

Understanding the Information-Seeking Behaviour of Special Education Teachers in Singapore

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Abstract

This study presents an investigation into the information-seeking behaviour of Special Education (SPED) teachers in Singapore. Its objectives involve identifying the information needs of SPED teachers, the types of information sources preferred, the barriers encountered in information-seeking, as well as the level of needs satisfaction with their endeavours. A total of 110 SPED teachers participated in the study through an online survey questionnaire. The findings indicate that the main information needs of SPED teachers pertain to tasks involving the direct practice of classroom teaching such as lesson planning and classroom management. Accessibility and ease of use are important considerations in the selection of their information sources, which are most frequently derived from colleagues, syllabus documents and website articles. While the use of digital resources is common, print remains the format of choice for information sources. The main barrier to information-seeking encountered by SPED teachers is the lack of time during working hours, which negatively correlates to the perception of success in meeting their information needs. In general, however, SPED teachers appear to be well-satisfied with the selection of information sources in meeting their needs. The understanding gained from this study will help provide a useful foundation for further explorations on the information behaviour of SPED teachers.

Keywords

SPED, Special Education Teachers, Information-Seeking Behaviour, Information Needs, Information Sources, Information Barriers

Introduction

Against the backdrop of an increasingly demanding industry, the professional standards of SPED teachers in Singapore have come under increasing scrutiny from the regulating ministries, as well as the greater public. SPED teachers are now expected to shoulder more complex work tasks in performing their instructional, rehabilitative and administrative roles in serving their special-needs clients. Correspondingly, the information needs that these teachers face in the course of fulfilling their professional duties are also growing in intricacy.

At the same time, the information landscape continues to undergo an unceasing wave of transformation in the face of a maturing and more sophisticated information age. The energetic industry of the digital generation, left unshackled by diminishing barriers to entry, has resulted in an explosion of information sources across multiple media and channels of access. Effective navigation across the information expanse compels an information seeker to achieve a skilled proficiency in information literacy, i.e. the ability to recognise a need for information, and enact the necessary steps to identify, evaluate and use information to address that need.

As a result, the combination of these two factors - the ever-increasing scope and complexity of the SPED teacher's workloads, and the complexity of the information landscape - necessitates greater support from SPED institutions in ensuring that SPED teachers are well-equipped to manage the present information climate in the course of carrying out their work. In order to do so, it is essential for these institutions to determine critical components of their teacher's information-seeking behaviour, such as their information needs, information source preferences, as well as the difficulties that are faced in acquiring information.

The primary objective of this study is to examine the information-seeking behaviour of SPED teachers in Singapore in the course of carrying out their professional responsibilities. To this end, the study had the following objectives:

- i. To identify the information needs of SPED teachers in performing their day-to-day work, and to study how effectively they are being met.
- ii. To establish the types of information sources preferred by SPED teachers, and their corresponding levels of satisfaction in using them.
- iii. To determine the barriers that SPED teachers encounter in their information-seeking activities.

This study seeks to offer a useful insight into the information-seeking behaviour of the SPED teaching profession in Singapore. This may serve as a useful resource for the relevant legislators and stakeholders within the special education sector in Singapore, particularly in their ongoing efforts towards achieving an enhanced level of professional growth and development for the industry.

In addition, the findings of this study are also expected to contribute to the overall body of literature on the information-seeking behaviour of SPED teachers, which has remained scant despite the burgeoning amount of research in the field of information studies.

Literature Review

Information-Seeking Behaviour

In general, information-seeking behaviour can be defined as the purposive and conscious efforts that are undertaken by the information-seeker to acquire information for various forms of utility (Wilson, 1999), often in relation to addressing a problem or towards the completion of an assigned task (Ford, 2004). It is a process that involves the discovery of patterns between inquiry and arising interests, as well as the subsequent filling of gaps in such recognized patterns (Zerbinos, 1990).

