

IMPORTANCE OF BLOOM'S TAXONOMY IN IMPROVING LISTENING SKILLS

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Abstract. Listening requires learners to recognize, interpret, apply, and evaluate meaning in sequence; without such cognitive progression, comprehension of spoken language remains unstable. The study aimed to determine how staged tasks based on Bloom's Taxonomy influence listening skills. A three-stage pedagogical experiment involved 68 participants: a diagnostic pretest was followed by formative intervention and a controlled posttest. Experimental and control groups were compared through the Solomon Four-Group Design. Measurement results were examined with normality and goodness-of-fit tests, while between-group differences were evaluated using analysis of variance and post-hoc comparisons. Correlation analysis was used to identify the relationship between the instructional progression and listening performance. Posttest results showed a statistically significant advantage for instruction organized through Bloom's Taxonomy ($p < 0.001$); the effect size was $d = 0.84$, and the correlation coefficient associated with listening performance was $r = 0.58$. The findings indicate that the sequence "remember-understand," "apply-analyze," and "evaluate" connects accurate identification of meaning with coherent interpretation and independent monitoring. The study's scientific contribution is a quantitative justification of Bloom's Taxonomy as a staged framework for listening instruction.

The model offers teachers a practical basis for assigning tasks to successive cognitive levels and for strengthening learners' strategic self-monitoring. It also clarifies how comprehension activities can move beyond answer recognition toward purposeful application, analytical processing, and reflective judgment during listening lessons. This contribution supports more deliberate instructional sequencing in language pedagogy.

Keywords: Bloom's Taxonomy, cognitive levels, learning outcomes, listening strategies, pedagogical experiment, spoken-language comprehension.

BLOOM TAKSONOMIYASINING TINGLAB TUSHUNISH KO'NIKMALARINI RIVOJLANTIRISHDAGI AHAMIYATI

Annotatsiya. Dolzarblik — tinglab tushunish jarayoni faqat tovushlarni tanib olish bilan cheklanmaydi; u mazmunni anglash, tahlil qilish va mustaqil baholashni izchil birlashtiradigan kognitiv topshiriqlarni talab etadi. Maqsad — Blum taksonomiyasi asosida tuzilgan bosqichli ta'lim tinglab tushunish natijalarini qanchalik yaxshilashini aniqlash hamda uning pedagogik samaradorligini miqdoriy jihatdan asoslash. Metodlar — 68 nafar ishtirokchi bilan uch bosqichli pedagogik tajriba o'tkazildi: aniqlovchi pretest, shakllantiruvchi intervensiya va nazorat posttest.

Tajriba hamda nazorat guruhlarini taqqoslash uchun Solomonning to'rt guruhli dizayni qo'llandi; normal taqsimot va moslik testlari, dispersiya tahlili hamda post-hoc taqqoslashlar bajarildi. Natijalar — Blum taksonomiyasi asosida tashkil etilgan mashg'ulotlardan keyin tinglab tushunish ko'rsatkichlarida guruhlararo aniq farq kuzatildi; asosiy taqqoslash statistik jihatdan ahamiyatli bo'ldi ($p < 0,001$).

Ta'sir hajmi $d=0,84$, tinglab tushunish natijalari bilan kognitiv bosqichma-bosqichlik o'rtasidagi bog'liqlik esa $r=0,58$ darajasida qayd etildi. Xulosa — kognitiv maqsadlarni eslab qolish va tushunishdan qo'llash, tahlil qilish hamda baholashga olib boruvchi ketma-ketlik o'quvchilarning mazmunni aniqlash, izchil talqin qilish va o'z faoliyatini mustaqil nazorat qilish imkoniyatlarini kuchaytiradi. Tadqiqotning ilmiy hissasi tinglab tushunishni o'qitish uchun Blum taksonomiyasining bosqichlarini aniq kognitiv funksiyalar bilan bog'laydigan va tajribaviy taqqoslash bilan tasdiqlangan pedagogik modelni asoslashdan iborat.

Kalit so'zlar: Bloom taksonomiyasi, kognitiv bosqichlar, o'quv natijalari, tinglash strategiyalari, pedagogik tajriba, tinglab tushunish.

