific reasoning and methodologies. This, in turn, enhances their capacity to apply their knowledge and skills to real-world challenges. The objective of incorporating scientific creativity into science education is to cultivate students' abilities to think creatively and independently rather than passively taking in information. This technique facilitates the acquisition of the abilities necessary for problem solving in future professional and personal contexts. Simultaneously, scientific creativity engender self-assurance among students, augments their enthusiasm for acquiring knowledge, and fosters a disposition toward continuous

learning. Hence, it is critical to foster and endorse scientific creativity within science education procedures and instructional resources to cultivate this aptitude.

Methods and Materials

In this study, science curriculum objectives and textbook activities were examined in terms of scientific creativity using the document analysis approach, a qualitative research method. The document review method is a systematic process that involves examining analyzing and evaluating primary or secondary sources that are printed or electronically available (Creswell, 2007; Ozkan, 2021; Saldana, 2011). Therefore, because the content of the documents used in the process is categorized and interpreted, it can be used as a method as well as a data analysis method (O'leary, 2004; Saldana, 2011). Document review is the scanning of documents containing information focused on the intended target in terms of specific words and concepts (Miles & Huberman, 2016). In the context of the purpose of this study, the document analysis method was used to examine the dimensions of scientific creativity in terms of the content of the primary sources, science curriculum outcomes, and activities of the determined textbooks. In this context, the latest science curriculum updated in 2018 in Turkey and the currently used textbooks were determined.

Research Data Sources

The study used data sources comprising the scientific curriculum outcomes for the 7th and 8th grades in 2018, as well as the activities included in the corresponding textbooks. In this context, the 7th and 8th grade levels, which will reflect the themes of scientific creativity among the achievements of the science curriculum and textbook activities, were selected with the criterion sampling technique from purposeful sampling methods. The reason for choosing the purposive sampling method within the scope of the study is that it allows in-depth study of situations that are thought to have rich information and helps researchers in discovering and explaining events and phenomena (Yildirim & Simsek, 2011). Criterion sampling is the study of situations that meet predetermined criteria. In this study, the criterion is that the outcomes and activities to be sampled reflect the themes of scientific creativity.

Curriculum outcomes are the specific goals and objectives that are intended to be achieved through the implementation of an educational curriculum. The study uses a data set comprising 128 objectives extracted from the 2018 scientific curriculum for the 7th and 8th grades, with 67 objectives for the 7th grade and 61 objectives for the 8th grade (MoNE, 2018). Table 2 presents the grade level, unit, subject area, and number of objectives of the curriculum analyzed in the context of this study.

Activities in the textbook: An additional data source employed in the study comprises the content of scientific textbooks used for seventh- and eighth-grade instruction in both regular secondary schools and imam hatip secondary schools throughout various provinces in Turkey during the academic year 2022-2023. The reason why seventh- and eighth-grade books were chosen for the study is that the development of creativity for students at these grade levels is different from the previous grades. In this period, students' mental and emotional abilities are more mature and they have more freedom and responsibility. In addition, since this is the last level of middle school, students should have a more creative potential for the next level. To select appropriate textbooks, it was deemed necessary to analyze the textbooks used at a public school affiliated with the Ministry of National Education, chosen at random. The criteria for the eligibility and exclusion of textbooks are as follows: It should be a textbook prepared for public schools in Turkey for the 2022–2023 academic year2022–2023, approved for use, and determined based on certain standards. This is because these textbooks are usually determined on the basis of a country's educational policies, laws, and the needs of educational institutions. These criteria ensure that educational materials meet certain standards and that students have equal educational opportunities. In addition, the textbooks used as data sources are currently used in schools. Table 1 provides details regarding the imprint of the books.

Table 1. 7th and 8th grade science textbook information analyzed as a document

Book title	Publisher	Author(s)	Year of publication - place of printing	Number of pages
Secondary and Imam Hatip Secondary School Science 7th Grade Textbook	Aydin Publishing	İsmail GEZER	2018-Ankara	226
Secondary and Imam Hatip Secondary School Science 8th Grade Textbook	Adim Adim Matbaa Publishing	Erhan YİGİT	2022-Ankara	241

The information for the seventh grade was gathered from statements and questions included in various areas of the science textbook, including the scientific workshop/activity, science workshop/poster, science workshop/tool design, science workshop/experiment, and science workshop/research sections. Data for the 8th grade were gathered from several portions of the science textbook, including the lab activity, study and presentation, brainstorming, and project task design sections. The chapter substance variations might be attributed to the distinct formal frameworks employed in the respective volumes. During the chapter selection process, input was sought from three experts in the field of scientific education. The activities to be evaluated were subsequently decided on the basis of the collective decisions made by these experts. In the context of this research, a comprehensive analysis was conducted on 95 activities, comprising 49 activities from the 7th grade and 46 activities from the 8th grade. Table 2 provides information regarding the grade level, unit, topic area, and number of activities associated with the evaluated books.

