



The Rationale Behind Educational APP Selection: A Study of Teacher, Student, and Parent Decision-Making

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Abstract

This study explores the rationale behind the decision-making process for selecting educational applications (apps) from the perspective of parents, teachers, and students. Given the proliferation of apps, many of which are driven by financial interest rather than educational quality, the conscious and critical choice of high-quality educational apps remains a challenge for parents and teachers. The research utilized a qualitative, exploratory approach based on van-Manen's interpretive phenomenological research to extract the selection criteria from the lived experiences of these primary mediation groups in the Iranian context. In-depth, face-to-face interviews were conducted with a total of 47 participants, including parents (N=15), students (N=16), and teachers (N=16). Data analysis was performed using thematic analysis of lived experiences. Findings show that parents largely relied on user ratings and developer descriptions as their main source of information. They demonstrated a restricted understanding of learning, often associating it strictly with school curricula (e.g., math, language). They prioritized features related to safety (e.g., age-appropriate, adult permission for purchase) and privacy. The least valued feature for parents was personalization, a feature highly preferred by students. Students often had a more unlimited understanding of learning (e.g., exploration and problem-solving). Teachers emphasized features related to content quality (e.g., avoiding mere textbook review, content accuracy). They also highly valued open-ended design that allows users to create their own content, and the availability of real-time, personalized assessment or performance analysis. Cost-effectiveness (free or low-cost) was an important consideration to ensure educational justice. Criteria most frequently referred to by teachers were content, assessment, access, and reporting. The least valued features were interaction and cooperative learning. The findings reveal a gap in selection priorities: students and teachers prefer manipulable and constructive apps that offer open-ended and personalized structures, while parents favor instructive apps aligned with the school curriculum. The study highlights the need for app stores and policy makers to improve transparency by adding a required "educational value" section grounded in learning science, reviewing existing income models that can compromise educational equity, and implementing a star rating for subject matter accuracy in addition to user ratings. Furthermore, a consistent framework for consultation between users, developers, and education experts is critical to boost the educational value of apps.

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Introduction

Educational apps have created a highly profitable niche for software developers, fundamentally changing the education market. Ultimately, the deployment of these apps offers a highly efficient methodology for curriculum (Ngadiman et al., 2021). These apps present a significant opportunity for out-of-school, informal learning when designed in educationally appropriate ways (Hirsh-Pasek et al., 2015). Therefore, the choice of right educational apps is important. A review of various studies (e.g. Camilleri & Camilleri, 2019; Dubé et al., 2019; Liptrot et al., 2024) demonstrate how quality apps can contribute to better learning outcomes and students can learn from well-designed educational apps (Montazami, 2020).

Parents are main mediators in selecting educational app and often tend to monitor closely the digital practices of students (Dias & Brito, 2021). Therefore, the rationale behind the parents' decisions should be investigated. On the other hand, the launch of various apps has made it challenging for teachers to select the most suitable educational app to support students' learning, much of many apps are driven by financial interest of corporates rather than educational stakeholders (Stevenson et al., 2015; Taylor et al, 2022). As such, teachers and parents will increasingly need to effectively identify and evaluate apps for education (Cherner et al., 2014).

Some evaluation framework has been proposed in the research literature to assist teachers or parents in selecting the right apps for their educational needs (e.g. Buckler, 2012; Walker, 2010; Baran et al., 2016; Lee & Kim, 2015). But parents and teachers still face the problem of conscious and critical choice of educational apps (Karolčík et al, 2017; Lee & Cherner, 2015; Karolčík, & Marková, 2025). Therefore, criteria are needed to distinguish high-quality educational apps from other inappropriate or even dangerous products.

Hence, this research addresses a critical gap in the literature: a lack of empirical data regarding the actual selection priorities of the primary mediation groups in the Iranian context. While previous frameworks suggest general criteria, they fail to specify what indicators, and in what order of priority, are utilized by each group (parents vs. teachers). Therefore, the primary research question guiding this study is: "what are the most influential indicators and their hierarchical priority for high school parents and teachers in Iran when evaluating and selecting educational mobile applications?"

