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# Faith in the 'Digital Native' during online search in Australian home-schools

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**Abstract:** Students today can access unlimited information online, and can do so, according to 'generational digital divide' rhetoric, without assistance. This paper explores the extent to which 'generational digital divide' rhetoric is supported by the discourse accompanying online search in five Australian home-schools. Observations and interviews were analysed using Critical Discourse Analysis. During search, discourse assumed greater student skill. In interview, however, parents and students reported doubt in the students' search proficiency. Growing reliance upon search by increasing numbers of home-schoolers warrants greater understanding of such technology and its role in learning.

**Keywords:** Computer supported collaborative learning, Generational Digital Divide (GDD), search engines, home-school, Critical Discourse Analysis

## 1. Introduction

Home-schoolers are now Australia's fastest growing educational demographic (Chapman, 2017). Some suggest this is due to the increasing ubiquity of the internet, or assumptions that learners today are more autonomous (Bullock, 2011). Certainly belief in Prensky's (2001) 'Digital Native' is reported among Australian parents (Green, Brady, Olafsson, Hartley & Lumby, 2011). Little research investigates how parents support young searchers, however, and none is found regarding home-schoolers, despite search being their number one online activity (Bullock, 2011). Outside of home-schooling, student search success is correlated with adult guidance (Davidson, 2011). Should home-schooling parents, in line with 'generational digital divide' rhetoric, assume students can independently search and forego instruction, as many school-based teachers do (Morrison, 2014), they risk wasting the internet's unprecedented educational opportunities.

Interview and observation are utilised here given reports that students (Tiidenberg et al., 2017) and teachers (Mansour, 2013) often employ different discourse reflecting a mismatch between beliefs and practice. This study explores *the extent to which discourse accompanying online search in Australian home-schools supports 'generational digital divide' rhetoric*. Two research questions further direct the study: To what extent do the discursive practices employed by home-school parents presume greater student search skill?; and to what extent do the discursive practices employed by home-school students presume greater student search skill?

## 2. Literature Review

Warnings of a 'generational digital divide' (GDD), a divide characterised by students ('digital natives') more digitally skilled than their educators ('digital immigrants'), continue to prevail despite little evidence. Studies regarding online search, specifically, challenge the construct with two fairly consistent findings: that 'digital natives' and 'digital immigrants' are not homogenous groups (Nicholas, Rowlands, Clark & Williams, 2011), nor are 'digital natives' homogenously stronger searchers than their elders (van der Sluis & van Dijk, 2010).

Parents in Australia, however, continue to believe in a 'GDD' (Green & Brady, 2013), potentially underestimating their contribution to a child's digital learning. Frequently reported is an assumption that children just 'pick up' the skills (Plowman, Stephen & McPake, 2010), as is doubt

among parents in their ability to assist. Roque et al. (2013) found parents were uncertain in supporting children on computers and observed tensions when families collaborated digitally because of "a strong ownership" felt among children (p. 7). Just one study regarding the search skill of *parents* specifically is found. Di Salvo, Reid, and Roshan (2013) investigate parents' use of search to assist a child's informal learning. Their parent searchers "yielded remarkably unproductive results" (Di Salvo et al., 2015, p. 487). Given student search success is correlated with adult guidance (Davidson, 2011), this may hinder student development, particularly for children with less access to other adult searchers. Indeed, the benefits of collaborative search are well documented (Raes, Schellens, De Wever, & Benoit, 2016). The 'talk' that accompanies collaborative search has also received attention. Outside of the home, successful discursive practices during search reportedly include building on other's ideas and equal contributions to dialogue (Castek, Coiro, Guzniczak & Bradshaw, 2012). Studies of search at home tend to report different practices. Danby et al. (2013) report parent discourse that presupposes an established digital identity in their child, while Davidson (2011) found talk by young searchers signals an aversion to help. If home-schoolers using search can engage in the types of discourse promoting search success, we can better assure contexts in which learning and teaching takes place.