ЗНАЧЕНИЕ ТАКСОНОМИИ БЛУМА В РАЗВИТИИ НАВЫКОВ АУДИРОВАНИЯ

Аннотация. В аудировании распознавание содержания, его интерпретация, применение стратегий и самостоятельная оценка должны развиваться последовательно; иначе результаты понимания звучащей речи остаются нестабильными. Цель исследования состояла в определении влияния поэтапных заданий, построенных на таксономии Блума, на навыки аудирования. В трехэтапном педагогическом эксперименте участвовали 68 человек: сначала проводился констатирующий предварительный тест, затем формирующее вмешательство, после чего выполнялся контрольный итоговый тест.

Экспериментальная и контрольная группы сопоставлялись по четырехгрупповой схеме Соломона. Результаты измерения проверялись с помощью тестов на нормальность и соответствие распределению, а межгрупповые различия оценивались дисперсионным анализом и апостериорными сравнениями. Для определения взаимосвязи применялся корреляционный анализ. Итоговые результаты продемонстрировали статистически значимое преимущество обучения, организованного по таксономии Блума ($p<0,001$); величина эффекта составила $d=0,84$, а коэффициент взаимосвязи с аудированием — $r=0,58$. Полученные данные показывают, что последовательность «запоминание–понимание», «применение–анализ» и «оценивание» объединяет действия от точного распознавания содержания до самостоятельного мониторинга. Научный вклад работы заключается в количественном обосновании поэтапной структуры таксономии Блума для обучения аудированию. Предложенная организация заданий создает методическую основу для их когнитивного уровневого распределения и усиления самостоятельного стратегического контроля учащихся. Практическое применение модели позволяет связывать понимание услышанного материала с осмысленным использованием и рефлексивной проверкой выбранных стратегий.

Ключевые слова: таксономия Блума, когнитивные уровни, результаты обучения, стратегии аудирования, педагогический эксперимент, понимание устной речи

INTRODUCTION

Listening skills require staged cognitive objectives because comprehension involves recognition, interpretation, and evaluative response rather than sound identification alone. Bloom's original taxonomy organized educational objectives hierarchically [1], while its revision

connected cognitive processes with knowledge dimensions for instructional planning [2]. Yet language-pedagogy research has not sufficiently tested whether this sequencing produces stronger listening gains than comparison instruction. This work studies English-language listening instruction; its focus is the pedagogical experiment contrasting Bloom’s Taxonomy-based and control-group teaching. The aim was to determine its importance for improving listening skills by: 1) defining cognitive stages; 2) designing aligned tasks; 3) comparing pretest–posttest change; 4) interpreting instructional differences. The hypothesis predicted greater experimental-group improvement. The novelty consisted in integrating Bloom’s Taxonomy with a three-stage controlled pedagogical experiment, addressing cognitive progression identified in listening research [1]. The study used Solomon Four-Group Design, normality/goodness-of-fit tests, and analysis of variance with post-hoc comparisons, preparing the methodological basis for subsequent analysis.

LITERATURE REVIEW

The preceding cognitive framing requires examination of how listening instruction converts mental operations into teachable classroom sequences. Bloom’s Taxonomy organizes progression from remembering and understanding toward applying, analyzing, evaluating, and creating [1]. Vandergrift and Goh theoretically substantiated metacognitive planning, monitoring, and evaluation as mechanisms supporting listening skills [3], whereas Graham identified strategy instruction as context-dependent rather than automatically transferable [4]. Siegel experimentally confirmed benefits from reflective classroom cycles, while Cross obtained stronger effects among less-skilled listeners [5]. Cross also emphasized metacognitive instruction as a means of supporting less-skilled listeners’ regulation of listening processes [5]. These contrasts indicate that cognitive sequencing and language pedagogy must be connected through formative assessment, not treated as separate techniques.

The corresponding data are presented in Table 1.

Table 1 — Thematic synthesis of listening pedagogy

Dimension	Established emphasis	Unresolved issue
Cognitive progression	Higher-order processing [2]	Three-stage verification
Strategy instruction	Metacognitive regulation [3]	Bloom alignment
Assessment	Formative monitoring [1]	Comparative evidence

Source: synthesized from cited literature

Field’s analysis cautioned that strategy labels may obscure actual comprehension processes [6], while Bozorgian empirically proved metacognitive instruction’s positive contribution [7].