Table 2. Grade Level, Unit, Subject Area, Number of Activities, and Number of Outcomes of the Science Curriculum and Textbooks

Grade Level	Subject Area	Number of activities	Number of outcomes
7	Solar System and Beyond (Earth and the Universe)	2	10
	Cells and divisions (living things and life)	2	8
	Force and energy (physical phenomenon)	6	8
	Pure Matter and Mixtures (Matter and its Nature)	14	16
	Interaction of Light with Matter (Physical Phenomena)	12	12
	Reproduction, Growth, and Development in Living Things (Living Things and Life)	9	7
	Electric Circuits (Physical Phenomena)	4	6
8	Seasons and Climate (Earth and Universe)	1	3
	DNA and the Genetic Code (Living Things and Life)	5	13
	Pressure (Physical Phenomena)	6	3
	Matter and Industry (Matter and its Nature)	11	17
	Simple machines (physical phenomena)	6	2
	Energy Transformations and Environmental Science (Living Things and Life)	6	12
	Electric charges and electric energy (physical phenomena)	11	11

Data Analysis

The data obtained from various sources were subjected to descriptive analysis, which is a qualitative data analysis technique. The descriptive analysis method involves methodical grouping and clear explanation of data, focusing on cause-and-effect linkages rather than quantification or generalization (Fern, 2001). Furthermore, the data are analyzed and organized based on predetermined themes (Yildirim & Simsek, 2011). This study examined the analysis of curriculum outcomes and textbook activities, focusing on the planned themes within the sub-dimensions of Hu and Adey's (2002) Scientific Structure Creativity Model. The analysis of the research uncovered several themes, namely "technical product," "scientific knowledge," "scientific fact," and "scientific problem" within the domain of creative product. Additionally, the themes of "fluency," "flexibility," and "originality" have been identified within the realm of creativity. Finally, the themes of "imagination" and "thinking" have emerged within the context of the creative process.

The evaluation of scientific curricular objectives and textbook activities encompassed multiple sub-dimensions within the research scope. The studies involved the examination of each outcome and activity, taking into consideration whether these aspects were included or excluded. As a case study, within the context of the seventh-grade curriculum, specifically the subject area of "Earth and Universe," the initial objective of the "Solar System and Beyond" unit, denoted as "F.7.1.1.1. Explains Space Technologies," was established to encompass the overarching themes of "scientific knowledge, scientific phenomena, and thinking." Correspondingly, the primary educational task featured in the associated textbook for this objective was designated as "Science Workshop/Activity Let's Do: Let's Recognize Space Vehicles," which effectively incorporated all of the aforementioned themes.

In the domain of "Earth and the Universe" within the eighth-grade curriculum, the initial goal of the "Seasons and Climate" unit, precisely outcome "F.8.1.1.1. Makes predictions about the formation of seasons," has been identified to encompass various key elements such as scientific knowledge, scientific fact, scientific problem, fluency, flexibility, originality, imagination, and thinking. Similarly, the primary exercise featured in the corresponding textbook for this particular outcome, titled "Experiment: I Demonstrate the Earth's Circulation Around the Sun with a Model," has been determined to incorporate the following themes: scientific knowledge, scientific fact, scientific problem, fluency, flexibility, originality, and thinking. The results generated by the studies of the outcomes and activities determined in this manner are presented organized.

During the outcome analysis, two professionals in the field of scientific education collaboratively reached a consensus and jointly assessed the results. Both experts independently analyzed 128 objectives in the science curriculum and 95 activities in the textbook in the context of scientific creativity themes. To compare the consistency of the analyses made by different experts, the objectives and activities with "disagreement" and "consensus" were determined. The reliability of the study was calculated using Miles and Huberman's (1994) reliability formula "Reliability = Consensus/(Consensus + Disagreement)". As a result of the calculation, the reliability coefficient was determined to be 91%. Because the reliability coefficient was greater than 70%, it was concluded that the reliability of the analysis was high. Then, in the evaluation process, a third science education expert was consulted for the acquisitions that the science education experts could not agree on. The outcomes and activities on which there was no consensus were discussed by the three experts, and a common decision was reached. The individuals involved in the evaluation process and those whose opinions were sought were notable academics specializing in the domains of science education and creativity, possessing a minimum of a doctoral degree.