## 3. Methods

This paper reports select findings from a larger study utilising survey ($n$=60), test ($n$=12), observation ($n$=12), and interview ($n$=12). Findings from the latter two are discussed here. Study invitations were distributed on 30 social media sites and via email. Five home-schooling families educating students aged eight to ten in Australia participated. This is the age Australians typically begin searching (Green et.al, 2011) and before parent influence diminishes (Foss et al, 2012). Parents were female, aged at least 36 years, rendering them 'digital immigrants' (Prensky, 2001).

During the first of three sessions, home-schoolers were observed using a search engine 'as they normally would' for 20 minutes. Screen capture software recorded mouse movements and typing, whilst a video recorder captured the participants' discourse.

Participants were later interviewed individually. Questions pertained to the participants': use of search; confidence in search; and confidence in their student's or parent's search.

Discourse was transcribed verbatim and recursively analysed using Fairclough's (2015) procedure for Critical Discourse Analysis. This paper reports on certain *relational*, *expressive* and *experiential* value of participant discourse. A consideration of the *relational value* included tallying pronoun use. Coding of the *expressive value* of discourse included identifying and tallying any (positive & negative) evaluations of concepts. By way of example, suggestion that one *"Don't go into Wikipedia"* was coded a negative evaluation (of Wikipedia). A student asking "*Can we watch a video?"* was coded a positive evaluation (of videos). 31 different speech acts were identified during observations and instances of their use tallied for families in 30 second intervals. Analysis of the *experiential value* of discourse included coding sentences as active or passive.

## 4. Findings

During search, both parent-educators and students employed discursive practices which presume greater student skill; practices which support 'GDD' rhetoric. In interview, however, neither employed discourses reflecting belief in this divide. Parent discourse from both the observations and interviews will be discussed before student discourse is presented.

During interview, parent discourse predominantly ran counter to 'GDD' rhetoric. All but one parent suggested they had a stronger, more established use of search compared to their student's use, described as "*minimal*", "*naïve and immatur[e]"* or "*intermediate*".

When searching 'collaboratively', however, parent discourse appeared to give students more status. Fairclough (2015) suggests pronoun use "is tied with relationships of power and solidarity", relationships inherent in the 'GDD' construct (p. 143). When searching, parents made more use of pronouns '*we'* and *'us'* (Table 1) and used the terms *'you'* or '*your search'* at least twice as frequently as *'I'* or *'my',* positioning students as authority figures.

Table 1

*Pronoun Use during online search*

| Pronoun | | Parent usage | Student usage |
|---|---|---|---|
| *I/Me* | Family F | 9 | 16 |
| | Family K | 7 | 15 |
| | Family O | 0 | 4 |
| | Family C | 4 | 0 |
| *We/us* | Family F | 14 | 8 |
| | Family K | 13 | 0 |
| | Family O | 8 | 1 |
| | Family C | 12 | 3 |
| *You /your* | Family F | 32 | 3 |
| | Family K | 23 | 0 |
| | Family O | 47 | 2 |
| | Family C | 9 | 1 |

Table 2 presents several of the most common speech acts made during search. In total, 31 different speech acts were identified. Despite parents making nearly twice as many utterances as students, just 31 of the 705 parent utterances were speech acts offering search help; utterances focused upon 'learning to search' as opposed to 'searching to learn'. Such utterances were also brief, on average lasting 12 seconds. In interview many parents confirmed they do not spend time verbally explaining how to search. One mother suggests *"I don't know where they would hear about it. They do just seem to pick it up*." A tally of any positive and negative comments made by parents regarding their and their students' search skill also appears to support 'GDD' rhetoric.

Table 2

*Tally of Speech Acts employed during communal searching*

| Speech Act | Student | Parent | Total |
|---|---|---|---|
| Reading aloud from the screen / from a paper page | 68 | 68 | 136 |
| Suggestion (& responses) to take certain routes | 40 | 68 | 108 |
| Comments evaluating sites | 31 | 55 | 86 |
| Describes the page / what they've found | 28 | 56 | 84 |
| Rhetorical question | 4 | 39 | 43 |
| Argumentative discussions re steps to take | 27 | 11 | 38 |
| Seeking clarification / seeking help or info | 16 | 13 | 29 |
| Search instruction (generic search help) | 1 | 31 | 32 |
| Negativity about own skills | 5 | 6 | 11 |
| Positivity about other's skill | 0 | 7 | 7 |
| Negativity about other's skill | 1 | 3 | 4 |
| Positivity about own skills | 2 | 2 | 4 |
| Various other speech acts <combined for brevity> | 295 | 548 | 843 |
| TOTALS | 410 | 705 | 1115 |