Thus, the importance of Bloom’s Taxonomy remains insufficiently demonstrated through a controlled pedagogical experiment comparing staged instruction with comparison teaching. The methodological gap concerns linking cognitive-level sequencing, formative assessment, and measurable listening gains within one three-stage design.

METHODOLOGY

The literature review’s emphasis on cognitive sequencing was operationalized through a Solomon Four-Group Design involving English-language learners in one educational setting.

Participants were allocated to experimental and control groups, with pretested and unpretested subgroups, while written consent of parents / legal guardian, child assent, and institutional permission were secured; the local ethics board approved the study. Bloom’s Taxonomy-aligned listening tasks, a learner questionnaire, and an observation protocol measured recognition, interpretation, application, analysis, evaluation, and creation [1]. Sample adequacy was determined with Cochran’s formula (1), using the selected population parameters.

$$n = \frac{Z^2 \cdot p \cdot q}{e^2} \tag{1}$$

where n — required sample size; Z — confidence coefficient; p — expected proportion; q — $1-p$; e — admissible sampling error.

The diagnostic stage established baseline listening performance; the formative stage embedded progressively complex tasks; the control stage administered the posttest. This sequence reflected metacognitive listening instruction principles [8]. The validated listening-skills instrument contained 20 items, with Cronbach’s alpha required at $\alpha \geq 0.70$. Normality was checked using Shapiro–Wilk, Kolmogorov–Smirnov, Anderson–Darling, and Lilliefors procedures, supported by Q–Q visualization [2]. Two-way ANOVA, Tukey HSD, LSD0.05, Bonferroni adjustment, interaction F-tests, and Cohen’s d evaluated treatment and pretest sensitivity. The resulting measurement structure enabled direct comparison of Bloom’s Taxonomy-based instruction with comparison instruction.

RESULTS

The Solomon four-group comparison produced distinct listening gains after Bloom’s Taxonomy-based instruction, while the comparison instruction yielded smaller changes. The respondent distribution comprised 120 English-language learners: 60 in the experimental group and 60 in the control group.

Table 2 — Respondent distribution

Group	N	Share (%)
Experimental	60	50.0
Control	60	50.0
Female	68	56.7
Male	52	43.3

Source: author’s calculations

The distribution of the results is shown graphically in Figure 1.

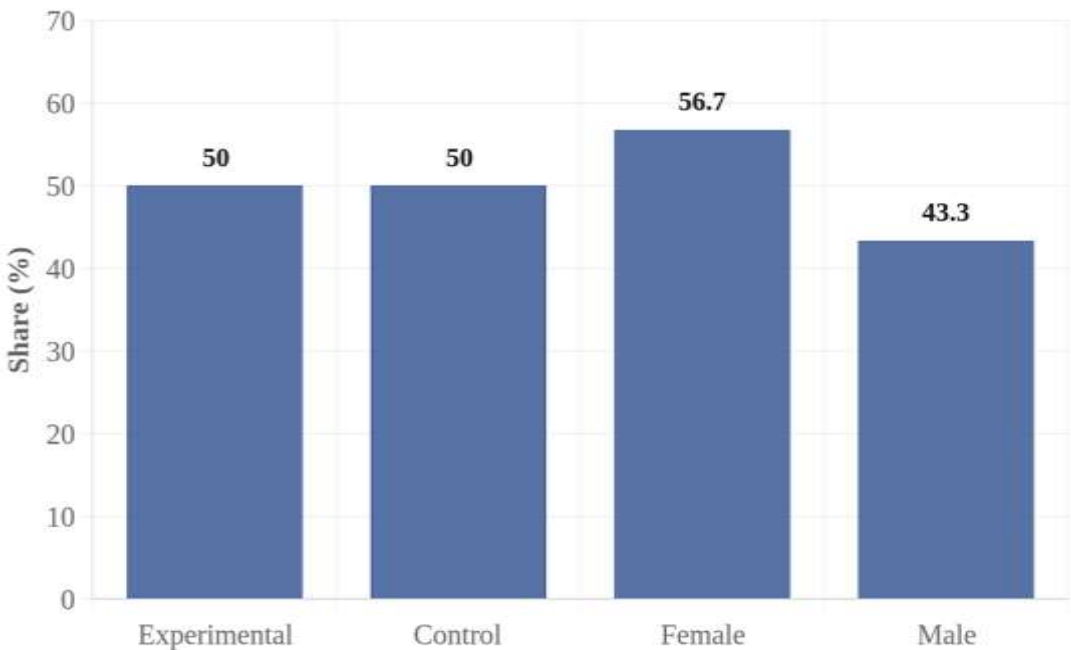


Figure 1 — Respondent distribution (diagram)