Over time, studies in the information-seeking behaviour of various professions began to experience significant growth, gaining considerable attention from many interested quarters. Explorations into variables such as age, gender, information literacy and prior information-seeking experience continue to provide valuable insights to the body of research (Case, 2012). However, despite the wealth of studies on the information-seeking behaviour of practitioners from across a broad range of professions, studies delving into the information-seeking behaviour of SPED teachers remain limited.

Information Needs

In any discourse surrounding information-seeking behaviour, it is important to consider the involvement of the concept of information needs that are being faced by the information-seeker, as information-seeking activity is often contingent upon such needs. In broad terms, information needs refer to the inner motivational state of demand for a required set of information as a result of arising circumstances that necessitate addressing by the information-seeker, although an explicit consensus amongst academic circles as to its precise definition remains elusive (Forsythe, Buchanan, Osheroff, & Milner, 1992).

According to Leckie et al. (1996), the work roles of professionals in these occupational settings determine the tasks that they are required to undertake, which in turn form the characteristics of their information needs. These needs are correspondingly shaped by the sources of information available to them, as well as their awareness of the characteristics of such information. Several other variables such as demographics, context, frequency, urgency, predictability, importance and complexity may also exert their own influences, though arguably to a lesser degree.

For SPED teachers, their work roles are demarcated into three main areas: (i) as educators to the special needs students and their caretakers; (ii) as managers in ensuring the operational functioning of extracurricular activities and school-related projects; and (iii) as administrators of their multi-layered portfolios and professional development (Wasburn-Moses, 2005; Perrault, 2011). Consequently, the information needs arising out of the SPED teachers' professional obligations to fulfil these roles can be analysed from the following perspectives: (a) purpose of information needs; and (b) types of information needs.

Information Sources

Any form of information seeking activity will invariably entail the involvement of information sources, which provide the means to which information-seekers can satisfy their information needs. While interaction with these sources may not necessarily result in the resolution of an information search process, such encounters offer valuable feedback to the information-seeker, enabling them to make more informed choices in subsequent information-seeking efforts (Wilson, 1981).

According to Leckie et al., (1996), information sources are manifested in different formats, which can be categorised in terms of their formality (i.e. formal vs informal sources) or the medium in which they are transmitted (i.e. oral vs written sources). Al-Suqri (2011) provides a further refinement of these delineations in his proposed

integrated model of information-seeking behaviour, grouping information sources into two main classifications: (i) by their locations, such as from colleagues, personal collections or libraries; and (ii) by their formats, such as print, verbal and electronic sources.

For SPED teachers, trusted teaching colleagues such as senior teachers and department heads are preferred as information sources due to the expertise that they offer. Additionally, they also actively consult colleagues with non-explicit teaching backgrounds such as allied health professionals and parents of students (Laloo & Buhril, 2013). Scholarly journals rated favourably in terms of trustworthiness, usability, and accessibility, with books from college courses, in-service training and personal collections also preferred (Landrum et al., 2002). However, SPED teachers have reported not being generally well-satisfied with their experiences in library usage (Laloo & Buhril, 2013).

Barriers to Information-Seeking

In the process of seeking information for utility, information-seekers are often faced with barriers that may potentially hinder their efforts in meeting their information needs. According to Wilson (2000), these barriers arise out of the same contexts that provide for the emergence of the motivating information needs to begin with. Dervin (1999) encouraged gaining a deeper understanding of these barriers, as they allow for an observation of how power structures and forces of authority influence the production and consumption of information.

Barriers to information-seeking are not only limited to the attainment of information sources, but are also present when these sources have been engaged. An example of this would be information that is irrelevant due to its outdatedness (Leckie et al., 1996; Mokhtar & Majid, 2005) or lacking in variety, resulting in information-seekers not being able to meet their specific needs (Jordan, 2001). Conversely, a lack of information literacy amongst seekers, whether self-perceived or otherwise, have also limited their ability to locate and consume information (Fourie, 2006; Williams & Coles, 2007a, 2007b).