Validity and Reliability of the Study

To improve the study's validity and reliability, the analysis employed triangulation. Within this particular framework, the data were analyzed by two experts in the field of science education in collaboration. In addition, a third expert in science education was consulted for instances where a consensus was achieved, leading to a collective conclusion after a thorough discussion. Furthermore,

the methodology employed for conducting the analyses was elucidated through the provision of illustrative instances within the framework of learning outcomes and activities. The study involved the selection of two distinct-grade levels to establish any differences in objectives and textbooks. In the process of conducting a descriptive analysis of the data of the reliability of the study, the viewpoints of three experts specializing in the field of science education were considered to assess the appropriateness of the science curriculum and textbook in relation to the themes identified within the sub-dimensions of the Scientific Construction Creativity Model. The concurrent nature of the researcher's data collection and interpretation processes implies that personal attitudes, thoughts, and behaviours can influence the results (Buyukozturk, Kilic Cakmak, Akgun, Karadeniz & Demirel, 2016). To safeguard the internal validity of the study, the data were transferred without any form of interpretation or alteration. The study procedure was thoroughly elucidated and precisely described to ensure the absence of any potential uncertainty.

Ethical Considerations

In this study, all rules stated to be followed within the scope of the "Higher Education Institutions Scientific Research and Publication Ethics Directive" were followed. None of the actions stated under the title "Actions Against Scientific Research and Publication Ethics", which is the second part of the directive, were taken. Because the study has a single author, there is no conflict of interest in the study. In addition, because this study was not conducted on any living subjects, it does not require ethics committee approval.

Findings

This chapter examines the acquisitions and textbook exercises in the seventh- and eighth-grade science curriculum, concentrating on the themes of scientific creativity. The findings obtained from this analysis are presented below in the context of the sub-problems of the research.

Findings Related to the 7th Grade Science Curriculum and Textbook

The distribution of the seventh-grade science curriculum acquisitions according to the themes of scientific creativity was examined, and the findings are shown in Figure 2.

Figure 2. Distribution of 7th Grade Science Curriculum Objectives based on Scientific Creativity Themes

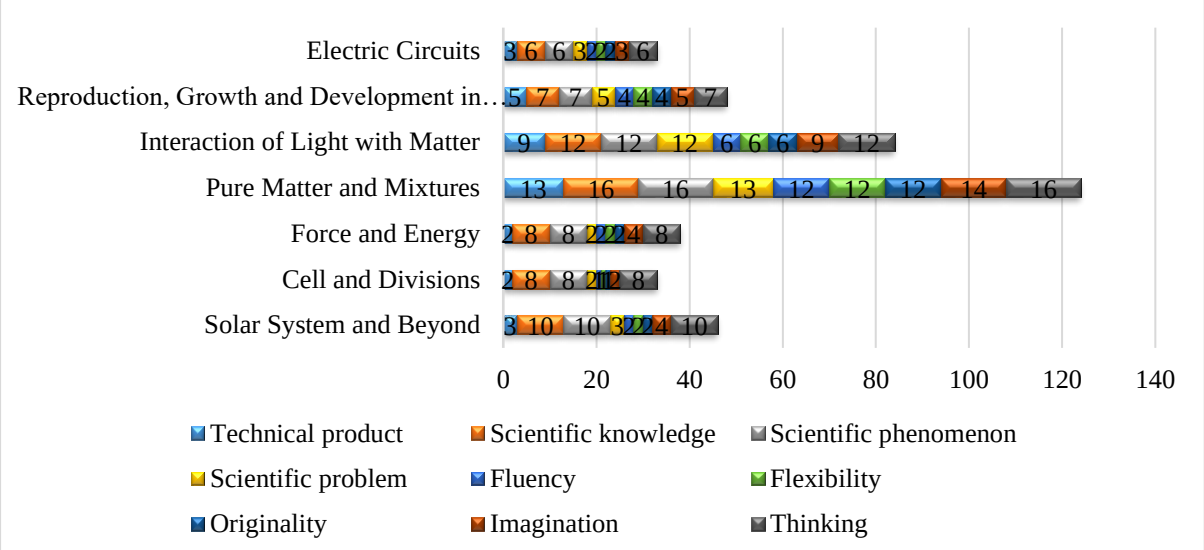
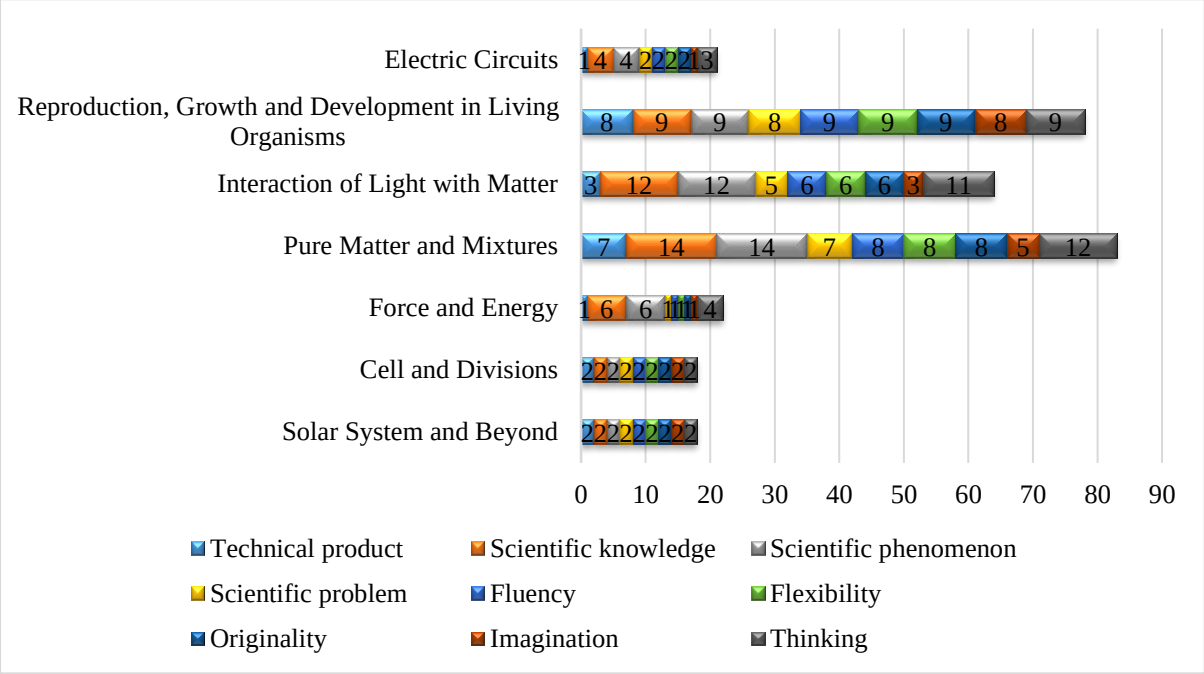


