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A Comparative Analysis of Legal Transcription Speed and Accuracy: Manual Vs. AI-Assisted Methods in Pup Parañaque Campus

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Abstract- The study aimed to determine the effectiveness of the implementation of Artificial Intelligence (AI)-assisted legal transcription and its comparison to the implementation of traditional manual methods among the Bachelor of Science in Office Administration (BSOA) student researchers. Data with a quantitative comparative design and 100 respondents showed that the implementation of the AI system was very effective with a composite mean score of 4.21 "Well Implemented". In contrast, traditional manual benchmarks showed fundamental limitations, with students falling into the "Developing" stage for speed mean: 3.00 and accuracy mean: 2.95. Bivariate correlation showed strong positive correlation between technology implementation quality and transcription speed r = 0.62 and accuracy r = 0.58. There were no significant differences in age, sex and raw experience, but the educational track of a student had a significant ect on technology perception p = 0.02. The study finds that a move from manual typing to a "human-in-the-loop" model supported by AI maximizes operational workflows, but requires curriculum changes that prioritize document auditing over the stamina for mechanical typing.

Keywords: AI-Assisted Transcription, Legal Transcription, Manual Methods, Office Administration, Transcription Accuracy, Transcription Speed

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INTRODUCTION

Transcription is a fundamental process in the modern legal and administrative ecosystem for documenting legal proceedings, depositions and corporate records. For decades, transcription has been done manually, depending on the human ear, mechanical stamina and typing speed. However, this approach produces high levels of cognitive fatigue, error rates, and operational inefficiencies. Specialized Artificial Intelligence (AI) speech-to-text engines are emerging as an automated alternative to speed up document creation. The administrative professional of the future will have to understand how automated workflows relate to traditional typing skills.

BACKGROUND OF THE STUDY

The Polytechnic University of the Philippines (PUP) Parañaque Campus trains its Bachelor of Science in Office Administration (BSOA) students to meet the exacting standards of specialized corporate and legal environments. Accuracy is key when it comes to legal transcription, as a single misplaced punctuation or misinterpretation of a legal term could change the entire context of a record. There is promise in the quick processing of automation, but a key area of research is the dependability of these systems in the context of localized accents, mixed language conversations, and legal jargon. This study provides an empirical comparison to determine if the introduction of AI improves legal transcription workflows or introduces new procedural vulnerabilities.

STATEMENT OF THE PROBLEM

This study aims to identify and compare the effectiveness of AI-assisted legal transcription methods versus the traditional manual transcription among BSOA students of Polytechnic University of the Philippines Parañaque Campus.

Specifically, this study seeks to answer the following questions:

1. What is the demographic profile of the respondents?
2. How do the respondents assess AI-assisted legal transcription?
3. What is the perceived effectiveness of AI-assisted legal transcription compared to manual transcription?
4. Is there a significant difference between manual transcription and AI-assisted transcription?

OBJECTIVES OF THE STUDY

1. To determine the demographic profile of the BSOA student respondents in terms of age, sex, and prior transcription experience.
2. To assess the respondents' evaluation of AI-assisted legal transcription regarding its features, ease of use, and accessibility.
3. To measure and compare the perceived effectiveness of AI-assisted legal transcription versus traditional manual transcription in terms of speed, accuracy, and workload.
4. To determine if a significant difference exists between manual transcription and AI-assisted transcription performance outcomes among the respondents.

SIGNIFICANCE OF THE STUDY

This research aims to immediately benefit **BSOA Students** by transitioning their training from repetitive mechanical tasks to high value document editing and system verification. **Educators and Academic Administrators** gain empirical insights to revise curriculum blueprints to keep office administration programs aligned with automated workforce trends. Finally, the Legal and Corporate Sectors benefit from an empirically validated framework that shows how automated integration can safely optimize turnaround times while maintaining strict verification standards.

SCOPE AND LIMITATIONS

The study was limited to a sample size of 100 BSOA student researchers in PUP Parañaque Campus during the academic year 2026. The technical evaluation examined basic manual transcription skills compared with results from an automated AI speech-to-text platform. The study covered only transcription speed, mechanical endurance, grammatical accuracy, and software handling; wider operational costs or long-term software lifecycle economics are outside the scope of this paper.