Methodology

Theoretical Framework

In adopting a theoretical framework for the investigation, various information-seeking behaviour models were considered and adapted. Wilkinson's (2001) model of professionals' information-seeking behaviour provided the foundational structure of the framework, having further advanced the initial work by Leckie et al. (1996) in exploring the information needs specific to professional groups. The illustration of work roles, organizational context and user's demographic characteristics, however, was re-fashioned to follow more closely Wilson's (1981) initial model of information behaviour, which provided a clearer contextualization of these elements.

In addition, the framework also incorporated certain aspects of Al-Suqri's (2011) proposed model on information-seeking behaviour, particularly the categorisations of the

sources of information into locations and formats, providing a greater systematic clarity to the investigation process with regard to the intended target population. Furthermore, similar to the model developed by Wilson (1981), the theoretical framework also integrated barriers to information-seeking as explicit components that interact with the process of information-seeking behaviour.

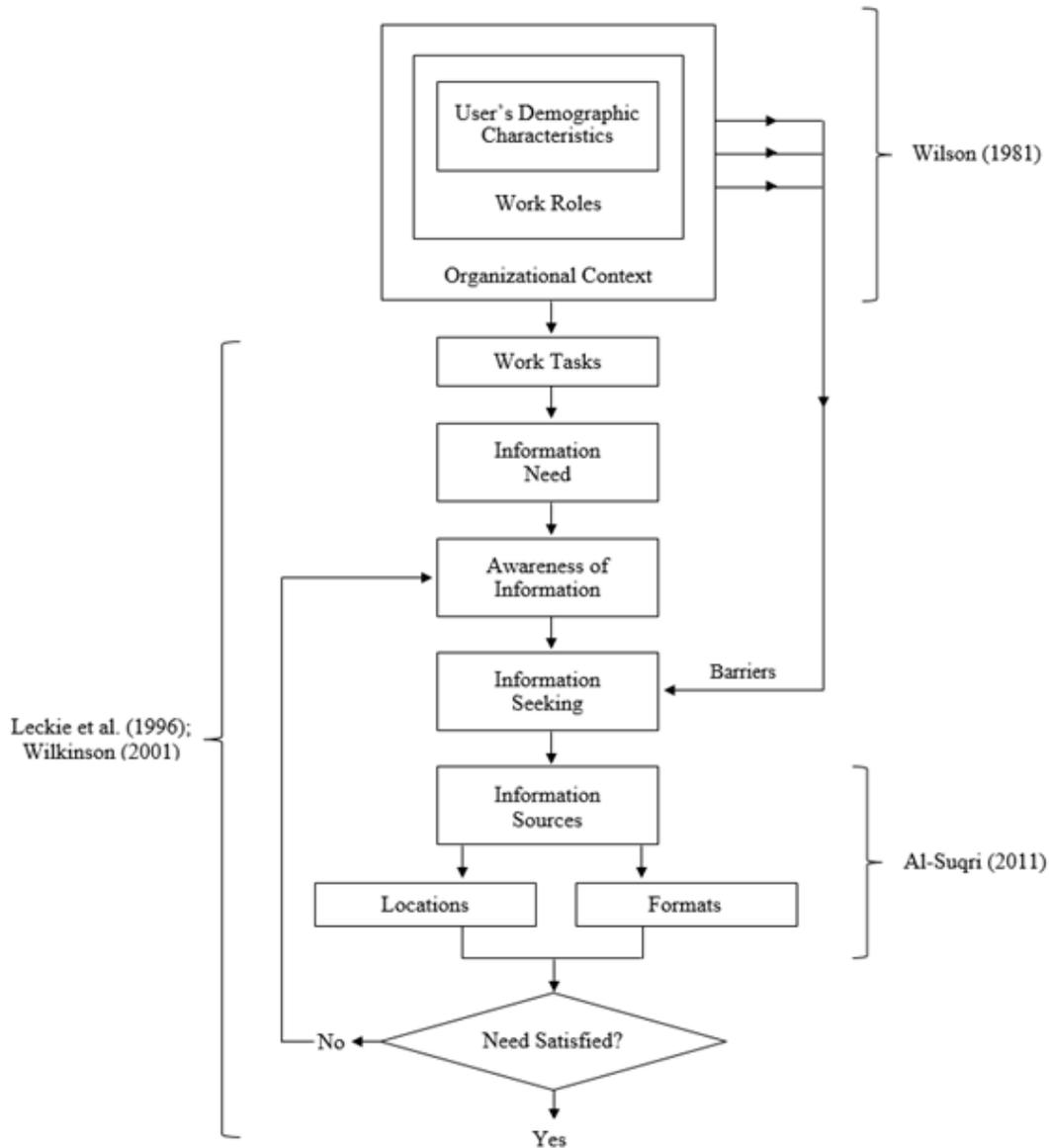


Figure 1. Adapted theoretical framework of information-seeking behaviour.

The resultant theoretical framework (Figure 1) provides the study with the foundational basis upon which the following primary research question is to be investigated:

RQ 1: What is the information-seeking behaviour of SPED teachers in Singapore?

In seeking answers to this question, the investigation sought to ascertain the nature of SPED teachers' work tasks and arising information needs, determine their awareness of

characteristics of information sources in varying locations and formats for utility, consider the barriers faced in seeking information, as well as examine the satisfaction of their information needs. Additionally, the theoretical framework and the ensuing investigation also offers an opportunity to correspondingly delve further into the information-seeking behaviour of SPED teachers by considering the following research questions:

- a) **RQ 1.1:** What is the relationship between gender, age, and teaching experience in relation to the information-seeking behaviour of SPED teachers in Singapore?
- b) **RQ 1.2:** What is the relationship between the information needs of SPED teachers in Singapore in relation to the frequency of information sources that they use?