This tally revealed parents most frequently made positive speech acts about their students' skills, followed by negative utterances regarding their own (Table 2). Analysis of parent discourse also involved considering sentence modes. During one observation, for example, a mother uses rising intonation in suggesting the student choose a particular SERP (search engine result page) result: *"Or that one there even?"* Constructing this as a question positions the mother as "asking something of the addressee […] and the addressee is in the position of a provider" (Fairclough, 2015, p. 142). This, commonly observed, discursive practice also gives students power as searchers.

Student discursive practices during interview also differed from those employed during observation. Like that of their parents, student discourse appeared to counter 'GDD' rhetoric in interview, but support it whilst searching with their parent. Table 3 presents student responses when asked in interview if they and their parents are good searchers.

Table 3

*Student Responses to questions regarding Search Engine Prowess (Interview)*

| Family | Are you a good searcher? | Is your mum a good searcher? |
|---|---|---|
| L | Moderate. No, not very good. | Yes, really good. |
| C | No. Yeah still learning. | Yeah […] Because she's older and used it a lot more than me. |
| F | Yes. […] Well, I can type sort of fast; just my mum can definitely type faster. | A very good searcher. |
| K | Yeah. […] My typing is really good; my spelling is good-ish and other stuff | Yeah. […] Because she's used Google longer than I have. |
| O | Oh, not great, but I can do it. | Yeah. […] She can type quite quickly. |

As shown, most students express some doubt in their own skills, but all feel their parent is a strong searcher. In interview, students also described trying to replicate strategies their parents use (*Maybe just remembering what Mum does)* or recalled taking on their parent's advice *(Mum told me […] that you don't actually have to type in every little word).* When asked why they thought their parent was a *"good searcher",* students referred to: search terms (*She's very good at coming up with the questions to ask*), SERP interaction (*She knows which- generally- which thing to go in like which website),*or applauded them for *"finding" "all the answers that we need".* Each utterance is constructed as an active sentence here, making agency clear and awarding the parent power. Most students also suggested they go to their parents for search assistance. During 'communal' searching, by contrast, student discourse tended to represent students as strong, independent searchers. One student adamantly declared *"I don't need you here helping me mum"*.

All students were also observed ignoring parent search instruction (at least once), here identified as failing to respond to questions or changing the subject. Students also interrupted nearly half (42%) of the parent utterances offering search guidance. Excerpt 1 presents one instance where a parent attempts to discuss search strategies. Students interrupt the parent's statements (lines 47 & 49) before changing the topic, having failed to acknowledge her comments. The parent's acceptance of the diversion, evidenced by her continuing the new, unrelated topic (line 50), is telling and typical of several observed.

*Excerpt 1: Family C Observation*

| | | |
|---|---|---|
| 46 | Parent | be really careful that you don't click through to anything. Do you know what I mean? So don't -- you can click on a picture, |
| 47 | Student | That's -- |
| 48 | Parent | -- but then don't click through to the actual website because you're not sure where you're going. All right? |
| 49 | Student | Whoa! Is that a [sic] actual snake? |
| 50 | Parent | That looks like an actual snake [?too?]. |

Regarding pronouns (Table 2), unlike parents, students typically employed terms *"I", "my"* and *"me"* more than inclusive terms *"we"* or *"us",* and *"you"* or *"your".* Such practice claims authority over the search and lessens solidarity between speakers (Fairclough, 2015).

In considering the *expressive value* of participant discourse, the ten most frequently evaluated concepts are presented in Table 4. 'Student independence' and 'Student confidence' in search were two of the most common positively evaluated concepts by both students and parents during search. The most common concept negatively evaluated was 'parent help/assistance'.