Figure 2 illustrates the categorization of the objectives within the seventh-grade science curriculum based on the various topics associated with scientific innovation. Thus, the learning outcomes

encompass the overarching topics of "scientific knowledge, scientific phenomena, and critical thinking" of scientific creativity. The aforementioned issues received particular emphasis within the curriculum and were duly represented in the designated learning outcomes. Furthermore, the curriculum was discovered to encompass the following themes: inventiveness, scientific problem-solving, technological product development, fluency, flexibility, and uniqueness.

It has been established that the various learning outcomes encompass distinct facets of scientific creativity, particularly when examined within the framework of cohesive units where these themes mutually enhance one another. Furthermore, it has been discovered that the curriculum specifically caters to the creative aspects of both product and process, encompassing themes such as "technical products, scientific knowledge, scientific phenomena, scientific problems, imagination, and thinking". Nevertheless, it was concurrently established that the attributes of "fluency, flexibility, and originality," which encompass the essence of creativity, were gave relatively less significance. In alternative terms, the curriculum allocates comparatively less attention to these particular topics. The distribution results of the seventh-grade science course textbook activities in terms of the scientific creativity subscales are in Figure 3.

Figure 3. Distribution of 7th Grade Science Textbook Unit Activities according to Themes of Scientific Creativity



The arrangement of exercises in the seventh-grade science textbook, categorized by themes of scientific innovation, is illustrated in Figure 3. Based on the provided information, it can be inferred that all the activities encompass themes related to scientific knowledge, scientific phenomena, and scientific creativity. The aforementioned issues were given significant emphasis within the curriculum and were duly represented in the activities provided in the textbook. Furthermore, it was determined that the textbook included the following themes: thinking, fluency, adaptability, creativity, scientific problem, technological product, and imagination