Theoretical Framework

The foundation for understanding the selection process of educational apps lies in models of

technology adoption. This study primarily utilizes the Technology Acceptance Model (TAM), developed by Davis (1989), which posits that two main cognitive variables influence a user's intention to use a new technology: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). In the context of educational apps, this framework helps interpret the crucial mediating role of parents and teachers. PU relates to the degree to which parents or teachers believe using a specific app will enhance the student's learning performance or support educational goals. PEOU, conversely, reflects the perceived simplicity of integrating and monitoring the app in daily life, whether at home or in the classroom. By adopting the TAM lens, this research seeks to explain the underlying rationale behind the decision-makers' choices and to identify the factors that either facilitate or hinder the initial adoption of a learning tool.

Beyond mere acceptance, a robust evaluation requires a theoretical model to assess the actual pedagogical quality of the content. For this, the research is framed by the Constructivist Learning Theory (Vygotsky, 1978). This theory emphasizes that learners actively construct knowledge and meaning from their experiences, rather than passively receiving information. Key constructivist concepts, such as active engagement, meaningful interaction, and alignment with the Zone of Proximal Development (ZPD), become critical benchmarks for app design. Consequently, an app's true educational value is not just in its content, but in the design features that promote active, constructive experiences (Hirsh-Pasek et al., 2015). This theoretical perspective ensures that the criteria developed go beyond surface-level features (e.g., graphics, price) to focus on deep learning mechanisms and effective content delivery.

The need for a unified approach is evident in the current literature. While TAM addresses the acceptance (the likelihood of use), the Constructivist Theory addresses the value (the quality of learning). Existing evaluation frameworks often lean too heavily toward one side, resulting in criteria that are either pedagogically sound but impractical, or easily adopted but lacking in genuine educational depth. Therefore, the core challenge addressed by this paper is the gap between the factors influencing TAM and the actual pedagogical quality necessary for effective learning (Constructivist Theory). By integrating these two perspectives, this study aims to synthesize a comprehensive set of criteria that is not only robustly grounded in learning science but also practically relevant and actionable for parents and teachers making critical choices in a saturated digital market.

Quality assessment factors of educational apps

The *quality* of digital resource for learning, is not only dependents on the properties of them; quality is also closely connected with how the app is used. The quality of an educational app extends beyond its technical or aesthetic features; it reflects the app's overall ability to support effective learning. Drawing on the DeLone and McLean Information Systems Success Model (Ojo et al., 2017; Wang, 2008) and recent analyses of educational apps (Meyer et al., 2021; Menon et al., 2022), quality can be conceptualized as a multidimensional construct. It includes information quality, referring to the accuracy, completeness, and currency of the content; system quality, encompassing usability, reliability, and accessibility; and service quality, which involves privacy protection, technical support, and responsiveness to user needs. In addition to these classical dimensions, scholars emphasize instructional or learning quality as a core indicator of educational value (Meyer et al., 2021). This dimension assesses the app's alignment with learning objectives, the extent to which it fosters active engagement, provides meaningful feedback, and supports knowledge construction in authentic contexts.

Accordingly, in this study, "educational quality" is operationally defined as the degree to which an app effectively integrates pedagogical fidelity, functional usability, and contextual appropriateness to create meaningful learning experiences.

While some independent international organizations (e.g., Common Sense Media, KinderTown) provide general reviews, age ratings, and learning potential analyses (Guernsey & Levine, 2015), these frameworks lack the operational precision and cultural specificity required. They tend to focus on general criteria such as content quality, interface design, and privacy policy, but neglect to address the distinct prioritization of needs between Iranian parents and teachers or the interference of local monetization strategies.

Despite all these, they try to encourage parents and teachers to engage in the app selection process and empower them to make the best decision (Guernsey & Levine, 2015).

A comparative analysis of these frameworks shows that while they consistently cover three broad categories: content quality (e.g., educational alignment, accuracy), interface design (e.g., usability, engagement), and privacy policy/safety (e.g., data collection, in-app purchases), their weights and specific indicators rarely account for cultural relevance, local curriculum fit, or the distinct prioritization of needs between parents and teachers in specific markets. Moreover, few frameworks fully integrate the potential interference of monetization strategies (like aggressive in-app purchases) into their quality assessment, which is a major concern in local app stores. This standardization and lack of context-specificity underscore the difficulty for parents and teachers in making a critically informed choice. Druin et al. (2010) highlighted the need to critically evaluate not only the *content* of educational technologies but also their *design intentions* (whether they are genuinely created to enhance learning or primarily to attract and retain users for profit). This distinction underscores the growing concern that market-driven priorities may compromise pedagogical quality, making systematic evaluation of design and learning alignment essential.