- c) **RQ 1.3:** What is the relationship between the information needs and choice of information sources of SPED teachers in Singapore in relation to the barriers they face in information-seeking?
- d) **RQ 1.4:** What is the relationship between the information needs, choice of information sources, and barriers faced in information-seeking by SPED teachers in Singapore in relation to the satisfaction of their information needs?

Research Method

Previous studies investigating information-seeking behaviour employed a variety of methods for research (Case, 2012). The majority of these studies, however, made use of survey questionnaires for their investigations, a consistent trend in information behaviour research (Julien, Pecoskie, & Reed, 2011). This investigation also employed the use of a quantitative-based online survey questionnaire as a research instrument to collect responses from the target population. The choice of the research instrument was arrived at after having considered the advantages that it would provide: it is relatively inexpensive and quick to administer, allows for large amounts of data to be efficiently collected, and the results obtained can be easily compiled and quantified for analysis (Andrews, Nonnecke, & Preece, 2003; Baatard, 2012).

Study Population and Sampling

The target population of the study was SPED teachers employed in various Voluntary Welfare Organisations (VWOs) in Singapore, which numbered 1,038 (MOE, 2014). Given the nature and scope of the study, the most optimal way to reach out to such a small group of respondents was through the use of snowball sampling, relying on referrals from amongst their own social networks.

Research Instrument

The online survey questionnaire was formulated with the application of the theoretical framework (Figure 1) and hosted using Qualtrics. Additionally, inputs from several individuals from the SPED industry were solicited via unstructured interviews and given due consideration in the process of constructing the research instrument, fortifying the clarity of the survey items by weeding out or rephrasing ambiguous terms to better suit the local context.

The questionnaire made use of a 5-point Likert scale to express ordinal levels of measurement for respondents to select, with “1” and “5” indicating the lowest and highest ends of the scale. The nature of statements in the questionnaire were purposefully crafted to obtain closed-ended responses, making it easier and faster for respondents to answer, while contributing to the measurement reliability of the study by limiting the ambiguity of responses. The statements were also carefully worded to state ideas in a simple manner and avoid overly-complex technical terms and jargon.