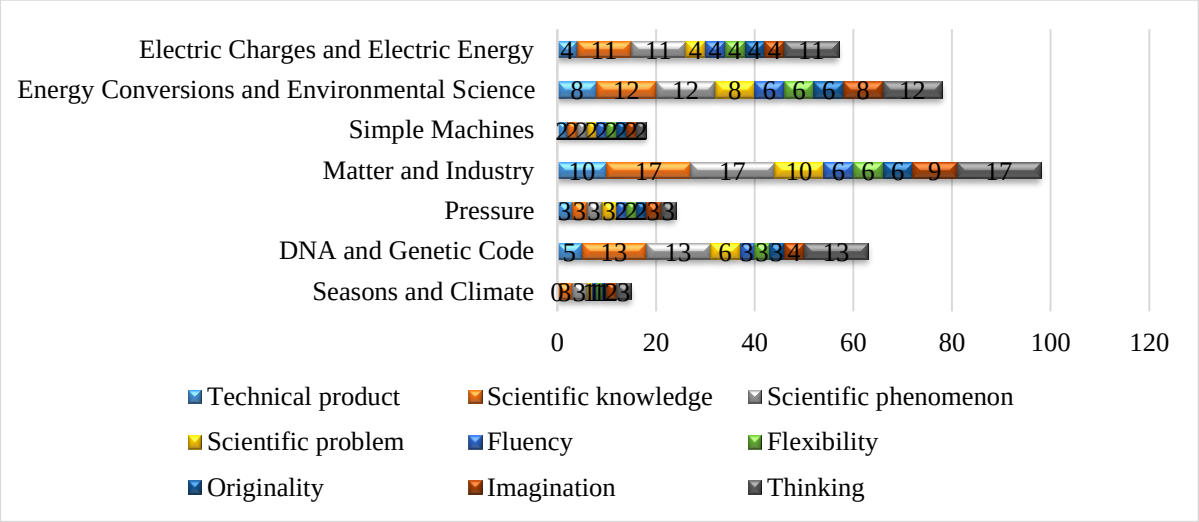
This observation indicates that each of the activities encompasses distinct aspects of scientific creativity, particularly when examined within the framework of the units whereby these topics mutually enhance one another. Furthermore, it can be observed that the textbook provides backing for the topics of "scientific knowledge, scientific phenomena, and scientific problems," particularly within the creative product dimension. Nevertheless, it has been established that the concepts of "fluency, flexibility, and

originality" on the dimension of creativity character, as well as the concept of "imagination" within the creative process dimension, were comparatively less substantiated. In other words, it was concluded that the textbook provided less coverage of these characteristics.

Findings Related to the 8th Grade Science Curriculum and Textbook

The results of the distribution of the eighth-grade science curriculum outcomes according to the themes of scientific creativity are shown in Figure 4.

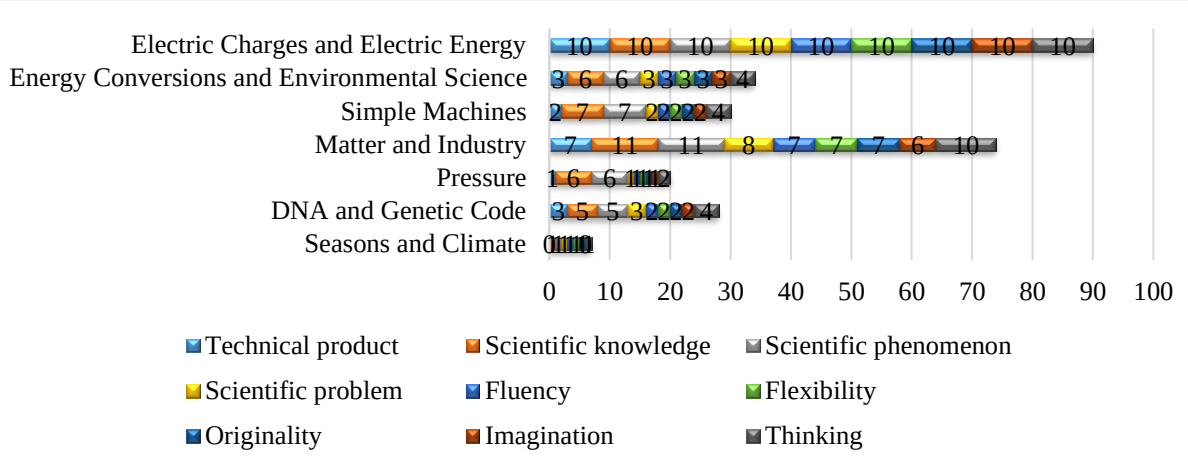
Figure 4. 8th Grade Science Curriculum Outcomes According to the Themes of Scientific Creativity



The distribution of the objectives of the eighth-grade science curriculum, categorized by the themes of scientific creativity, is illustrated in Figure 4. As per observations, it was noted that the learning outcomes encompassed the topics of "scientific knowledge, scientific phenomena, and thinking" in relation to scientific creativity. The identification was made that these elements were specifically stressed within the curriculum and manifested in the learning results. Furthermore, it was determined that the curriculum effectively incorporates the following themes: scientific problem, imagination, technical product, fluency, adaptability, and uniqueness.