On the other hand, there are sporadic recommendations regarding an educational app's applicability, and there is no comprehensive guide or evaluation model accessible. Also, the large number of educational apps are simply digital reproductions of learning content and it's unclear how to support effective learning (Hirsh-Pasek et al., 2015; Schmidthaler et al., 2025). Previous researchers have discovered several criteria for evaluating the quality of educational apps, which have been collected in Figure 1.

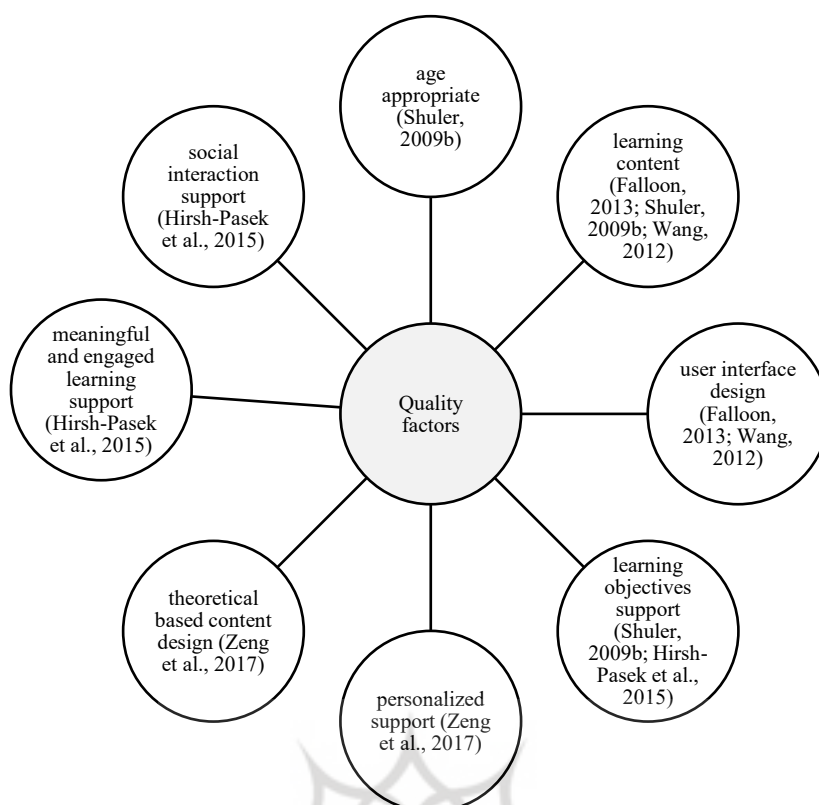


Figure 1. Some quality assessment factors of educational app by previous researches

The rubric offered by Walker (2010) in completing Figure 1 is important. He produced the first rubric to evaluate educational apps which has 6 dimensions: *Authenticity*, *Curriculum Connections*, *Differentiation*, *Feedback*, *Motivation*, and *User Friendliness*. Tavares et al., (2022) propose that educational apps should be designed in accordance with educational researchers who ensure that theory is central in the development of educational apps.

A systematic literature review (Ngadiman et al., 2021) recently investigated the quality of educational apps by focusing on five critical criteria: effectiveness, satisfaction, learnability, user interface aesthetics, and appropriateness recognizability. The goal was to provide developers with a common understanding of these features. The review highlights that developers, particularly novices, must prioritize user needs and clearly define Non-Functional Requirements (NFRs) related to quality early in the development cycle. Despite the importance of these five factors, the review of 50 articles showed that only two existing studies addressed all five criteria simultaneously. This gap suggests that current application development approaches can be significantly improved by adopting and measuring a more comprehensive set of quality characteristics.