The operationalisation of items were derived from an analysis of the extant body of literature surrounding the information-seeking behaviour of teachers. Specifically, they were operationalised based on consistently-recurring components deemed to be illustrative of appropriate measures of similarly conceptualized terms in prior research and discussion, as well as in recommendations suggested for further exploration. The illustration of these constructs, the corresponding questions in which they are manifested, as well as the referencing literature is depicted in Table 1 in the Appendix.

Pre-testing of Research Instrument

Prior to launching the survey questionnaire for data collection, a small-scale pilot study was conducted to gather feedback about the research instrument. Three respondents from the target population with varying levels of expertise and experience were selected to complete the questionnaire. They were asked to make note of nebulous phrasings or descriptions encountered that may affect the univocality of the survey items. They were then invited to provide their own suggestions in replacement of terms that they found to be problematic according to their respective linguistic familiarities, particularly in regards to SPED terminologies. Subsequently, the research instrument was further refined based on the compiled responses to enhance its effectiveness in achieving more accurate findings for the investigation.

Measurement Reliability and Validity of Instrument

The provision of closed-ended responses to solicit ratings via a 5-point Likert scale sought to minimize ambiguity in the data collected, which contributed to its measurement reliability. In addition, the feedback gathered from the pilot study helped strengthen the clarity of the conceptual definitions used for the study, improving the reliability of measure. Efforts were also made to support the measurement validity of the research instrument so that its results can be of use. Most of the items and variables used in the instrument design were derived from extant research studies, which can be used to demonstrate face validity.

Data Collection

To activate the snowball sample in reaching out to the desired respondents, an initial group of 10 SPED teachers who were immediately accessible and known to the investigator were identified and approached for the first stage of data collection. These respondents were then sent messages via email, WhatsApp and SMS, inviting them to participate in the survey and requesting their assistance in disseminating information about the survey to fellow SPED teachers within their respective social networks. The online questionnaire remained operational for about six weeks for data collection.

Assumptions

It was assumed that the respondents, having met the eligibility criteria of the study and willingly given informed consent to its participation, were able to comprehend the contents of the survey questionnaire and provided their responses truthfully and to the best of their knowledge. It was also assumed that the respondents' efforts in the submission of their inputs for the survey were uncurtailed by a lack of technical aptitude in navigating the medium in which it was administered.

Findings & Discussion

A total of 110 responses were obtained via snowball sampling over a period of six weeks, which amounted to about 10.6% of the total population of SPED teachers in Singapore. The results were compiled with IBM's Statistical Package for the Social Science (SPSS) software and analyzed using descriptive statistics and correlation analysis. Pearson product-moment correlation coefficients were computed to measure linear correlations between continuous or dichotomous variables, while Kendall's Tau-b correlation coefficients were used for ordinal variables.

Gender, Age and SPED Teaching Experience

Of the 110 SPED teachers who participated in the survey, a majority of the respondents were female, numbering at 85 (77.3%), with only 25 (22.7%) male respondents (Table 2.1). The majority of the respondents (34.5%) were between the ages of 35 to 44 years old, with those aged 25 to 34 years old forming the second largest group (28.2%). In the area of SPED teaching experience, the respondents were roughly evenly-distributed, with 36.4% having taught for five years or less, 30.0% with six to 10 years of experience, and 33.6% having taught for 11 years or more.

RQ 1.1 asks the following: What is the relationship between gender, age, and teaching experience in relation to the information-seeking behaviour of SPED teachers in Singapore? To investigate this, correlation coefficients derived from the application of Pearson product-moment and Kendall's Tau-b were tabulated between the relevant variables in Tables 2.5, 2.6, 2.7, 2.8, 2.9, 2.10, 2.11, 2.12 and 2.13. A summary of the results is illustrated in Table 3.1.

