chatbots for admission and registration in Arabic colleges

Analyses of six scientific papers of catboats for admission and registration in Arabic colleges.

General Introduction

This writing survey presents a basic investigation of six research papers focused on the development and use of Arabic-language chatbots in educational settings. These studies explore the utilization of chatbots for tasks such as admission support, academic advising, learning enhancement, and administrative inquiries. The survey includes summaries of each paper's objectives, methodologies, findings, and key insights, along with a comparative analysis.

1. Tayseer: A Novel AI-Powered Arabic Chatbot Framework for Technical and Vocational Student Helpdesk Services

Objective**:**

Develop and evaluate taights, designed to help technical and professional students with an AI operated Arab Chatbot, and address linguistic and infrastructure challenges in Arabic Chatbot design, recording, planning and campus service.

Methods:

- **Rasa for Arabic NLP was developed using frames and dietary transformer -based architecture.**
- **Interaction with two mode: free text and menu -based navigation.**
- **Data collected through pre -examination of 248 students and institutional documents.**
- **User reaction and system view were evaluated through calculations.**

Central findings:

- **• Intention obtained more than 90% accuracy in classification and unit recognition.**
- **• Better student satisfaction and administrative information access.**
- **• Scalable and adaptable structure for Arab educational settings.**

Critical analysis:

- **Strength: Advanced NLP integration, double interaction mode, practical perfection, user-centered design.**
- **Weaknesses: Limited data set size, limited condensed depth, addiction to structured input.**

2. Arabic Educational Neural Network Chatbot

Objectives:

To design and evaluate a neural network-based Arabic chatbot that answers questions about educational regulations for students in the UAE, with a focus on Arabic NLP in education.

Methods:

- **Data collected from the UAE Ministry, consisting of 300,000 Arabic words.**
- **Pre-processing using NLP techniques with a Five-team Custom Neural Network Model.**
- **Automatic evaluation metrics used include accuracy, precision, recall, and F1 score.**

Key Findings:

- **The chatbot achieved high accuracy and F1 scores for regulatory questions.**
- **This demonstrates the feasibility of using deep learning for Arabic educational chatbots.**

Critical Analysis:

- **Strengths: The neural network architecture is well-suited for Arabic morphological analysis, resulting in strong automated performance.**
- **Weaknesses: The system is limited to the domain of educational regulations, lacks real user testing, and does not account for dialectical variations in Arabic.**

3. Implementing the Bashayer Chatbot in Saudi Higher Education

Objectives:

To assess the impact of Sansheer on learning strategies, including a WhatsApp-based chatbot, inspiration, registration, and educational support among students.

Methods:

- **A semi-professional design involving 60 students divided into experimental and control groups.**
- **Motivations and learning strategies were measured using a revised version of the MSLQ questionnaire.**
- **The chatbot was hosted on WhatsApp and included various educational tasks.**

Key Findings:

- **There was a significant increase in inspiration and self-efficacy in the experimental group.**
- **The use of cognitive and metacognitive learning strategies also increased.**
- **Features for electronic registration and resource access were provided.**

Critical Analysis:

- **Strength: The study benefited from Real -world Glory, a strict quantitative assessment and integration with a popular platform.**
- **Weaknesses: The boundaries included a small sample size, only focused on students, short -term study periods and lack of qualitative insight.**

4. The Challenges of Using Arabic Chatbot in Saudi Universities (UFAQBot)

Objectives:

To focus on the linguistic and technical challenges faced by Arab chatbots and to identify the obstacles to their adoption in Saudi universities.

Methods:

- **Examining 44 websites of Saudi universities to check for the presence of chatbots.**
- **Conducting an experimental test of the Sara chatbot with 30 participants.**
- **Analyzing the linguistic and technical limitations of Arab chatbots.**

Key Findings:

- **No universities have implemented a chatbot, and live chat features are rarely available and limited.**
- **Sara Chatbot demonstrated a high frequency of failure due to varab in Arab input.**
- **Linguistic challenges include dialectical differences, morphological questions and orthographic ambiguity.**

Critical Analysis:

- **Strength: The Study provides a comprehensive evaluation of linguistic and technical aspects with a real world test of a chatbot.**
- **Weaknesses: No academic chatbot was directly tested; The study only provides ideologically**

5. Nabiha: An Arabic Dialect Chatbot

Objectives:

Develop Nabiha, utilizing the Saudi Arabic dialect to assist students with educational inquiries across various platforms.