Table 4

*Expressive value of participant discourse*

| Positive evaluations | # | Negative Evaluations | # |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Student independence | 33 | Parent help / assistance | 7 |
| Student confidence | 17 | Immediate answers / first SERP | 4 |
| Fast / continuous searching | 17 | Videos / visuals | 4 |
| Planning searches | 17 | Certain sites / Wikipedia / blogs etc. | 4 |
| Practical / 'real life' knowledge | 16 | Extended reading | 3 |
| Fact finding | 16 | Searching collaboratively | 2 |
| Being specific in search query | 15 | Advertisements online | 2 |
| Student comprehension of search | 12 | Being specific in search query | 2 |
| Following instructions | 10 | Parent's choice | 2 |
| Student contentment | 9 | Extended searching | 2 |

## 5. Discussion and conclusion

This research investigated the extent to which discourse accompanying online search in five Australian home-schools supports 'generational digital divide' rhetoric. It responds to suggestion that the "potential of collaboration and discourse should be exploited in search-based tasks" (Knight & Mercer, 2015, p. 303). The study considered what might be learnt through analysis of specific cases of discourse accompanying home-school search, now the growing demographic's number one online activity (Bullock, 2011). During search, discourse presumed greater student skill and valued student independence. This resonates with Theobald et al.'s (2016) finding who, though investigating younger students, report teachers endorsing student ownership.

In the current study, parent discourse seldom involved instruction. This adds to evidence on digital collaboration between parents and children outside of home-schooling (Danby et al., 2013). Roque et al. (2013) report children frequently leading digital activities reversing typical roles. Positive comments made by parents about their child's search skills, as well as negativity regarding their own when 'collaborating' also appeared to support 'GDD' rhetoric here.

Students when searching, also employed discursive practices which presumed a strong skillset, preserving their identity as competent searchers, similar to Davidson (2011). A willingness to interrupt / ignore instruction appeared to reflect confidence in their own searching, or little in that of their parents. This, consistent with Danby et al. (2013), is problematic given that key to "successful collaboration is openness in terms of […] the partner's helping reactions and guidance" (Raes et al., 2016, p. 336). In interview most students suggested their own skills were *not* as developed as their parents'. Green et al. (2011) similarly found (non-homeschooling) Australian students rarely report knowing more about the net than parents. The finding also highlights an inconsistency between the student discourse during search and during discussions of it. Tiidenberg et al.'s (2017) work into youth and social media, report similar discrepancies. The current study's participants, like Tiidenberg et al. (2017), employed "contradictory explanations that fluctuate between reproducing [in observation] and rejecting [in interview] the generalizations of some long standing […] discourses", namely those of a 'GDD' (p. 5).

Parents also engaged in contradictory discursive practices. Parent discourse appeared to support 'GDD' rhetoric during search but deny such a divide in interview. Previous literature also reports inconsistencies between teachers' beliefs and classroom practice (Mansour, 2013).

Online search engines serve as an increasingly important educational resource for home-schoolers, yet little is known about their use. What is known is that collaboration (in non-homeschooling contexts) is correlated with greater search success, as are certain types of discourse for searchers working together (Theobald et al., 2016). This paper suggests that many of the discursive practices employed by some Australian home-schoolers support 'GDD' rhetoric, possibly limiting opportunities for adult guidance. Parents and students also employed discursive practices not previously associated with effective collaboration, including unequal contributions to discourse, and failing to acknowledge one another's ideas (Castek et al., 2012). Limitations including sample size, self-reporting in interview, and the necessarily restricted analysis discussed, make generalizing the findings impractical. Notwithstanding, the research begins to contribute an initial understanding to a previously neglected field, that of online search and the accompanying discourses in home-schools. The paper continues calls (Roque, Lin & Luizzi, 2013) for educators to question assumptions that the provision of technology alone guarantees authentic collaborative learning, (Roque et al., 2013), as well as assumptions of 'digital natives' students and 'digital immigrant' educators (Eynon & Geniets, 2015).

Should Australia's fastest growing educational demographic continue to rely upon online search, greater knowledge of the role the technology plays is imperative, as is understanding the environments best able to capitalize on such use.

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