Overall, the findings reveal that there is a consistent absence of statistically-significant relationship between gender and all of the constructs that are constituent of the respondents' information-seeking behaviour investigated. On the other hand, some statistically-significant correlations can be observed between these constructs with age group and teaching experience, with more instances observed from the former.

Notable amongst these constructs is the frequency of SPED teachers' information needs (Table 2.6), in which age group indicated positive correlations with six out of the 10 pairs tested, as compared to teaching experience, which returned only two positive correlations of smaller effect sizes. That age group has emerged as arguably a stronger indicator of the frequency of SPED teachers' information needs than teaching experience is illuminating,

and may perhaps draw attention to investigating the effect of cross-transferable occupational skills on aspects of information behaviour across varying professions.

In terms of magnitude, SPED teachers' age group posted the strongest positive correlations with the frequency of syllabus documents as an information source, both in general ($\tau b = 0.360$, Table 2.8) and when obtained from in-house resources ($\tau b = 0.349$, Table 2.9). In contrast, no corresponding correlations can be noted with the respondents' teaching experience.

Overall, SPED teachers' teaching experience has fewer incidences of statistically-significant relationships with constructs that make up information-seeking behaviour. Additionally, teaching experience appears to have an absolute lack of significant correlation with the four constructs involving information sources, i.e. frequencies of awareness of information source characteristics in selection, information sources used, in-house information sources used, and level of satisfaction with information sources (Tables 2.7, 2.8, 2.9 & 2.12).

On the other hand, three of the five information formats preferred by SPED teachers indicated small negative correlations with teaching experience (Table 2.10), the strongest of which is with print at $\tau b = -0.234$. The findings imply that novice SPED teachers seem more likely to frequently prefer the print format as compared to their more experienced counterparts, which affirms the findings of studies identifying the differences between novice and expert teachers in general (Berliner, 1986; Bitso & Fourie, 2011).

Another interesting observation is that teaching experience indicated mild positive correlations with half of the variables in SPED teachers' frequency of success in meeting information needs (Table 2.13), compared to only a single statistically-significant coefficient between the same construct with age group. This implies that while SPED teachers' age group may have comparatively more correlations with the constructs of information-seeking behaviour, the teaching experience of these teachers appear to provide a better predictor of the satisfaction of information needs.

Work Tasks

“Lesson-planning” emerged as the work task most frequently performed by respondents, in addition to showing a mild positive correlation with both age group and teaching experience (Table 2.5). Similar correlations could also be observed with “Working with other professionals”, despite its relatively modest ranking. Conversely, other high-ranked work tasks such as “Behaviour management of students” and “Individualized Education Programs (IEPs)” displayed no such relationships with respondents' demographics.

Four mild correlations each can be noted between the 11 work tasks performed by SPED teachers' in relation to their age group and teaching experience. Interestingly, despite “working with other professionals” posting statistically-significant positive relationships with both, it was ranked amongst the four least-frequently performed work tasks. No significant correlations can be drawn between SPED teachers' gender and their work tasks.

Information Needs

Respondents indicated “Planning and preparation of lessons” as the most frequent information need (Table 2.6), ahead of “Handling of student behaviour” and “Planning and carrying out IEPs”. “Use of assistive technology” was the lowest-ranked information need, despite having statistically significant positive correlations with both age group ($\tau b = 0.243$) and teaching experience ($\tau b = 0.170$).

The findings demonstrate that on the whole, there appears to be a mild to moderate positive correlation between SPED teachers’ frequency of information needs and their age group, with six out of 10 information needs returning statistically significant Kendall Tau-b coefficient values. In comparison, only two information needs show mild positive correlations with teaching experience. This finding is somewhat surprising given the expectation that experience in a certain profession is likely to crystalize what is needed from it, as noted in various observations of novice and expert teachers by Berliner (1986) and Whitaker (2001). No statistically significant relationships were found between SPED teachers’ gender and their information needs.