Unfortunately, no independent or governmental institution has developed comprehensive criteria to rank Iranian educational apps according to learning science and psychology. When you refer to the

educational section of Iranian stores, you will see a large number of apps that teach English and Persian alphabet, legal rules, instructions for preparing different types of food, etc. The developer or store does not explain the educational value of the apps. Because in most cases, there is no synergy with educational experts in design steps. Therefore, there are no specific criteria apps must possess to warrant inclusion in the education category.

Consequently, there are no specific, pedagogically sound criteria apps must possess to warrant inclusion in the education category. This lack of transparent quality indicators forces users to navigate a market where monetization strategies, such as aggressive in-app purchases, often override sound educational design (Hirsh-Pasek et al., 2015). Hence, we focused on studying the actual behavior and criteria of teachers, students, and parents when choosing an educational app in this challenging local environment.

Methodology

The aim of this study was to explore the phenomenon of decision-making in selecting educational apps from the experience of parents, teachers, and students. A qualitative and exploratory approach based on van-Manen's interpretive phenomenological research (van-Manen, 1984; 2014) was adopted to extract the criteria for selecting educational apps from the lived experiences of parents, teachers, and students.

Experiences of decision making were elicited by unstructured interview. A total of 47 in-depth interviews were conducted (approximately 60 minutes each) face-to-face. All interviews were conducted in Persian. With the explicit written consent of each participant, all interviews were audio-recorded and then professionally transcribed verbatim. To maintain rigor, the transcription process included two key quality checks: first, the researcher reviewed the full Persian transcripts against the audio recordings; second, for purposes of international publication, all key excerpts and final themes were translated into English and reviewed by a bilingual expert to ensure semantic and conceptual fidelity.

Finally, we used *member checking* to determine the accuracy of the qualitative findings through taking the final report or specific descriptions or themes back to participants and determining whether these participants feel that they are accurate (Creswell, 2009).

The framework of qualitative interviews

The framework suggested by Livingstone (2014) was selected as grounding for our qualitative interviews that covered: a) the digital practices of students and the features that they value in educational apps; b) parental mediation and the features that parents value in educational apps; c) the features of educational apps that the teachers consider positive and negative. Therefore, we report findings on the following research question: What are the criteria used by parents, students and teachers to assess and choose apps for learning?

Participants

Based on criterion sampling method (Clark & Creswell, 2015), the focus was on parents, students and teachers who always or often use digital media or apps for their educational practice. We selected the first families among our personal contacts and then asked them to refer us other families, thus using the “snow-balling” sampling technique (Emmel, 2013). We present a summary of our sample on Table 1.

Table 1. Brief characterization of the participations

Gender of parents	N= 15 Mother: 7 Father: 8
Gender of students	N= 16 Girl: 9 Boy: 7
Age of students	11-17
Gender of teachers	N= 16 Male: 6 Female: 10
Educational background of teachers	N=16 Undergraduate=10 Graduate=6
Parents' education	Higher education= 7 Not higher education= 8
Socioeconomic status (income)	Low= 2 Medium= 8 High= 5

Data analysis

Data analysis was performed with thematic analysis of lived experiences. Thematic analysis involved wholistic and line-by-line readings of transcript material attending to the meanings embedded in the text. Themes were extracted using three approaches (van Manen, 2006):

- *Wholistic*: read the text to become familiar with the data.
- *Partial*: explore experience through line-by-line approach; describe meanings with a few words and notes in the margins.
- *Selective*: organizing selected sentences into a meaningful wholeness.

Findings

Parents and students

User rating and review directly influence on selecting educational app by parents. So, user feedback and developer's description were the main source of information to decision making. Parent's reliance on this resource may be due to the lack of an official way in society (e.g. by the ministry of education) to rating educational apps. Therefore, Parents select a simple way to tell which apps are appropriate. But students were less inclined to parents to intervene because they were more engaged with digital apps and resources than their parents. This argument was derived from verbal evidence such as the following example – *"First, the researcher asked the parents to choose an educational app from Cafe Bazaar (an Iranian platform/store for the offering of Android apps), to math learning. After a few minutes, appeared the difference view between mother and her child in selecting app. Most parents immediately count the number of stars and install, relying on the developer's description and other users' comments" Some parents said they had never been involved in choosing an app and did not know where to start. Because they have always asked the teacher to introduce the right app!"*.

