



Research Article

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Teaching Strategies Adopted in Prince Sattam bin Abdulaziz University and the Extent of its Consistence with the University Prevailing Learning Patterns

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Abstract

This study aims to find acceptable teaching tactics based on learning patterns among male and female students at Prince Sattam bin Abdulaziz University. There will be an evaluation of appropriate learning patterns among male and female students and learning methodologies appropriate for pupils. We employed the Descriptive Method. A scale of learning patterns was created. The dominant practices and techniques used in course descriptions during the first semester of the academic year 2021-2022 were also recognized. Only (90) male and female students from the humanitarian criteria were included in the study. Following the execution of the experiment, computing the grades of male and female students, and analyzing the statistical results, the following results were obtained: Males excelled in the experimental learning pattern (4.37), followed by the theoretical learning pattern (3.71), while females excelled in the whole learning pattern (4.13), sequential learning style (3.40), and analytical pattern (3.40). (2.97). While the structural, creative, and critical learning tendencies were highly similar between boys and females. Second, the study findings revealed that the teaching tactics used in course specifications did not outperform the learning patterns. The investigation produced a strategy proposal that is compatible with the learning patterns.

Keywords: learning patterns, thinking patterns, teaching strategies

1. Introduction

Education is a legitimate instrument in the modern world. It is crucial to global economic progress. Daily, people are interested in gaining new knowledge. To survive in this world, many things must be learned from a holistic perspective.

The centralization of education in the twenty-first century shifted from an emphasis on traditional teacher-centered teaching methods to the student-centered teaching method. This has illuminated the need for innovative teaching strategies to support and encourage individual students' diversity (Abouzeid et al., 2021). This innovative method emphasizes the importance of instructors, who lead and teach solid moral principles, contribute knowledge and experience on various issues, and have distinctive teaching styles and tactics that facilitate the exchange of their perspectives. For this objective, they employ a variety of ways (Dhanapal et al., 2021).

According to Papadatou-Pastou et al. (2021), the term "learning patterns" developed in the 1950s of the previous century, rose to prominence in the 1970s of the same century, and is now common knowledge among teachers. According to Pritchard (2017), good learning depends not only on detecting learning patterns among students but also on the instructional materials employed, necessitating the production of instructional materials that closely adhere to student-centered learning patterns.

According to researchers, understanding students' learning patterns is the foundation for creating the teaching process, addressing students' learning needs, and boosting learning experiences, particularly in learning environments (Cheng, 2014). The educational goals and planned techniques are required to execute the strategies (Pandey, 2019). The concept of learning is "the human ability to receive, process, and transfer the information that surrounds him" (Gardner, 2016), which is capable of modifying reality through experience (Wilson, & Ortega, 2013).

2. The Study Theoretical Framework

2.1 Teaching Strategy

2.1.1 Teaching Strategies Concept

Teaching strategies consist of instructional methods, tactics, and the implementation of educational concepts. They are a series of carefully prepared procedures implemented in the educational process to achieve the desired goals and enhance learning to the greatest extent possible. Jacobs and Renandya (2011) define the term "student-centered learning strategy" as follows: "Students are responsible for their education, and they rely on both self-directed and cooperative learning as part of a broad educational approach that includes the substitution of active learning with lectures. The authors say that the objective is to build learners for life".

In her book, *Learning-Centered Teaching*, Weimer (2012) puts five critical characteristics of learner-centered teaching:

1. Balance of Power, which means engaging students in the whole learning process.
2. The function of content, content is not a goal but a medium for developing students' skills.
3. The teacher's role is to act as a guide and facilitator.
4. Teachers' responsibility stimulates students by involving them in control and responsibility for the learning process.
5. Evaluation represents the learning starting point rather than the last point. It aims to enhance learning. Students learn how to evaluate their activities through comparison with their peers, which encourages collaboration and participation.

2.1.2 Requirements of Teaching Strategies

According to Al-Khalifah & Al-Mutaw'e (2015), a teaching strategy requires faculty members to:

- act as facilitators for teaching and learning processes rather than transmitters of knowledge;
- be so dedicated to giving opportunities for students' self-directed learning and collaborative learning;
- be so committed to building an integrated personality for students;
- promote individual differences among students;
- appreciate the importance of using teaching strategies appropriately;
- be eligible for the subject or course;
- communicate and facilitate students' communication with each other to contribute to building a knowledge-based society.

Al-A'mrawi (2015) indicated some good strategy characteristics as follows:

- Inclusion: It includes attitudes and the expected teaching probabilities in the educational situation.
- Flexibility and capability of adjustment can be used from classroom to classroom.
- It should be connected with the main objectives of teaching a topic.
- It should tackle students' differences.
- It considers the pattern and type of teaching (individual – group).
- It considers the capabilities available in school.

Modern scientific trends confirmed that there is no specific teaching strategy that is optimal to use for achieving learning goals. The faculty member should only choose what is suitable for students' levels, educational environment, available capabilities, and course contents.