CONCEPTUAL FRAMEWORK

The study is guided by an integrated technological performance model of Frederick Taylor's Scientific Management Theory optimizing mechanical workflows, Technology Acceptance Model (TAM) perceived ease of use and usefulness and the DeLone & McLean System and Information Quality Model. The framework links user profile variables and AI structural inputs to operational outputs, examining how system capabilities are translated into improved administrative performance.

HYPOTHESES

H_01: There is no significant relationship between the level of AI-assisted transcription implementation and the resulting speed or accuracy outcomes.

H_02: There is no significant difference in the assessment of transcription technology when respondents are grouped according to their demographic and academic profiles.

DEFINITION OF TERMS

- **AI-Assisted Transcription:** The utilization of automated speech-to-text software engines to convert verbal legal audio recordings into written textual formats.
- **Manual Transcription:** The traditional process of listening to audio feeds and manually keying corresponding text into a word processor without software automation.
- **Human-in-the-Loop:** A workflow model that requires constant human oversight, verification and manual corrections of raw automated outputs to ensure accuracy.

REVIEW OF RELATED LITERATURE

Recent progress in cognitive load research has shown that automated transcription eliminates structural bottlenecks by a wide margin, freeing human operators from data entry typists to critical document auditors. Authors mention that despite the significant efficiency improvements shown by standard automated speech recognition engines, their performance is often compromised with complex multi-speaker dynamics or distinct regional accents.

Technical familiarity is, moreover, emphasized in academic literature on administrative training. Diffusion of Innovations theory suggests that the rate of adoption of a technology is highly dependent on the perceived compatibility of the technology with early adopters existing task requirements. This is why pure automation is increasingly being discarded in current office administration workflows in favor of hybrid models which combine automated speed with human technical review to ensure data integrity.

SYNTHESES

The reviewed literature confirms a clear paradigm shift worldwide from pure manual typing towards automated ingestion. But there is a distinct lack of knowledge about how student researchers deal with the technical legal jargon in localized bilingual contexts. This study fills this gap by directly comparing AI-driven features to manual performance baselines with a localized cohort of students.

METHODOLOGY

RESEARCH DESIGN

This research employed a quantitative, comparative and correlational research design. The data from the manual benchmarks and the AI-assisted transcription tracking indices were analyzed, evaluated, and compared.

RESEARCH LOCALE

The research was conducted in the academic setting of Polytechnic University of the Philippines (PUP) Parañaque Campus and utilized the specialized office administration facilities of the school.

RESPONDENTS OF THE STUDY

The participant cohort comprised exactly 100 active BSOA student researchers enrolled at the institution.

SAMPLING TECHNIQUE

A non-probability purposive sampling strategy was used to select students who had been exposed to legal transcription courses to ensure that the information and data collected was well informed and technically useful.

RESEARCH INSTRUMENT

Data collection was conducted using structured assessment matrices and Likert scale metrics with the aim of assessing operational dimensions, software usability, mechanical typing endurance, and grammatical error rates.

DATA GATHERING PROCEDURE

Instruments were systematically distributed to keep track of transcription tasks. At baseline, respondents completed standardized legal transcription exercises by hand, before assessing functional features of an AI-assisted speech-to-text platform.

DATA ANALYSIS

Statistical processing was performed with descriptive and inferential tools, performance metrics were subjected to arithmetic means, relational dynamics were examined with Pearson product-moment correlation coefficients (r), and demographic variations were examined with Kruskal-Wallis tests.

ETHICAL CONSIDERATION

Privacy guidelines were strictly followed when gathering the data. All participating students provided informed consent, their individual identities were anonymized and their performance data was secured from unauthorized access.

SUMMARY

This structural approach guaranteed an objective empirical evaluation of both transcription modalities, including software implementation metrics and raw human performance baseline score.

PRESENTATION, ANALYSIS, AND INTERPRETATION OF DATA

The demographic profile of the 100 student respondents was determined by the study. The cohort is mainly made up of young adults, with 49% aged 18–20, 43% aged 21–23 and 8% aged 24 or older. The gender profile is 64% female and 36% male respondents.

The quality of the deployment of the AI-Assisted transcription platform was evaluated on several core indicators, with a composite mean score of 4.21, verbatim “Well Implemented”.