The features that are considered most positive by parents are related to *learning*. But, the parents in our sample have more restricted understanding of learning, associating it to topics that are part of the school curricula (e.g. math, language) – *"I selected an educational game, and my son played the role of a penguin and learned math by jumping on ice pieces. I was relieved that he was learning math well"* (mother, family 1). – *"I selected an app that fit my daughter's learning path in school"* (father, family 6). While, their children often had an unlimited understanding of learning. – *"I learn a lot from this app; I'm learning how to repair my spaceship. It is full of exploration and problem solving!"* (12-year-old boy, family 1).

As a result, parents had not sufficient accuracy when choosing an educational app. They were more concerned with other features in the app that include: safety (non- ideological content, age appropriate, adult permission for purchase, and non-social media tool), privacy (collection of the data for commercial purpose, parental control), and usability (easy navigation, simple registration).

The less valued features were *personalization* while students preferred this feature – *"Mom! Many of the apps you suggest, delivers a predetermined task which elicits a homogenous response from me and my friends. These apps require minimal cognitive effort :("* (15 years old boy).

Teachers

The features that are considered most positive by teachers are related to *content*. – *"The content of an educational app should not be just a review of textbook. Otherwise, it will be an additional expense for the families"* (primary teacher 6) – *"Sometimes I saw incorrect content in the app. For example, the concept of force and energy was used interchangeably"* (high school teacher, 10). As a result, it appears that some educational apps do not invite teachers or subject matter experts to check the content. Maybe, this point be overlooked by parents and students.

Another aspect of content that teachers frequently mentioned was *open-ended design* that allows users to create their own content or digital artefact using the app – *"I do not want to be a consumer and follow a linear and predetermined process in educational apps. Due to the lack of flexibility of many apps, I do not recommend them and remove them immediately"* (primary teacher 13).

Another valued feature was *real time and personalized assessment or performance analysis*. – *"With Plickers, I was able to evaluate students very quickly with a scan and receive instant feedback. But I had to enter a lot of data into the app and the setup process was time-consuming"* (high school teacher, 1). *"I could hardly find an app that supports both formative and summative evaluation. Furthermore, there are apps on my tablet that I can view and analyze my students' performance at any time!"* (high school teacher, 9).

Teachers are often more receptive to choosing free educational apps. Because they can advise to all students regardless of the social and economic situation. – *"I consider the app's being free to use or low cost, especially in public schools which are often*

in financial trouble” (primary teacher, 7). – “*some families are generally reluctant to spend more to educational app and rely on the same formal school resources.*” (high school teacher, 16). – “*In-app payments and educational justice are not parallel. Some students went through many stages of the app while others asked me what the lock icon meant and why I could not break the lock like my classmate*” (primary teacher, 13). It can be suggested that developers and stakeholders offer more innovative revenue models for educational apps.

Another indicator that teachers emphasized in their

experiences was the possibility of receiving a participation report in the app. – “*Kahoot reports what happens in the app and who is participating! I want to be sure of the progress of the students. Otherwise, I would have to ask students to take screenshots of their performance*” (primary teacher, 9).

As a result, teachers most frequently referred to criteria related to content (n=14), assessment (n=11), access (n=8) and report (n=6). Figure 2 shows other indicators that were highlighted in teachers' experiences.