2.1.3 Teaching strategies that develop compound thinking skills

Researchers such as Garwan, 2010; Marzano, 1988 and Gawdat, 2006 separated two categories of thinking skills: simple thinking, which involves knowledge acquisition and memory skills, and observation, comparison, and categorization skills (Newman, 1991). These fundamental skills must be acquired before a pupil can get to the level of complex thinking skills. Creativity, critical thinking, problem-solving, decision-making, and metacognitive thinking are the five styles. Teaching strategies are required for the development of complex thought skills. Modern centered on activating the student's role, such as:

2.1.3.1 Interactive lecture

The patterns that already exist among students can be utilized by an interactive lecture technique to develop thinking patterns that do not exist or exist to a low degree. The lecture consists of an introduction, a presentation of the lecture's body, and a conclusion. In the stage of presenting the lecture's content, activating strategies such as cognitive and mental maps - brainstorming - discussion - dialogue - class questions - the Fryer Model - and other active learning strategies are added to ensure that students are engaged and that the lecture's flaws are eliminated while retaining its strengths. (Zahid & Al-Ruwais, 2017)

2.1.3.2 The discussion strategy

A significant technique that develops various skills fosters self-confidence and the ability to communicate and regulate dialogue, is based on analytical, synthetic, and sequential patterns, and fosters critical thinking (Al-Laqani & Al-Jamal, 2003). It aims to give students with conversation abilities, such as the ability to communicate and ask questions and tolerate the emotions of others, by forming small groups of students to investigate a topic or an issue.

2.1.3.3 Analogy strategy

It is a method based on sequential learning and developing synthesis and critical thinking skills. It is defined in the dictionary of educational terms (Al-Laqani & Al-Jamal, 2003) as a method of teaching or training that the teacher (the trainer) resorts to simplify education. The teacher links the new ideas the learners are studying with the ideas they are already familiar with for the learners to realize and comprehend them. Identifying the parallels and discrepancies between the individual's current knowledge and his desired knowledge is helpful.

2.1.3.4 Flipped learning strategy:

It supports the experimental learning style, in which the learner attempts multiple methods to complete the prescribed tasks until he achieves the correct method in the second portion of the lesson. Flipped learning uses modern technologies and the Internet to allow the teacher to prepare the lesson through video clips, audio files, or other media, which students can then view at home or elsewhere using their computers, smartphones, or other devices. The tablet is consumed before attending class, while class time is spent on talks, projects, and exercises.

The board members and key leaders of Flipped Learning (Network, F. L., 2014) determined that the Flipped Education strategy necessitates integrating four elements into the education process: a flexible learning environment, a learning culture that encourages students to rely on themselves for learning, an intentional content, and a teacher.

Numerous investigations have proven the efficiency of this technique in developing complex thinking abilities (Strohmyer, 2016). They have concluded that flipped schooling is a successful strategy that decreases cognitive load, promotes cooperation, and fosters critical and creative thinking. In addition to Al-Zahrani (2016) confirming its effectiveness in improving the application, analysis, synthesis, and evaluation abilities, Clark (2015) found that inverted education enables students to enhance their cognitive, behavioral, and emotional engagement.

2.1.3.5 KWL strategy

It is to build holistic and synthetic thinking: where the student first becomes familiar with the issue in general, then determines what he knows about it, and then, at the end of the session, writes down or summarizes what he has learned. Al-Khalifah and Mutaw'e (2015) define it as a frequently utilized learning approach that tries to activate the student's prior knowledge and use it as a springboard or pivot point to connect new material in the lecture or lesson. As it assesses the student's knowledge, it consists of three columns that the teacher uses during the implementation of the different stages of the lesson and contains answers to the following questions:

- What do students already know about the lesson's topic?
- What do they wish to learn in this course?
- What did they learn after the lesson? (Zahid & Al-Ruwais, 2017).

2.1.3.6 Surveying strategy

It is an approach that builds self-learning skills and is based on the constructivist theory, scientific research skills and sequential thinking pattern, and analytical, synthetic, and critical thought. The student faces a confusing question or a problem that requires a solution and thus feels a lack of knowledge. As a result, he draws on his past experiences and searches for solutions. He attempts to discover the answer, using his senses and reasoning to eliminate ambiguity or confusion and a lack of clarity (Obaidat and Abu Al-Sameed, 2015).

2.1.3.7 Collaborative learning strategy

It is one of the essential tactics that can be paired with others, such as problem-solving, to accommodate the experimental style of thinking and foster analytical and synthetic thought. It can also be paired with the six hats approach and the conversation strategy to encourage creative and critical thinking and to suit thinking. Students can collaboratively use theoretical, analytic, critical, and cognitive thinking and mental maps to improve global and theoretical thinking and analytical and synthetic thinking. The cooperative learning strategy is based on dividing students into small groups that work together to achieve a goal or the classroom learning objectives. The reason is that all group members immerse themselves in learning according to clear and specific roles, emphasizing that each member learns the educational material and teaches it to their colleagues (Mar'e & Al-Hilah, 2015).

2.1.3.8 Practical presentation strategy

It is referred to as the practical statement and a cost-effective alternative to lab instruction. It matches the pattern of experimental and sequential thought, and it fosters the development of synthetic thought. It is a collection of educational events and circumstances that a faculty member creates and delivers to his pupils, with the participation of some of his students (Al-Azizi, 2012).

2.1.3.9 Exploratory learning strategy

The exploratory learning approach is a collection of learning methods that emphasize the process of critical and analytical thinking to solve a particular challenge. It is a method concentrated on the learner as he engages in work in pursuit of a solution to a problem or an answer to a specific issue (Rahmawati, 2019). Thus a learner aids in the development of sequential and synthetic thinking skills. According to (Bdair, 2012), it is a cognitive process that demands the student to restructure and modify the information stored in him in a way that enables him to see new relationships that were previously unknown.

2.1.3.10 Educational modules strategy

It is identified as a specific mini-educational unit inside an integrated and sequential series of educational units that, collectively, constitute the educational package. The time required to master the unit under the supervision of a faculty member varies. The modules offer content, educational experiences, a variety of exercises, and options from which the student can select to study and acquire the material in a manner appropriate for his circumstances and ability (Al-Tantawi, 2006).