Awareness of Information Source Characteristics in Selection

When considering information sources for selection (Table 2.7), SPED teachers were most frequently aware of their relevance to students’ needs ($x = 4.36$), accessibility and ease of use ($x = 4.21$), as well as their trustworthiness based on reputation or recommendation ($x = 4.03$). Mild positive correlations were observed between respondents’ age group and the frequency of their awareness of information source characteristics’ applicability to local contexts ($\tau b = 0.244$), alignment with school practices ($\tau b = 0.173$), as well as accessibility and ease of use ($\tau b = 0.165$).

Information Sources

Information sources with the highest frequencies were “Colleagues”, “Syllabus documents” and “Website articles” (Table 2.8). Amongst these, a moderate positive correlation was noted between respondents’ age group and their use of “Syllabus documents” as an information source ($\tau b = 0.360$). The only other statistically significant relationship in the table can be found between respondents’ age group and their use of “Books” as an information source, which indicated a mild positive correlation ($\tau b = 0.216$).

RQ 1.2 asks the following: What is the relationship between the information needs of SPED teachers in Singapore in relation to their choice of information sources? To investigate this, Pearson correlation coefficients were tabulated between variables from the two constructs in question, as illustrated by Table 2.8.1. A summary of the results is illustrated in Table 3.2.

Out of 130 coefficients derived from variable pairings, 57 (44%) were found to be statistically significant. Thirty-six of these values indicated mild to moderate positive correlations at the significance level of $p < 0.01$, while the remaining 21 showed mild positive correlations at $p < 0.05$. The frequency of information sources with the most instances of statistically significant coefficients with the frequency of information needs were “Syllabus documents”, “Training courses/Workshops” and “Books” with 10 apiece.

On the other hand, amongst the 10 information needs, “Planning and preparation of lessons” and “Use of assistive technology” garnered the highest number of correlations with the frequency of information sources used. “Public libraries” stood out as the only variable in the cross-tabulation without any correlation of statistical significance.

Some interesting trends can be observed from the tabulations. For instance, while “use of assistive technology” is the least-frequently reported information need (Table 2.6), it has the highest number of significant positive correlations with the frequency of information sources used by respondents, at nine out of 13 (Table 2.8.1). The statistics may be indicative of the highly-specialized nature and rapidly-evolving complexity of this particular information need, prompting SPED teachers to consult a wider range of information sources in attempting to fulfil it.

In a similar vein, the least-frequently used information source, “scholarly journals”, also posted amongst the highest number of positive correlations with the frequency of information needs, some of which even lean towards moderate coefficient strengths. This finding suggests that although SPED teachers do not appear to consult scholarly journals as frequently as other sources, it remains highly-relevant to the fulfilment of their information needs.

On the other hand, information sources such as “social media postings” and “public libraries” have a combined total of only one significant positive correlation with respondents’ frequency of information needs, which is depicted by a mild positive correlation between the former and “use of assistive technology” ($r = 0.205$). This could be interpreted to mean that these two information sources offer a narrower scope of use for SPED teachers in meeting their information needs, or could be addressing specific needs that may not have been captured in this investigation.

Barriers to Information-Seeking

As shown in Table 2.11, the lack of available time during working hours emerged as the barrier most frequently faced by SPED teachers in their information-seeking pursuits ($x = 4.06$). The next-most frequently faced barriers were the limited range of in-house resources ($x = 3.12$) and respondents’ lack of knowledge and ability to find needed information ($x = 2.95$). Mild to moderate negative correlations can be observed between the three lowest-ranked variables (lack of teaching experience in SPED, lack of SPED training, lack of self-motivation) with respondents’ age group and teaching experience.

RQ 1.3 asks the following: What is the relationship between the information needs and choice of information sources of SPED teachers in Singapore in relation to the barriers they face in information-seeking? To investigate this, cross-tabulations were made computing the Pearson correlation coefficients between variables from the two pairs of constructs in question, and separately illustrated in Tables 2.11.1 and 2.11.2. A summary of the results is illustrated in Table 3.3.