Methods:

- **Collected data consisting of 248 questions and answers from student interactions.**
- **Implemented an AIML-based chatbot on Android, Twitter, and the web.**
- **Conducted thorough tests involving 13 IT students.**

Key Findings:

- **The chatbot was evaluated as somewhat satisfactory.**
- **Users appreciated the concise interface, though it was limited by consistent responses and a small dataset.**
- **Accessibility across multiple platforms significantly enriched the experience.**

Critical Analysis:

- **Strengths: Utilization of established methodologies, integration of various platforms, and reliance on real student data.**

- **Weaknesses: Limited dataset, lack of practical depth, and absence of AI learning or adaptation capabilities.**

6. Arab Chatbot's challenges and solutions: a systematic literature review

Objective:

To systematically review challenges and solutions in Arab Chatbot development, especially in education.

Methods:

- **A Prisma-based systematic review of 64 studies spread from 2000 to 2023.**
- **Analyzed linguistic, technical and practical obstacles.**
- **Assessment functionality, dataset and performance measurement.**

Central findings:

- **Large challenges identified include: Budhamfold, anotat data set deficiency, NLP deficiency (natural language treatment) equipment.**
- **Most existing chatbots are rule -based, while deep learning techniques are rarely used due to insufficient data.**
- **Recommendations for improvement include the development of hybrid models, construction of strong datasets and implementation of standardized assessment methods.**

Critical analysis:

- **Strength: Review provides a broad and practical observation with clear recommendations.**
- **Weaknesses: Input and registration processes were not sufficiently emphasized on focus, and the conclusions have a lack of new empirical data.**

Synthesis: Connections and Conflicts

Consistent Themes:

- **Chatbots improves access to information, efficiency and user satisfaction in Arab educational contexts.**
- **Linguistic complexity and dialect diversity face important challenges in studies.**
- **AI and nervous network models show promises, but require more user -centered evaluation and large data sets.**
- **Multi-platform with popular apps (eg WhatsApp) improves availability and integration availability.**

Differences:

- **Some papers focus on technical feasibility and model performance (e.g., Tayseer, Neural Network Chatbot), while others emphasize user experience and motivation (Bashayer).**
- **Depth of user evaluation varies widely, from automated metrics to experimental designs and small-scale usability testing.**
- **Scope varies from general educational support to specific admission and registration functions.**

Gaps and Conflicts:

- **Limited empirical data on long-term effectiveness and large-scale deployment.**
- **Few studies address undergraduate admissions directly; most focus on postgraduate or general academic support.**
- **Recommendations for future work often highlight the need for hybrid AI approaches and expanded datasets, reflecting current limitations.**

Summary Table of Reviewed Papers

Year	Authors	Title	Methodology Used	Main Findings	Weaknesses / Limitations
2024	Alabbas & Alomar	Tayseer: AI-Powered Arabic Chatbot Framework	Used RASA and transformer-based models; evaluated with 248 students; dual-mode interface	More than 90 % accuracy in intent classification; improved student satisfaction; adaptable for Arab education systems	Small dataset; dependence on structured input, limited generalization
2023	Alazzam, Alkhatib & Shaalan	Arabic Educational Neural Network Chatbot	Trained a custom neural network on 300K Arabic word corpus; auto metrics like F1-score, accuracy	High performance for answering educational regulations; strong NLP adaptation	Lacks real-world testing, narrow domain; no dialect support
2023	Al-Abdullatif, Al-Dokhny & Drwish	Bashayer Chatbot in Saudi Higher Education	Quasi-experimental; WhatsApp chatbot used by 60 postgrad students; MSLQ questionnaire	Increased motivation and learning strategies; supported course registration	Small sample, short duration; no qualitative insights
2021	Abdullah Almurayh	Challenges of Using Arabic Chatbots in Saudi Universities	Survey of 44 websites; tested UFAQBot with 30 users; linguistic/technical analysis	Most universities lacked chatbot services, frequent failures with dialect input	No academic chatbot evaluated directly; mostly conceptual analysis
2020	Al-Ghadhban & Al-Twairesh	Nabiha: An Arabic Dialect Chatbot	AIML-based chatbot tested on Android, Twitter, Web with 13 IT students; 248 QA pairs	Multi-platform chatbot using Saudi dialect; received moderately positive feedback	Small dataset; rule-based only; no AI adaptation
2024	Ouali & El Garouani	Arabic Chatbots Challenges and Solutions: Systematic Review	PRISMA methodology; reviewed 64 studies from 2000–2023	Identified key challenges (datasets, dialects, NLP tools); recommended hybrid models and evaluation methods	Lacked experimental data; did not deeply explore the admission/registration domain

This review highlights the developed landscape of Arabic chatbots in educational entry and registration contexts. While technological advances such as deep learning and transformer models are promising, linguistic complications and data shortages are still major obstacles.

User-centered design and integration with popular platforms improve adoption, but still diverse student population and educational levels require more broad, long -term studies to validate the efficiency of the population and the educational level. The papers that collect the ability of chatbots to change the Arab college entry operation and registration provide.

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