2.1.3.11 Reciprocal teaching strategy

A technique that matches the pattern of theoretical and sequential thought and fosters synthetic and critical thought abilities. Understanding by observing it and controlling its operations" (Abdul-Hakam, 2021) through a series of stages, including explanation, summarization, answering questions, discussing the difficulties that impede understanding, and predicting what elements will be covered in the lecture (Al-Khalifah & Mutaw'e, 2015).

2.1.3.12 The Six Thinking Hats Strategy

It is one of the unique ways that facilitate the development of analytical, creative, and critical thinking skills, complementing both holistic and theoretical modes of thought. Hats represent the six processes of thinking, and each hat's color indicates the nature of the thinking employed; the white

hat represents impartiality and objectivity. In contrast, the red hat is based on sentiments and emotions, the black hat on criticism, the yellow hat on positivity and benefits, the green hat on originality, fertility, and growth, and the blue hat on implementation, will, and control (Obaidat and Abu Al-Sameed, 2015).

2.1.3.13 *Mental (Mind) Map(ping) Strategy*

This method is predicated on the premise that the human mind absorbs visuals and drawings better than written words and develops analytical and synthetic thinking abilities. Students make sophisticated formal diagrams for concepts that range from the broadest to the most detailed, which are the mind's means for constructing and comprehending ideas and organizing thoughts (Khairy, 2019). The student makes a circle in the center of the page, places a short word or phrase within it, and then draws a line of related words and phrases on the circle's circumference (Zaytoon, 2009).

2.1.3.14 *Self-Directed (Individual) Learning Strategy*

This technique is suitable for all sorts of thinking and develops all thinking skills. Still, it requires a teacher with the following abilities: Individual education is defined by (Zaytoon, 2001) as a type of education that is planned, organized, and directed individually or self-directed, in which the individual learner practices educational activities individually, and moves from one activity to another, heading towards the educational goals decided freely and in the amount and speed that suits him, using self-evaluation and the teacher's directions and instructions as needed, and individual self-learning may encompass the entire curriculum. According to Mar'e and Al-Helah (2015), individualization of education is a systematic shift aimed at paying attention to the individual student and focusing on him in the teaching and learning processes.

2.1.3.15 *Brainstorming strategy*

One of the essential strategies for developing creative and critical thinking skills is to separate the process of generating ideas (which is the stage of creative thinking) from the process of criticizing ideas (which is the stage of critical thinking). It relies on analytical and logical reasoning skills. Theoretical, and total for students, is a strategy based on group discussion that encourages members of a group of (5 -12) individuals under the supervision of a faculty member to generate the most significant open dialogue that generates the most significant number of diverse, innovative ideas spontaneously and spontaneously (Bdair, 2012).

2.1.3.16 *Induction strategy*

A method of instruction in which the teacher presents examples or information that needs to be supplemented, and the student exercises the skills of analysis, synthesis, and induction to discover the common feature between the information presented and the rule being taught (Zaytoon, 2009) and the induction strategy. It consists of two phases: the observation and experimental phase and the conclusion and access to general rules and theories phase (Mohamed, 2021). It is a form of inference, a logical, intellectual approach that proceeds from the part to the whole, specific to the general, or from examples of the general rule (Al-Khalifah & Mutaw'e, 2015).

2.1.3.17 *Project strategy*

It is a strategy that develops most thinking patterns and life and personal skills. It deepens students' learning, and enables them to confront complex and challenging problems that lead them to higher levels of thinking, analysis, synthesis, and evaluation of what they have learned (Zahid & Al-Ruwais,

2017). In this technique, students implement their chosen projects and genuinely desire to do so (Bdair, 2012).

2.1.3.18 Problem-solving strategy

According to Al-Khalifah and Mutaw'e (2015), it is a teaching method in which learning occurs by presenting an issue in the learners' minds in a way that forces them to intentional scientific thought by following specific processes to get at exploring solutions for this problem. The difficulty is a perplexing question that requires a response or an impediment that hinders the individual from obtaining or achieving a challenging objective. (Zahid & Al-Ruwais, 2017)

2.1.3.19 Discriminatory Learning Strategy

It is characterized by (Cojak. et al., 2008) as understanding the various needs of learners, their prior knowledge, their willingness to learn, their linguistic level, their preferences, and their preferred learning patterns, and then adapting the teaching process accordingly. According to (Obaidat and Abu Al-Sameed, 2015), it is an education that aims to raise the level of all students, not only those with achievement issues. It considers the student's qualities and prior experiences to raise their accomplishment and capabilities and focuses on teachers' expectations of students and attitudes toward their potential and capacities.

2.2 Patterns of Thinking

The nature of this era of rapid change necessitates the presence of innovative thinkers with relevant professional abilities. Therefore, in recent years there has been an increase in limitless focus on enhancing higher-order cognitive processes. The power of the mind depends on profound experiences, and rigor in thought results from expanding mental powers (Al-Hashimi & Al-Dalimi, 2008).

There are numerous thought patterns. Al-Atoum et al. (2013) identify the following thinking patterns: (tangible, concrete, logical, discriminatory, abstract, deductive, inductive, convergent, inference, exploratory, insightful, divergent, critical, creative, lateral, vertical, reflective, metacognitive, and high rank.

Thinking is a pattern defined as: "a complex cognitive mental process that involves identifying the parts of a situation in a new way, contributing to the perception of relationships or problem-solving." This pattern involves various additional mental and cognitive processes, such as attention, perception, and memory, as well as several mental and cognitive skills, including classification, deduction, analysis, synthesis, comparison, and generalization (Abu Al-Ma'ti, 2005).