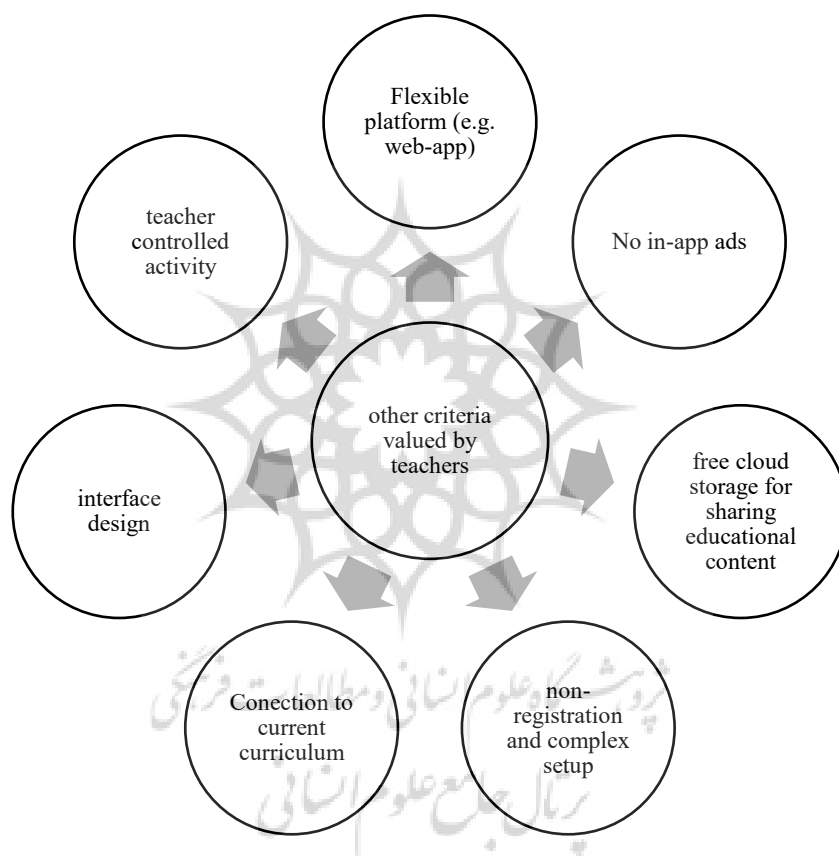


Figure 2. Other criteria for selecting educational app valued by teachers

The less valued features were *interaction* and *cooperative learning*. In the interview with teachers, no experience was expressed about the importance of the collaborative feature of educational apps. While smartphones can potentially promote individualism in learning.

Discussion and Conclusion

According to Goodwin and Highfield classification in 2012 (included Instructive, Manipulable, and Constructive apps), students and teachers in our sample prefer manipulable and constructive apps that providing open-ended and personalized structure allowing them to create and choice learning content/process. Instead, their parents liked Instructive apps that rely on topics that are part of the school curricula.

Therefore, such Falloon (2013); Kucirkova et al (2014), we emphasized to boost the educational value of apps, collaboration between users, software developers and education experts is critical. As a result, a consistent framework for consultation should be established. While types of external reviews are helpful, it is unclear if they are guided by research in app-based learning (Papadakis & Kalogiannakis, 2017) and researchers have argued that teachers must still evaluate apps themselves (Falloon, 2017).

Pearson et al. (2023) investigated whether a brief, video-based intervention could improve parents' value judgments of educational apps based on five quality benchmarks (scaffolding, curriculum, team, feedback, and learning theory). The study confirmed that parents undervalue some of these key benchmarks in the current market. While the intervention successfully helped parents identify quality apps, the effect was highly dependent on developers using specific, recognizable keywords in the app descriptions. The authors concluded that selecting quality apps is a complex decision-making process that requires greater transparency from app stores and clearer communication from developers.

Our research investigated the rationale behind the parent, teacher, and student' decisions in the phenomenon of selecting educational app that has key messages for software developers and educational policy makers:

- In the stores or platforms where educational apps are published, a section entitled "educational value" should be added. It is necessary that one of the pillars of this section be the foundations of learning science and psychology. Of course, it is desirable that these pedagogical considerations be considered as a requirement at the same stage of app design. Currently, educational app publishing platforms do not require such documentation from developers in Iran. The importance of this document is that parents and teachers are not a sufficient reference to identify a desirable educational app.

- Income models in educational apps need to be seriously reviewed. Most parents and teachers suffered from this problem. This also affects the rate of return on investment of developers.

- The freedom of action of students and teachers in managing the inputs of an educational app has been neglected. They emphasized personalization more than any other feature.

- Teachers were concerned about the accuracy of the content of the educational apps. In addition to user ratings, there is a need for a row of stars for subject matter ratings in stores.

- The possibility of real-time evaluation and feedback, analysis of student activity in an app, was requested by many teachers. Because analyzing them outside the app environment was time consuming for them and their parents insist on it. According to teachers, few educational apps have these features.

- Provide pre-service on educational apps would help ensure teachers are equipped with adequate knowledge for making informed decisions while selecting and integrating apps into their teaching practices.

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