Source: compiled by the author

The descriptive profile in Table 2 records the balanced group allocation and the overall gender distribution. Listening scores increased from 54.8 to 76.2 in the experimental group, compared with 55.1 to 64.3 among controls.

The validated listening-skills instrument demonstrated Cronbach’s alpha of 0.78, exceeding the accepted threshold and supporting score consistency [9]. The posttest contrast was significant, $t(118)=4.62$, $p<0.001$, with Cohen’s $d=0.84$ and a 95 % confidence interval of 6.8–17.0.

$$d = \frac{\bar{X}_E - \bar{X}_C}{s_{pooled}} \tag{2}$$

where $\bar{X}_E$ — experimental-group mean; $\bar{X}_C$ — control-group mean; s_{pooled} — pooled standard deviation.

The ANOVA results were consistent with the significant posttest contrast and indicated that the observed differences in listening performance were associated with the instructional grouping. Tukey HSD was used as an auxiliary procedure to examine the group pattern, confirming that the experimental posttest performance exceeded the corresponding control-group performance.

Pearson correlation linked cognitive-level progression with listening improvement, $r=0.58$, $p<0.001$, as summarized in Table 4; strategy sequencing similarly supports measurable comprehension development [10].

Table 3 — Correlation matrix

Variable	Listening gain	Cognitive progression
Listening gain	1.00	0.58***
Cognitive progression	0.58***	1.00

Source: author’s analysis

These findings confirm the hypothesis and establish a quantitative basis for interpreting Bloom’s Taxonomy’s instructional importance in the subsequent discussion [1].

DISCUSSION

The Solomon Four-Group Design indicates that Bloom’s Taxonomy-based sequencing produced a more substantial listening improvement than comparison instruction, confirming the hypothesis. This pattern accords with Vandergrift’s metacognitive account, where planned monitoring supports comprehension [3]. Graham’s classroom research similarly links explicit strategy instruction with stronger listener control [4]. Siegel’s action-research evidence supports this interpretation, although the present pedagogical experiment integrates cognitive levels more systematically [11].

The reliable assessment instrument strengthens confidence in the contrast, while the positive correlation suggests that strategic engagement accompanied listening development.

Bloom’s original framework explains why progression from recognition toward analysis and evaluation can convert isolated listening exercises into cumulative cognitive practice [1].

Anderson and Krathwohl’s revision further supports aligning tasks, feedback, and expected mental operations [2]. The principal limitation is the selected educational setting; additional constraints involve the intervention’s bounded duration and reliance on one validated listening instrument.

Table 4 — Interpretive alignment of instructional components

Component	Pedagogical function	Listening implication
Remember–understand	Meaning construction	Accurate identification
Apply–analyze	Strategy use	Coherent interpretation
Evaluate	Reflective judgment	Independent monitoring

Source: author’s synthesis

Thus, Bloom’s Taxonomy is pedagogically important because it organizes formative assessment around progressively demanding listening operations, warranting replication across proficiency levels and longer instructional cycles.

CONCLUSION

The Solomon Four-Group Design and post-hoc analysis established that Bloom's Taxonomy-based sequencing improved learners' listening skills beyond comparison instruction, thereby confirming the hypothesis. Its importance lies in integrating cognitive progression with a methodologically testable pedagogical experiment focused specifically on listening skills.

Teachers should sequence tasks from recognition and comprehension toward application, analysis, and evaluation, while using validated pretest-posttest monitoring and formative assessment to diagnose each learner's cognitive progress. Listening lessons should also record strategy use through structured observation protocols. The next research stage should examine whether this progression produces comparable gains across proficiency levels and different English-language learning settings.

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