3. Previous Studies

The objective of Ismail's (2021) study was to discover an efficient reciprocal teaching technique for promoting inference reasoning and accomplishment in the Holy Qur'an and Islamic Education among students of intermediate level. Its sample consisted of (60) students divided into two groups: the experiencing group, consisting of (29) students examined via reciprocal teaching approach, and the control group, consisting of (31) students studied by standard strategy. The study indicated a statistically significant difference between the averages of the experiencing group and the control group on achievement assessments.

Al-Quta'an's study (2021) objective was to determine the level of faculty members' practices of modern university teaching strategies at Hail University based on their perspectives and the impact of variables (specialization and teaching experience) on the level of use of such strategies. A questionnaire was developed to assess how university faculty members use and implement modern

teaching practices to achieve their goals. It was conducted on a sample of members (158 in total). The findings suggested that faculty members' use of modern university teaching tactics at Hail University is moderate; there are statistically significant variations attributable to scientific specialty, but none to teaching experience.

The objective of Al-Kana'ani and Ali's (2021) study was to determine the efficacy of a training program based on interactive teaching methodologies in achievement and future thinking among practicum students. The sample consisted of thirty male and fourth-year female Department of Mathematics students. A test of student success and a test of future critical thinking skills were created. The data revealed a statistically significant achievement gap between Practicum and hypothetical mean students. There is a statistically significant difference between pre-test and post-test future thinking tests, indicating that training programs based on interactive teaching methodologies are beneficial.

Sharab's (2020) study aimed to determine the relative significance of Strindberg's List's patterns of thought among Gaza University students, identifying the significant differences in the thought patterns under discussion and attributing them to variables such as gender and academic program. There were (213) male and female students in the sample. The findings revealed that the judicial pattern was the most prevalent among students, while the conservative pattern was the least prevalent. The study also indicated significant variations between male and female chaotic hierarchy and executive patterns. In addition, there were considerable discrepancies between Bachelor students' legislative, executive, international, and local patterns and humanities students' chaotic hierarchy and liberal patterns.

The purpose of Al-Momeni's study (2019) was to examine faculty member's use of the active learning approach during university teaching. The active learning techniques level they activated in the teaching halls on active learning communicator; uncover the challenges they face during practicing, from the perspectives of faculty members at the Faculty of Education, Najran University. The data revealed that the percentage of faculty members using an active learning approach was low and unsatisfactory. Among the simplest few tasks, the most frequently employed strategies/techniques were temporary pauses, brainstorming, and concept maps.

Bilal's 2018 study aimed to determine gender, specialization, and precedence-based differences in university professors' attitudes toward teaching by implementing collaborative learning in higher education. The sample consisted of (103). The significant findings were as follows: (i) the presence of positive attitudes toward collaborative learning strategy among university professors; (ii) the absence of gender or years of specialization and precedence differences in university professors' attitudes toward collaborative learning strategy; and (iii) the presence of differences in attitudes according to specialization for professors with scientific specializations.

Al-Galhawi's study (2018) aimed to determine the extent to which faculty members at the Faculty of Science and Arts, Sharoura, Najran University use university education strategies. It identifies the proposed criteria for evaluating strategies, and determine the effect of gender, specialization, job title, years of experience in university education, educational qualification, and the number of strategies they had been trained on the responses of the sample participants. A survey was administered to these participants. Overall, faculty members employed instructional tactics to a modest extent. There were no statistically significant variations in the use of teaching tactics across faculty members, as measured by specialization, job title, years of teaching experience, and academic credentials. While there were statistically significant differences in the amount of teaching strategies employed by faculty members. These differences could be attributed to gender for female faculty members and to the variable of the number of teaching strategies on which they were trained for faculty members who were trained on more than ten teaching strategies. The recommended criteria for evaluating university teaching practices are good, low, and very high.

Hamid's (2017) study aimed to determine the influence of collaborative learning strategies on acquiring grammatical concepts and developing critical thinking abilities among fifth-grade students in the Grammar of the Arabic Language. The instrument was created by developing two exams in the

Grammar of Arabic Language: a test of grammatical principles and a test of critical thinking. The total number of students in each group was (54). The study indicated the superiority of experiential group female students who study Grammar of Arabic Language using collaborative learning techniques to acquire grammatical concepts and test critical thinking. The study advises that focus be placed on the use of modern teaching practices that foster the development of students and their critical thinking skills.

The objective of Al-Motawe's study (2017) was to determine the learning and thinking patterns prevalent among students at the Faculty of Education at Al-Dawademi, Shaqra University, Saudi Arabia. After confirming the instrument's psychometric qualities, a questionnaire was chosen to obtain the desired outcome. The instrument contained thirty elements. The sample was comprised of 375 male and female students. The data revealed that integrated designs predominated, followed by a more straightforward pattern. There were no gender and statistically significant specialty differences. The study suggests the following: (1) employing teaching methodologies that are consistent with an integrated pattern; (2) encouraging students to choose their appropriate specialty; and (3) performing additional research on learning and thinking patterns.

Haibah's (2015) study aimed to validate the psychometric properties and factor structure of the Contemplative Thinking Scale, identifying the effect of academic experience on the level of contemplative thinking among a sample of (214) first- and fourth-year students at Ain Shams University's Faculty of Education. The results of the exploratory factor analysis revealed three discriminatory factors: critical reflection, typical response, and comprehension. For fourth-level students, there were statistically significant differences between the first and fourth levels of contemplative thinking variables and total degree, indicating that academic experience affects the pre-service teacher in the contemplative thinking level.