Upon careful examination, it was found that the learning outcomes of the unit "Seasons and Climate" did not have any content related to the topic of "technical product." However, all other units did incorporate all themes of scientific creativity, with each unit containing at least one learning outcome of these themes. In addition, it should be noted that the science curriculum for seventh grade typically aligns with the creative aspects of scientific creativity, encompassing the development of technological products and the acquisition of scientific knowledge, facts, and problem-solving skills. Moreover, it fosters the cultivation of imaginative thinking, which is fundamental to the creative process in science. However, the elements of "fluency, flexibility, and originality," which comprise the essence of creativity, are comparatively less significant. The results of the distribution of eighth-grade science course textbook activities in terms of scientific creativity themes are shown in Figure 5.

Figure 5. 8th Grade Science Course Textbook Activities According to the Themes of Scientific Creativity



The sequence of exercises throughout the eighth-grade science textbook, categorized by themes of scientific innovation, is depicted in Figure 5. Thus, it can be observed that all activities encompass topics of scientific creativity, namely, those pertaining to scientific knowledge and scientific phenomena. The aforementioned issues were given significant attention within the curriculum and were duly represented in the various activities. Furthermore, the textbook encompassed the following themes: thinking, scientific problem-solving, technological product development, fluency, adaptability, creativity, and imagination. Therefore, it can be observed that the activities encompass several facets of scientific creativity within the framework of the units, wherever these subjects mutually enhance one another.

It was found that the "Seasons and Climate" unit lacked any content on the themes of "technical product and imagination." However, it was observed that all other units included at least one activity that covered all themes of scientific creativity. Furthermore, it was determined that the textbook provided substantial support for the dimension encompassing technical products, scientific knowledge, scientific facts, and scientific problems, particularly in relation to creative products. Another notable discovery indicated that the creativity character dimension, specifically the themes of "fluency, adaptability, originality," and the creative process dimension, particularly the subject of "imagination," received much less support. In other words, it was concluded that the textbook provided less coverage of these elements.

Comparison of the 7th and 8th Grade Science Curriculum and Textbook Findings

The distribution of 7th- and 8th-grade science curriculum outcomes and textbook activities according to the themes of scientific creativity is shown in Figure 6.

Figure 6. Distribution of 7th and 8th Grade Curriculum Objectives and Textbook Activities according to the Themes of Scientific Creativity

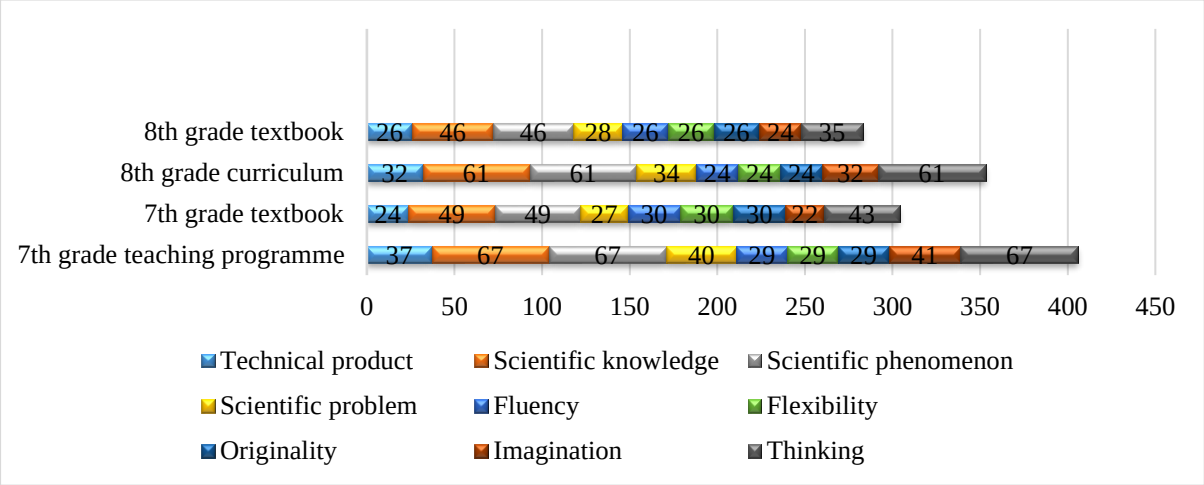


Figure 6 illustrates the comparative allocation of the content encompassed in the science curriculum outcomes and textbook exercises for the 7th and 8th grades, classified based on the themes of scientific creativity. Consequently, an in-depth examination revealed that the curriculum outcomes and textbook exercises incorporated the overarching themes of "scientific knowledge and scientific phenomena." The previously mentioned concepts received significant emphasis within the curriculum and texts and were evident in the learning outcomes and activities. Furthermore, the curriculum and textbook adhered to the themes of "thinking, scientific problem-solving, technical product development, imagination, fluency, flexibility, and originality."

