

## **Understanding the information behaviors of elementary students**

### **A) Purpose Statement**

The Beach Avenue School is a public elementary school in the Sands Point Unified School District on Long Island, New York. Beach Avenue School serves kindergarten through grade five students from various cultural and socioeconomic backgrounds. At the request of the Board of Education, a committee has been formed with two classroom teachers, two media specialists, two parents, and one principal. The committee was asked to examine the current research on information behaviors and practices of elementary students. This includes students researching for school assignments and personal interests in home and school settings. Taking into consideration the ever-changing world of technology and its impacts on information practices, the committee aims to identify key findings from research, challenges that elementary students face when looking for information, and theories that support the understanding of students' information behaviors. The committee will later evaluate the services and resources provided by the district to meet the needs of students with the goal of providing rigorous academic standards. In a later presentation, the committee will put forth recommendations for educators and parents to support students to become information-literate citizens who utilize technology to research academic and personal needs and improve the quality of their everyday lives.

### **B) Part I**

Current research on the information behaviors of elementary students shows that when children are faced with information needs, they turn first to the internet, not to books, peers, parents or other sources, to find information for personal and academic use (Bilas, 2021; Foss et al., 2012; Shen, 2018; Sugihartati, 2019). Findings show that when looking for information online, students encounter several challenges. Those challenges include query formulation (Bilal, 2012; Hsieh & Wu, 2015), recognizing credible sources (Abdullah & Basar, 2019; Hsieh & Wu, 2015; Sugihartati, 2019), and developing self-efficacy (Crow, 2015; Foss, 2012; Shen, 2018; Taylor et al., 2019) when conducting research.

Bilal's (2021) study found that children prefer the popular search engine Google over child-specific search engines such as Yahoo! Kids, calling them the *Google Generation*. Data collected while evaluating child-created queries and their search engine results pages (SERPs) found that Google was more effective at finding relevant information than the child-specific engines. Other findings related to online query formulation showed that students have difficulty providing query terms that lead to relevant SERPs. In a study, researchers noted that barriers to accurate SERPs include spelling errors, a lack of strategies such as Boolean expressions, using search terms that were too narrow, and one-word queries (Bilal, 2021; Hsieh, & Wu 2015). Based on the evidence, we can conclude that children need explicit instruction in query formulation and strategies to aid their information-seeking behavior.

Abdullah and Basar (2019) conducted a study that found children fall into two categories of search behaviors when gauging the trustworthiness of SERPs: credible searchers and *convenience searchers*.

They observed that *credible searchers* will carefully read prompts before putting in search terms and then scan multiple SERPs, comparing them before judging if they are reliable. Meanwhile, ‘convenience searchers’ often go directly to web pages such as Wikipedia or Google to find information without evaluating findings against other sources. Another study compared boys' and girls' interactions with search sites such as the online public access catalog (OPAC) and noted that girls were more proficient when finding and selecting reliable search results. This study’s data revealed that boys tended to look at results in a “loopy” fashion that caused a distraction to finding relevant information, whereas girls tended to look at search results “linearly,” which yielded more successful results (Hsieh, & Wu, 2015). Another study called elementary children the “YouTube generation” because students prefer visual representations of information over reading. In this study of 500 students grades one to six, students preferred to use social media and YouTube to find answers for academic and personal information. These students also stated in interviews that they felt more confident in their smartphone's instant ability to assist them in finding information compared to library resources (Sugihartati, 2019). Together, these studies conclude that finding credible and reliable digital information requires comparing and evaluating SERPs in an organized structure and developing confidence in a variety of sources without over-reliance on visual representations.

In a study of children’s information behaviors at home, where there is more internet access and less structure, children often give up on information searching and express frustration when looking for information. Findings exhibited that children frequently selected SERPs based on snippets of text and visual information from sites like YouTube and often felt dissatisfied with their findings (Foss et al., 2012). Crow (2015) found that children in Uganda and America tended to avoid seeking information when uncertain of a topic. Children performed more successfully when given autonomy in research topics and the ability to work with peers. A study in China observed information-seeking styles children employed while using the online educational platform “Zuo Ye Bang.” They found four seeking behavior styles that identified self-efficacy or lack thereof. Based on findings, the most successful of the four styles, so-called “instrumental seekers,” used the platform to supplement learning and develop a deeper understanding when completing independent school assignments. The least successful style, “executive seekers,” looked for ready-made answers and developed a dependency on the platform (Shen, 2018). Another study examined children’s self-efficacy when selecting fiction books from the school library for independent reading, claiming that children find desired materials when autonomy is allowed. Based on interviews with students after their library checkout, students expressed greater success when permitted to browse the collection freely with peers while discussing their prior knowledge of genres to make self-selections (Taylor et al., 2019). Together, these studies show that children need a scaffolded framework for information seeking, combined with choices and the ability to work with peers, to create a sense of self-efficacy.