4. Statement of the Problem and the Study Questions

In recent years the discipline of pedagogy has paid particular attention to finding better ways of teaching, changing the old teaching model into an innovative framework, and improving the teaching tactics of teachers are unquestionably desirable and necessary goals (Aubert et al., 2011). However, the emphasis is on the teaching perspective, and the students' perspective has not been defined well (Stone, 1999). Specifically, teachers can directly influence the learning pattern element when assessing factors that affect learning, such as how students detect, address, and communicate the surrounding reality (Gardner, 2016). The many learning styles of knowledge in the classroom provide teachers with valuable information, necessitating the faculty member's active participation in developing students' thinking patterns. It also helps ensure that they have acquired the skills and competence necessary to be critical and creative thinkers in light of contemporary developments. Most university faculty members cling to traditional teaching methods, such as direct instruction and lecture format, instead of current teaching approaches that foster critical thinking. By addressing these questions, the issue statement reveals the instructional methodologies employed by Prince Sattam bin Abdulaziz University and the prevalent learning patterns.

1. What are the teaching strategies adopted in courses descriptions of Prince Sattam bin Abdulaziz University?
2. What is the prevailing learning pattern (thinking) of Prince Sattam bin Abdulaziz students?
3. Are there statistically significant differences between gender (male/female) in the learning pattern (thinking)?
4. Are there statistically significant differences between the academic level and the learning pattern (thinking)?
5. Are the teaching strategies adopted in course descriptions compatible with the prevailing learning patterns among Prince Sattam bin Abdulaziz University students?

4.1 Research Objectives

This study aims at achieving these objectives:

- a. To disclose the teaching strategies adopted in course descriptions of Prince Sattam bin Abdulaziz University;
- b. To identify students' awareness of learning patterns (thinking patterns as an example);
- c. To reveal the statistically significant differences at a significance level ($\alpha \geq 0.05$) attributed to gender in the sample responses to the tool items;
- d. To disclose the statistically significant differences at a significance level ($\alpha \geq 0.05$), attributed to academic level in the sample responses to the tool items;
- e. To identify the compatibility of the adopted teaching strategies with the prevailing learning patterns.

4.2 Statement of the Research

This study's theoretical and practical significance is derived from the added value to the kingdom and society, as follows:

- The topic's significance in disclosing Prince Sattam bin Abdulaziz University's teaching methodologies and their conformity with prevalent teaching patterns.
- The findings substantially assist Prince Sattam bin Abdulaziz University faculty members in establishing instructional tactics fit for the prevalent learning patterns.
- It is a resource for future scholars, containing the necessary information and a springboard for more research based on other variables.

5. Research methodology

Based on the nature of the selected topic as a research problem, the *descriptive method* (frequencies) and analysis were selected to be consistent with the nature of the research.

5.1 Limitations of the Study

In this study, some limitations were established, as follows:

Topical Limitations: the study is limited to studying the reality of learning patterns prevailing among Prince Sattam bin Abdulaziz University students, i.e. (thinking), and the strategies that must be adopted in the light of such learning patterns.

Spatial and Temporal Limitations: The tool was conducted on a sample of male/female Prince Sattam bin Abdulaziz University students in southern areas of Riyadh: Al-Dalam, Al-Aflag, Al-Saleel, and Wadi Al-Dawasir in 1443 H.

5.2 Definition of Terms

The terms used in this study are as follows:

1. **Learning Patterns:** It is operationally described as how each student learns most effectively, based on a unique collection of attributes and behaviors. These behaviors process and retrieve information, hence influencing the learning mechanisms.
2. **Teaching Strategies:** It is characterized procedurally as a set of pre-selected teaching processes by the teacher that he intends to utilize in teaching, with student participation, to achieve the targeted teaching objectives as effectively as possible and in light of available capabilities.

5.3 Research Sample

As a result of a search confined to faculties of a humanitarian bent specialized in Arabic language and Islamic studies, the research sample was selected. The overall sample size was (90), and based on the study factors, this sample is judged to be representative of the university community in these specializations (gender, place of residence, academic level). This is represented by the Table below:

Table 1: Frequencies and Percentages by Study Variables

Variables	Age groups	Frequency	Percentage %
Gender	M	45	50%
	F	45	50%
Residence	Al-Dalam	15	17%
	Al-Aflag	25	28%
	Wadi Al-Dawasir + Al-Salil	50	55%
Academic Level	Fourth	28	31%
	Fifth	17	19%
	Sixth	15	17%
	Seventh	14	15%
	Eighth	16	18%
Total		90	100%

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The frequencies and percentages by study variables are shown in Table 1. In terms of gender, the sample was balanced. The frequency of females was 50, or 50%, the same as that of males. According to academic level, the fourth level had the highest frequency (28) and percentage (31%). Wadi Al-Dawasir and Al-Salil attained a frequency (50) and a percentage (55%) of residents due to their geographical proximity.

5.4 Research Tools

Below is a detailed presentation of procedures followed in preparing the final scale tools:

Preparation of Learning Patterns (Thinking) Scale:

The learning patterns (thinking) scale was prepared as follows:

- a) **Identifying the scale's goal:** scale targeted one of the learning patterns (thinking).
- b) **Identifying the items' type and formulating scale:** The scale was completed in its final state. It was presented as a series of scenarios. In its final form, the final number of scale items for thought patterns was twenty. The construction of the scale's components was predicated on the notion that each circumstance offers four options for cognitive styles: (theoretical - experiential, total - sequential, analytical - synthetic - creative - critical). Each student selects the option that best suits him in each circumstance. Table 2 demonstrates the quantity of elements for each cognitive style in (20) circumstances.