Table 1. AI-Assisted Transcription Implementation Metrics

Indicator Dimension	Mean Score	Verbal Interpretation
Powerful and Fast Operation	4.35	Very Well Implemented
Technical Terms & Jargon Detection	4.20	Well Implemented
System Navigation and Controls (Ease of Use)	4.18	Well Implemented
Local Language Adaptation (Taglish)	4.17	Well Implemented
Automatic Speaker Diarization / Labeling	4.16	Well Implemented

Composite Mean Score	**4.21**	**Well Implemented**

In comparison, baseline data collected from existing traditional manual transcriptions workflows indicated that student performance is in the "Developing" phase.

Table 2. Manual Performance Benchmark Results

Metric Performance Category	Mean Score	Verbal Interpretation
Audio Ingest and Control Sync	3.12	Developing
Mechanical Typing Endurance	3.05	Developing
Overall Speed Outcome	3.00	Developing
Vocabulary and Punctuation Placement	2.96	Developing
Final Document Editing, Review, and Auditing	2.88	Developing
Overall Accuracy Outcome	2.95	Developing

Successful technology integration and overall performance outcomes showed a moderate to high positive correlation in inferential analysis. r=0.62 for the relationship between system implementation and operational speed, and r=0.58 for its relationship with document accuracy. There is a positive correlation between both values and this correlation is statistically significant. The first null hypothesis (H_01) is rejected.

Kruskal-Wallis tests for demographic variance revealed no significant differences in technology ratings by age ($p = 0.16$), sex ($p = 0.09$), or raw transcription experience ($p = 0.29$). The analysis, however, did show a statistically significant difference when grouped by Educational Track ($p = 0.02$) which led to the partial rejection of the second null hypothesis (H_02). Students in advanced tracks, who had experienced more complex administrative workflows, rated the utility of the AI system significantly higher than those in foundational tracks.

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

SUMMARY OF FINDINGS

1. The student sample (N=100) was predominantly female (64%) and between the ages of 18 and 23 (92%).
2. The implementation of the AI platform was highly rated with a composite mean of 4.21, with fast processing speeds (4.35) leading the pack.
3. Baseline manual benchmarks fell in the "Developing" tier, with manual document editing and auditing scoring the lowest (2.88).
4. Strong positive correlations were found between system implementation quality and transcription speed ($r = .62$) and accuracy ($r = .58$) .
5. Education tracks had a significant impact on technology ratings ($p = 0.02$) but age, sex and raw experience were not statistically significant.

CONCLUSIONS

Empirical findings show that the use of AI-assisted legal transcription significantly reduces cognitive bottlenecks and overcomes the physical limitations of mechanical typing endurance. But automated systems cannot stand alone as a

solution; their lower scores in handling mixed local language variations "Taglish" and speaker tracking shows that automation is still vulnerable without human oversight. Hence, a "human-in-the-loop" paradigm is needed to uphold legal standards of evidence, shifting the role of the human transcriber from manual data entry to critical document verification and auditing.

RECOMMENDATIONS

1. **For BSOA Students:** Move beyond basic typing speed and work on developing high-level proofreading skills, understanding grammar nuances, and mastering technical editing techniques for efficient auditing of raw AI outputs.
2. **For Educators & PUP Administration:** Update the office administration curriculum to include modules on hybrid transcription. Training should be targeted to software configuration, data privacy, and auditing techniques, not unassisted manual speed typing drills.
3. **For Legal Practitioners and Industry Partners:** Industry leaders should leverage automated speech-to-text platforms to process large volumes of recordings to optimize operational efficiencies and meet the stringent legal standards. But the companies have to put in place a mandatory "human-in-the-loop" verification process. This system balances the speed of automation with the fallibility of human stenographers, eliminating the risk of automated errors sneaking into formal court transcripts or business records.
4. **For Future Researchers:** Extend this research to other university campuses, and test next-generation speech-to-text engines on local accents, regional dialects, and different levels of background noise.

SUMMARY OF THE OVERALL STUDY

This study presents an empirical baseline comparison of manual and automated legal transcription in the BSOA program of PUP Parañaque Campus. While AI integration has increased in speed and accuracy, data indicates a need for human verification to address software limitations with localized language and multi-speaker audio. Ultimately, overhauling educational training to support this hybrid model will ensure future office professionals are ready for an automated workforce.

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