This observation demonstrates the complementary nature of the results and activities at the seventh and eighth grade levels. Nevertheless, it has been established that both the curriculum and the textbook align with the themes of "technical product, scientific knowledge, scientific phenomenon, scientific problem" concerning the creative product dimension and "imagination and thinking" concerning the creative process dimension. However, it has been observed that the themes of "fluency, flexibility, originality" within the context of the dimension of creative character receive comparatively less support. In alternative terms, it is noteworthy that the textbook provides comparatively less coverage of these dimensions. Furthermore, upon closer examination of Figure 6, it becomes evident that the curriculum outcomes and activities of the themes of scientific creativity are proportionally aligned in both the seventh and eighth grades.

Discussion

This study aimed to analyze science curriculum outcomes and textbook activities of seventh- and eighth-grade students, focusing on scientific creativity. Additionally, the study assessed the extent to which these dimensions were reflected in the curriculums and activities, considering the students' grade levels. Based on the assessments conducted, it was concluded that across various grade levels, the curriculum outcomes and textbook activities encompassed the aspects of scientific knowledge and scientific phenomena, aligning with the parameters of the creative product. This scenario potentially provides students with the chance to enhance their capacity to comprehend and employ scientific disciplines. The increasing number of educational initiatives focused on fostering students' creative abilities in schools can be attributed to scholarly investigations on the correlation between creativity and knowledge (Atesgoz, 2021). The inclusion of creativity into educational curricula has facilitated the exploration of the relationship between knowledge and creativity, given that knowledge is widely recognized as a key component of comprehension (Craft, 2005).

Numerous academic papers claim that the acquisition of knowledge is a crucial factor in the process of creativity. These sources concur that individuals lacking sufficient knowledge may not be able to fully explore the boundaries of their creative potential (Baer, 2012; Boden, 2001; Csikszentmihalyi, 1996; Gero & Maher, 2013; Feldhusen, 1995; Ivcevic, 2007; Kulkarni & Simon, 1988). According to Weisberg (2006), the fulfilment of domain-specific knowledge is a prerequisite for engaging in creative endeavors. In the realm of science education, the provision of a complete and accurate information base to students can significantly enhance their ability to participate in creative thinking and make meaningful contributions to scientific discoveries. Thus, science education focuses on building a science-based knowledge base by providing students with scientific foundations (Bati, 2013). This gives students a solid understanding of basic science concepts, theories, and principles. Moreover, science education provides students with many opportunities to develop creative thinking skills, such as analyzing problems, developing hypotheses, and drawing conclusions through experimental work (Rizal, Putra, Suharto & Wirahayu, 2022; Suchyadi, Safitri & Sunardi, 2020). This gives students the ability to become individuals who are not only limited to rote learning of information but also capable of generating their own solutions (Ciftci, Saglam & Yayla, 2021). In addition, by increasing students' ability to make meaningful contributions to scientific discoveries, they may have the opportunity to conduct original science research (Ozata Yucel & Kanyilmaz, 2018). This enhances students' potential to contribute to the world of science and their ability to contribute to scientific progress. Within this particular framework, the use of scientific knowledge and factual information in the realm of science education emerges as a pivotal component that facilitates students in acquiring a more comprehensive understanding of the universe. Moreover, it enables them to employ scientific reasoning in their everyday activities while honing their fundamental abilities (Driver, Leach, Millar, & Scott, 1996). Consequently, placing a strong emphasis on scientific information and phenomena within science curricula and textbooks has the potential to facilitate students in harnessing their scientific curiosity and maximizing their potential.