Table 2: Number of Items for Each Thinking Pattern

Pattern	Theoretical	Experiential	Total	Synthetic	Analytical	synthetic	Creative	Critical	Total
No. of Items	9	11	10	10	10	10	9	11	80

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- c. **Putting scale instructions:** Scale instructions are a student's guide to selecting the appropriate thinking pattern for each occasion. The simplicity and clarity of scale instructions were considered.

d. Calculating the ease and difficulty factors: The ease and difficulty factors of scale items were determined. The factors varied from (0.43 to 0.75), which are suitable easiness factors; hence, scale items were not eliminated.

5.5 Scale Validity and Reliability

5.5.1 Scale Validity

To validate the scale's validity (study instrument), it was directed to experts and specialists in Education and Psychology to check the items' grammatical soundness and degree of suitability for the study's objectives. Modifications were made following the comments that referees unanimously approved. Validity can also be determined through peripheral comparison.

Table 3: Value of "T" for Difference between High Group and Low Group

Groups	Sample size "N"	Average Arithmetic "t"	Degree of freedom DH"	Value of "T"	Level of significance A
High group	13	4.960097	24	2.76924	D at 0.02
Low group	13	0.688737			

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Table 3 demonstrates that the value of "T" was statistically significant at the 0.05 level (0.02). This implies a difference between the high and low groups regarding their degrees on the scale, i.e., on an acceptable level of validity, and that the scale can be utilized in the research.

5.5.2 Scale Reliability

The (test-retest) approach was used to apply and reapply the scale after two weeks to a survey sample, both from outside the sample and within the study population, to determine the instrument's reliability. It featured (40) male and female Prince Sattam bin Abdulaziz University students. Then, Pearson's coefficient was calculated twice among their estimates (0.66). Also calculated were the internal consistency according to Cronbach's Alpha Formula and the test-retest reliability for the fields and tool. These values were suitable for research purposes. The results were:

Table 4: Reliability According to Internal Consistency (Alpha Cronbach)

Ser.	Field	Number of items	Alpha Chronbach's reliability coefficient (α)
1	Learning patterns (thinking)	20	0.66

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The scale of the learning patterns (thinking) study instrument has a high correlation coefficient for all scale items. It indicates its reliability. The total reliability correlations coefficient was (0.66) (which is a high value, indicating that the questionnaire has a high degree of reliability and can be used in the research, confirming the tool's validity for measuring what it was intended to measure).

5.6 Statistical Processing

After collecting the students' responses to the thinking scale, they were entered into the (SPSS) application and analyzed using statistical methods pertinent to the research issues. The "T" test was utilized to determine the significance of differences between variables (gender, residence, academic level). The frequencies, percentages, mean, and standard deviation were utilized to evaluate the

estimations based on the sample.

6. Results

To answer the first question: (What are the teaching strategies adopted in course descriptions of Prince Sattam bin Abdulaziz University?) It was evident by limiting the teaching strategies adopted in course descriptions of Prince Sattam Bin Abdulaziz University in (50) courses, as indicated in Table 5:

Table 5: Teaching Strategies Adopted in Course Descriptions of Arabic Language and Islamic Studies Departments, Prince Sattam bin Abdulaziz University, in descending order

Adopted Teaching Strategy	No.	Adopted Teaching Strategy	No.
Discussions	60	Research, surveying, induction	4
Collaborative learning	60	Developed presentations	4
Traditional lectures	54	Self-learning and individual learning	4
Research projects	47	Mental mapping	4
Brainstorming	47	Micro-teaching	3
Analogy strategies	39	Projects	2
Discovery learning	36	Learning schedule	2
Electronic learning	36	Flipped learning	2
Problem-solving	9	The Six-Hats	1
Active lecture	8		1

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The Table shows that the most adopted course strategies were discussions and collaborative learning, followed by lectures.

The findings related to the second question answer: What is the prevailing learning pattern (thinking) of Prince Sattam bin Abdulaziz students?

To answer the question, the study analyzed the results of the thinking pattern scale to identify the prevailing learning patterns among Prince Sattam bin Abdulaziz University students, as illustrated in Table 5:

Table 6: Prevailing Thinking Patterns Students

Learning patterns Thinking	Experiential	Total	Theoretical	sequential	Analytical	synthetic	Creative	Critical
Arithmetic mean	3.28	3.27	3.12	2.94	2.62	1.83	1.55	1.40
Standard deviation	1.92	2.79	1.70	1.44	1.38	1.12	1.07	1.02

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Table 6 reveals that the arithmetic mean of experiential learning pattern is 3.28, which ranks first, followed by the arithmetic mean of total learning pattern at 3.27. It indicates that Prince Sattam bin Abdulaziz University students prefer experiential and total patterns in their studying, reception, and comprehension of information. While the sequential pattern placed third in terms of the arithmetic mean (2.94), the analytical pattern ranked second in arithmetic mean (2.62). It indicates that a subset of pupils exhibit sequential and analytic patterns in information reception, grasping, and interaction. By arithmetic mean, creative learning patterns are rated lower than critical learning patterns (1.55). The adopted instructional approaches do not build creative or critical information processing, interaction, and comprehension skills.

The pupils choose experienced patterns over theoretical patterns, whole patterns over sequential patterns, analytical patterns over synthetic patterns, and creative patterns over critical patterns.

The findings are relevant to the third question: Are there statistically significant differences between gender (male/female) in the learning pattern (thinking)?

The arithmetic means and standard deviations of the sample population's average learning pattern (thinking) estimations were computed to answer the third question. The symbol (m) stands for arithmetic means, while the symbol (n) stands for standard deviation.