## **C) Part II**

We can use theories and models to interpret students’ information behaviors and identify strengths and weaknesses to determine learning goals and design curricula. Through the lens of theories and models, educators can critically examine their teaching practices and refine their curricula to improve student engagement, motivation, and learning outcomes.

Robert Taylor's model of information need centers on query formulation. Taylor notes that information seekers exhibit one of two behaviors: they either decide to work independently based on background knowledge or they seek help. When students seek help, Taylor noticed a "negotiation of questions" when "...one person tries to find out what another person wants to know, when the latter cannot describe his need precisely" (Taylor, 1968, p. 125). Taylor observed four levels of need that come up during the query formulation process. The first is the visceral level marked by frustration, stemming from a lack of knowledge or language to formulate a query. Next is the conscious level, which involves discussing the problem and teasing out the question. Then comes the formalization level, where the students find the language or vocabulary needed for the query search. Finally there is the compromised level, where the seekers input a query that leads to results that complete their task and fulfill the informational need (Price, 2020; Taylor, 1968).

Taylor's 1968 model on developing queries with librarians can be applied today to understand our students' information behaviors while formulating queries using the internet, databases, or OPAC. Students face common roadblocks, as demonstrated in the research, such as limited world experiences and less vocabulary to draw from, which can be especially frustrating for children (Bilal, 2021; Hsieh, & Wu, 2015). The act of working with adults or peers, where students talk through their challenges, can help them progress from Taylor's visceral level to the conscious level of need. With the clearer ideas and new vocabulary from the discussion, students can fulfill their queries and get to the formalization level of need. By inputting the improved query, students can reach the compromised level of need, satisfying their learning needs.

The Ellis model for understanding information behavior identifies eight observable behaviors when fulfilling an information need. These behaviors are starting, chaining, browsing, differentiating, monitoring, extracting, verifying, and ending. *Starting* is the initiation of a task where learners may use background knowledge to seek additional information. The learners then move toward *chaining*, taking initial findings, and noticing gaps that require further investigation. Learners then *browse* through findings and filter information by *differentiating*. Next, learners *monitor* understanding by looking through current information and *extracting* what they find most useful for their learning purposes. Lastly, learners *verify* their findings are accurate and then *end* the task feeling satisfied that they have fulfilled their informational needs. Ellis notes that these behaviors are not linear and that people move back and forth between stages based on new information and changing needs when researching a topic (Meho & Tibbo, 2003; Mukhrjee, 2018).

When elementary students encounter informational needs for schoolwork or personal interest, we can observe the stages of the Ellis model. For example, a student may be curious about a video game and *start* a search, using what they already know about the topic and what they want to know more about. As documented in the studies presented, elementary students heavily rely on search engines like Google, or sites like YouTube to find information (Abdullah & Basar, 2019; Bilal, 2012; Shen, 2018). From there, credible searchers (Abdulah & Basar, 2019) and instrumental searchers (Shen, 2018) cycle through Ellis' identified behaviors, *browsing* and *chaining* by clicking on and scanning SERPs; finding keywords or other areas of interest to refine or create a new query, or by clicking through on embedded links. Through *differentiation* and *monitoring* of SERPs, children can determine what information is most relevant and useful for their needs and filter out sources that do not seem credible. They can then *extract* the information required, *verifying* that they have found all the information they

need to answer their questions and *end* the search, feeling they have satisfied their informational need. Using the lens of the Ellis model, one can guide students to vet sources for credibility and develop self-efficacy in their information-seeking behaviors.

The models of Taylor and Ellis can help us understand elementary students' information behaviors and some of the challenges they face in their quest for learning. By understanding the processes our students go through to access, find, and comprehend information, we can develop strategies and curricula to support student learning goals.

#### **D) Next Steps (200 min. -250 max. words)**

The committee's extensive research on elementary students' information behaviors has identified key findings to help parents, educators, and administrators better understand our students. These findings include challenges students face when formulating queries, recognizing credible sources of information, and developing a sense of self-efficacy in tasks. Current research identifies common behaviors that aid or detract from students' success when performing information-seeking tasks.

Looking at elementary students' information behaviors through Taylor's levels of information needs and Ellis's models, we can devise strategies and curricula to scaffold students' information behaviors. With the new standards of the New York State Information Fluency Continuum to be implemented in the coming school year in mind, we hope to “empower students to develop confidence and agency to pursue their own paths to personal and academic success” (NYCSLS, n.d.).

The committee is developing recommendations for the district, which will be forthcoming in the next few weeks. Recommendations will address the information behaviors of elementary students outlined here, and have suggestions for educators and parents in providing explicit instruction of information literacy skills, including query formulation and source evaluation, to promote self-efficacy. The committee's recommendations aim to help students become confident and skilled information seekers able to navigate the complex world of digital information and enhance their academic and personal lives. These recommendations will be presented in the form of a research poster.

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