In the given research environment, it is worth mentioning that the science curriculum and textbooks predominantly prioritize the creative product and process dimensions. However, relatively less emphasis is placed on the elements of creativity, such as fluency, flexibility and ingenuity. This scenario highlights the necessity of placing greater emphasis on these factors to foster the development of pupils' creative thinking abilities. The emphasis on students' capacity to invent and innovate by adopting interdisciplinary approaches to problem-solving is a prominent feature of the scientific curriculum outlined by the MoNE in 2018. Scientific creativity plays a crucial role in developing students' problem-solving skills (Siew, Chong & Lee, 2015). Problem-solving activities in science learning facilitate the construction of new scientific knowledge and promote creativity (Mukhopadhyay, 2013). There is a strong association between creativity and problem-solving activity, as both involve investigating problems and finding innovative solutions (Mukhopadhyay, 2013). Innovative and varied learning activities are essential for promoting students' problem-solving skills and creative thinking (Pujawan et al., 2022). Mastery of knowledge and scientific process skills also contributes to the enhancement of scientific creativity and problem-solving abilities (Zulkarnaen, Supardi & Jatmiko, 2018). Training programs that target creativity and problem-solving skills have been found to have a complementary effect on performance (Blissett & McGrath, 1996). Additionally, students are encouraged to employ diverse tactics to enhance the development of the goods they create. Hence, it is anticipated that students will cultivate inventive solutions to challenges by developing novel and unique ideas beyond the mere acquisition of subject-specific knowledge (Guilford, 1986; Hu & Adey, 2002; Jaarsveldt, 2011; Torrance & Goff, 1989).

A further conclusion of this study shows that the objectives and activities outlined in the seventh- and eighth-grade curriculum are congruent concerning the dimensions of scientific creativity. The findings of this study underscore the significance of incorporating both scientific creativity and critical thinking components in a well-rounded approach to science education. Scientific creativity plays a crucial role in the development of students' critical thinking skills (Runco, 1993). Divergent thinking, which is a component of creativity, has been linked to critical thinking abilities (Runco, 1993). In addition, critical thinking disposition has been found to mediate the relationship between creative self-efficacy and scientific creativity (Qiang et al., 2018). This recommend that individuals with a higher disposition for

critical thinking are more likely to exhibit scientific creativity (Qiang et al., 2018). Therefore, fostering scientific creativity can contribute to the enhancement of students' critical thinking skills. The lack of contextual information related to the technical product sub-dimension in the "Seasons and Climate" unit's curriculum acquisitions further supports the aforementioned results. Similarly, the textbook activities lack contextual information for both the technical product and imagination themes. The results of this study indicate a general alignment between the science curriculum and textbooks in terms of fostering scientific creativity. However, the analysis also reveals a deficiency in the inclusion of characteristics related to scientific creativity within the "Seasons and Climate" unit, both in terms of desired objectives and the content of the curriculum. The lack of contextual information on the technical product sub-dimension does not support the development of creativity in students' ability to gain practical experience in this field and develop their creative thinking skills. In addition, the recurring motif of a dearth of imagination recommends that students may encounter constraints in cultivating their capacity for creativity and generating novel concepts. These limits may hinder students' ability to fully harness their potential for imaginative thinking in science and explore many elements of creativity.

Conclusion

The results of this study show that science curricula and textbooks generally support the concept of creativity. Curricula and textbooks offer the potential to convey scientific knowledge and facts to students while encouraging creative products. However, this study reveals that the elements that characterize creativity, especially fluency, flexibility, and originality, are insufficient. Although students are offered the opportunity to develop their ability to understand and apply scientific topics, the importance of creative thinking and products could be further emphasized. Seventh and eighth-grade curricula and textbooks were found to be compatible in terms of scientific creativity dimensions. However, there was a lack of content on the theme of technical products and imagination in certain units. These deficiencies may limit students' ability to fully evaluate and develop their scientific creativity potential. As a result, we can conclude that science curricula and textbooks should support the creativity dimension more effectively.

Limitations and recommendations

The focus of this study was limited to the science curriculum outcomes specifically designed for seventh- and eighth-grade students, as well as the activities outlined in the selected textbooks. This limitation was made to focus the study on a specific age group in the context of scientific creativity and to help present and understand the research process and results more effectively by conducting a more in-depth examination. The science curriculum outcomes of other-grade levels and textbook activities were excluded from the study Furthermore, the exclusion of topic content information and end-of-unit evaluations from the scope is also observed. In this particular context, it is advisable to undertake a longitudinal investigation pertaining to the impact of science curricula and textbooks authored by various publishers on the multifarious aspects of scientific innovation. In this context, future studies should examine the science curriculum outcomes of the seventh- and eighth-grade levels in terms of scientific creativity. In addition, the subject content information and end-of-unit evaluations of textbooks can also be examined in terms of scientific creativity. This study demonstrates that the qualities of fluency, flexibility, and originality, which constitute the key components of scientific innovation, are inadequately represented in curricula and textbooks. Hence, it is recommended that future curricula and textbooks include a more significant number of exercises that strengthen these dimensions.

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