Table 7: Arithmetic Means and Standard Deviations of Learning Patterns (Thinking) in Gender Variable

Thinking pattern Gender	Experiential		Total		Theoretical		Sequential		Analytical		synthetic		Creative		Critical	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Males	4.37	1.89	2.42	1.35	3.71	1.86	2.48	1.50	2.26	1.46	1.86	1.17	1.28	0.94	1.33	1.12
Females	2.20	1.19	4.13	3.53	2.53	1.28	3.40	1.25	2.97	1.21	1.80	1.07	1.82	1.13	1.46	0.91

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Table 7 indicates male dominance in the mean actual earning pattern (4.73) and the mean theoretical learning pattern (4.73). (3.71). While women scored higher in the following learning patterns: total learning (4.13), sequential learning (3.40), and analytical learning (4.13). (2.97). Male and female learning patterns were highly similar in the synthetic, creative, and critical patterns. As shown in Table 8, the "T" test was calculated to determine the statistical significance between thinking patterns and gender variables.

Table 8: "T" Test for Identifying Statistical Significance of Thinking Patterns and Gender Variable

Learning pattern (Thinking)	Calculated T Value	Freedom degree	Significance level	Significance
Experiential	6.50	88	0.000	Significant
Total	3.03		0.002	Significant
Theoretical	3.48		0.001	Significant
Sequential	3.12		0.002	Significant
Analytical	2.50		0.014	Significant
Synthetic	0.27		0.780	Not Significant
Creative	2.42		0.017	Significant
Critical	0.61		0.54	Not Significant

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Table 8 demonstrates statistically significant gender-related differences (less than or equal to 0.06). There are substantial disparities between males and females in experience learning patterns among males and statistically significant differences in total learning patterns among females. There are also no statistically significant differences between the creative and critical learning styles of males and females. It indicates that males and females learn these two patterns similarly.

The findings related to the fourth question: Are there statistically significant differences between academic level and learning pattern (thinking)?

The variance analysis between learning pattern (thinking) and academic level variable was conducted to analyze the fourth objective. Table 9 shows the following:

Table 9: Analysis of Variance between Learning Patterns (Thinking) and Academic Level

Learning patterns (thinking)	Sum of squares	Average of squares	Freedom degree	F value	Significance level	Significance
Experiential	25.09	6.27	4	1.75	0.14	Not significant
Total	64.98	16.24		2.18	0.07	Not significant

Learning patterns (thinking)	Sum of squares	Average of squares	Freedom degree	F value	Significance level	Significance
Theoretical	7.52	1.88		0.63	0.63	Not significant
Sequential	4.26	1.06		0.49	0.73	Not significant
Analytical	8.37	2.09		1.09	0.36	Not significant
Synthetic	0.54	0.13		0.10	0.98	Not significant
Creative	6.84	1.71		1.52	0.20	Not significant
Critical	5.71	1.42		1.38	0.24	Not significant

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As seen in the Table above, there are no statistically significant variations between learning patterns (thinking) and academic level, i.e., academic level (in its many educational levels) does not affect students' choice of learning technique, comprehension, or interaction with knowledge.

The findings related to the fifth question: Are the teaching strategies adopted in course descriptions compatible with the prevailing learning patterns among Prince Sattam bin Abdulaziz University students?

When reviewing Islamic Studies and Arabic Language course descriptions in different faculties in Prince Sattam bin Abdulaziz University, they were calculated in Table 5.

Teaching Strategies Suitable for Prevailing Learning Patterns in Prince Sattam bin Abdulaziz University:

A) Are teaching strategies suitable for the learning patterns adopted in the course description compatible with the learning patterns prevailing among Prince Sattam bin Abdulaziz University students?

Table 6 reveals the predominant thinking styles of male and female students at Prince Sattam bin Abdulaziz University, in descending frequency order: experiential and total, then theoretical and sequential, then analytical and synthetic, and finally creative and critical. This discovery throws light on several topics, the most significant of which are:

1. Instructional strategies must accommodate the most prevalent learning styles (experiential, total, theoretical, and sequential).
2. Common patterns of thought among college students fall under simple thinking skills. At the same time, the least frequent patterns are associated with synthetic reasoning ability.
3. Despite the importance of students practicing thinking skills, whether simple or synthetic, the reality of students at Prince Sattam bin Abdulaziz University reveals a lack of synthetic thinking skills (creative - critical - analytical - synthetic) and a preponderance of simple thinking patterns in their practices.
4. Faculty members must develop thinking skills (critical and creative, then analytical) due to the low prevalence of such skills among male/female university students despite their importance. Critical thinking is a fundamental skill of the knowledge era and the primary objective for forming the cognitive and skill structure of future students for them to absorb enormous advances in education and the information revolution and to meet the social, economic, and cultural challenges of life (Abrami et al., 2008). (Abu Umairah, 2000) further demonstrates that invention is the highest level of human mental activity and a form of creative thinking because a student develops multiple answers to a problem.

The Table below compares the frequency of university-adopted teaching techniques to the frequency of proposed teaching strategies in the findings.

Table 10: Teaching Strategies Adopted by University, in Descending Order by Frequency against Teaching Strategies Proposed in the Findings

Teaching strategies adopted with course descriptions	Frequency	Descending order by frequency of strategy practice	Proposed descending order for strategy by thinking patterns	Developed thinking pattern
1. Discussions	60	1	3	Analytical – theoretical
2. Collaborative learning	60	1	5	experiential, analytical and synthetic, theoretical
3. Lectures	54	2	0	Theoretical thinking
4. Research projects	47	3	3	Creative & sequential & synthetic. It also develops life & personal skills
5. Brainstorming	47	3	5	Creative & critical
6. Analogy strategy	39	4	3	Total – experiential – analytical – creative – critical
7. Learning by the discovery	36	5	4	sequential & sequential thinking
8. Electronic teaching	36	5	0	Not a strategy but teaching techniques
9. Problem-solving	9	6	1	Creative & sequential & synthetic, self, analytical, experiential
10. Interactive lecture	8	7	2	Total, analytical, synthetic, theoretical
11. Research and induction	4	8	3	Analytical, synthetic, theoretical
12. Surveying	4	8	3	Analytical, theoretical, synthetic, critical
13. Developed presentations	4	8	0	It is not a teaching strategy
14. Self-directed (Individual) learning	4	9	3	Analytical, theoretical, synthetic, critical
15. Mind mapping	4	10	3	Analytical, total, synthetic
16. Micro-teaching	3	11	0	Analytical, synthetic, sequential
17. Discriminatory teaching	0	0	1	All types of thinking
18. K. W. L teaching	2	12	2	
19. Flipped teaching	2	12	1	Analytical, theoretical, experiential
20. Six-hat teaching	1	13	3	Total & theoretical, analytical, creative. Critical
21. Frayer model	1	13	0	Total – theoretical – sequential
22. Practical presentations	0	0	2	experiential & sequential, synthetic
23. Teaching modules strategies	0	0	4	Sequential, theoretical, synthetic
24. Reciprocal teaching	0	0	4	Theoretical, sequential, synthetic, critical

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Comments on the Previous Table:

Concerning the tactics utilized in the courses that the respondents are enrolled in, the following remarks are presented:

- Discussion, traditional lecture, collaborative learning, and brainstorming were voted highest. Despite the significance, the outcomes of measuring student learning patterns necessitate other problem-solving methodologies for developing students' synthetic thinking skills. - discriminating instruction - KWL - flipped instruction - interactive lecture - mental mapping - mutual instruction - practical presentations
- At Prince Sattam bin Abdulaziz University, the traditional lecture strategy is prevalent because of its high degree of repetition. This technique promotes simplistic thinking patterns and does not encourage the development of synthetic thinking patterns, which has a detrimental impact on the outputs of universities.
- Despite its importance in developing synthetic thinking skills, the project approach is exclusively utilized in research and graduation projects. In other words, it is adopted only once, after the academic program, limiting its utility for pupils.
- Some faculty members conflate teaching strategies with teaching techniques because they view presentation preparation as a teaching strategy and electronic instruction.
- According to the sample, critical measures, such as discriminatory teaching and learning modules, are never implemented in colleges.

7. Conclusions

This study aims to find acceptable teaching tactics based on the learning behaviour of male and female students at Prince Sattam bin Abdulaziz University. An assessment of the appropriate learning patterns among male and female students and the learning tactics suitable for the students. The study revealed some of the following:

1. The researcher created a scale of learning patterns that measures thinking and its eight dimensions (theoretical/empirical - total/sequential - analytical/synthetic - critical/creative). The validity and stability of the scale was verified after it was presented to a group of referees to determine the predominant patterns among students at Prince Sattam bin Abdulaziz University.
2. The researcher applied the scale to the university's faculties and branches, including the humanitarian majors (Al-Dilam - Al-Aflaj - Al-Sail - Wadi Al-Dawasir). The researcher applied it to male and female students to determine their patterns.
3. Learning strategies used in university course descriptions in the humanities disciplines, Islamic Studies and Arabic Language departments were also identified.

It shows that from the analysis of the research results:

- The inventory of teaching strategies used in (50) courses in the Prince Sattam University course descriptions revealed that most of the strategies used in the courses were discussions and cooperative learning, followed by lecture>
- it was found that the dominant learning pattern (thinking) among students of Prince Sattam bin Abdulaziz University was arranged as follows: the experimental pattern versus the theoretical pattern, the total pattern versus the sequential pattern, then the analytical pattern versus the synthetic pattern, and at last the creative pattern versus the critical pattern.
- The strategies adopted in the course description support the experimental learning pattern, followed immediately by the theoretical learning pattern for males. The overall learning pattern, the sequential learning pattern, and the analytical pattern outperform the order for females because the used strategies must differ when applied to males over females.
- It turns out that the strategies used in the course descriptions do not support the creative and critical thinking style, as it takes the last places, whether for male or female students, which is what the university is now trying to develop.
- The need to develop teachers' skills and train them in using modern teaching strategies, especially those that develop thinking patterns in general and creative and critical thinking in particular
- The need to teach students the importance of knowing their appropriate learning patterns so they can make the most of the courses and teaching strategies, as they have the responsibility to learn and practice the appropriate strategies to achieve the desired goals

8. Recommendations of the Research

This research provides the following recommendations:

1. Prince Sattam bin Abdulaziz University should revise course requirements following the approved instructional methodologies.
2. Problem-solving - discriminating teaching - KWL - flipped teaching - interactive lecture - mental mapping - reciprocal teaching - practical presentations should receive special attention.
3. Developing the teaching abilities of faculty members and training them to implement student-centered teaching practices suitable for university-wide learning patterns.
4. Raising the awareness of male and female students on identifying learning patterns, the

assumption of responsibility for learning, and the application of learning strategies and self-evaluation.

5. Preparation of guides for faculty members on the programs of the various faculties, illustrative of the application of tactics suited to each learning pattern.
6. Developing the minor prevalent thinking skills among pupils by employing the prevalent thinking patterns and relevant tactics.

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