In examining the relationship between barriers to information-seeking faced by SPED teachers and their information needs (Table 2.11.1), it was found that 26 out of the total of 130 coefficients were statistically significant at the level of $p < 0.05$, with 10 of them

indicating mild to moderate positive correlations at the significance level of $p < 0.01$. As a barrier to information-seeking, “limited range of in-house resources” returned the most instances of statistically significant coefficients (7 out of 10 relationships tested), while “SPED pedagogy and methodology” and “SPED curriculum and framework” emerged as information needs with the highest number of significant correlations.

The computations presented in Table 2.11.2 showed 30 statistically significant correlation coefficient pairs between barriers to information-seeking and information sources used from a total of 169 values. Ten of them indicated mild negative correlations, with the rest returning mild to moderate positive coefficients. Amongst the barriers to information-seeking, “limited range of in-house resources” amassed the most number of statistically significant correlations (eight out of 13 relationships tested). In comparison, the information source with the highest instances of correlation, i.e. scholarly journals, only managed five.

Information Needs

As indicated in Table 2.12, SPED teachers were most satisfied with “Colleagues” as a source to meet their information needs ($x = 4.17$), while “Training courses/Workshops” ($x = 3.99$) and “Personal resource collection” ($x = 3.93$) posted the next highest mean scores. Respondents were least satisfied with mass media elements “Radio/Television broadcasts” ($x = 3.10$) and “Newspaper articles” ($x = 3.20$), followed by “Public libraries” ($x = 3.26$). No correlation coefficients of statistical significance were found in this tabulation.

In Table 2.13, “Planning and preparation of lessons” emerged as the information need that respondents were most frequently successful in meeting ($x = 3.94$), followed by “Handling of student behaviour” ($x = 3.89$) and “Teaching techniques for classroom management” ($x = 3.80$). SPED teachers experienced success least frequently in meeting the information needs of “Use of assistive technology” ($x = 3.34$), “SPED curriculum and framework” ($x = 3.37$), and “SPED pedagogy and methodology” ($x = 3.38$).

RQ 1.4 asks the following: What is the relationship between the information needs, choice of information sources, and barriers faced in information-seeking by SPED teachers in Singapore in relation to the satisfaction of their information needs? To investigate this, cross-tabulations were made computing the Pearson correlation coefficients between the necessary variables from the constructs in question, and separately illustrated in Tables 2.12.1, 2.12.2, 2.12.3, 2.13.1, 2.13.2 and 2.13.3. A summary of the results is illustrated in Table 3.4.

The relationships between the frequency of barriers faced by SPED teachers in information-seeking and the constructs denoting needs satisfaction bring about some interesting points for discussion. As can be noted in Table 3.4, the frequency of barriers faced has more significant correlation pairs with frequency of success in meeting information needs (37.7%) as compared with the level of satisfaction with information sources (18.9%). As such, future working committees aiming to address barriers faced in SPED teachers’ information-seeking activities would be better served in using the frequency of SPED teachers’ success in meeting information needs as indicators of efficacy rather than their satisfaction levels with information sources used.

Another interesting finding is the mild positive relationship between the frequency of limited range of in-house resources faced in SPED teachers' information-seeking and their frequency of success in meeting the need of using assistive technology ($r = 0.195$, Table 2.13.3). Notable for being the only positive significant correlation in the tabulation, this implies that external resources seem to play a bigger role in meeting SPED teacher's information need pertaining to the use of assistive technology. While this could again point to the highly-specialized nature and complexity of the information need which necessitates consultation from varying resource locations, it also perhaps raises the need to improve the quality and range of in-house resources with regards to the use of assistive technology.

Conclusion

Summary

The findings of the study revealed that SPED teachers' information-seeking behaviour stemmed from information needs that were mainly focused on addressing the practice of their core teaching responsibilities in the classroom setting. Hence, the needs most frequently expressed involve various aspects of lesson and classroom management, which also correspond to the work tasks commonly performed by these teachers.

In selecting their information sources, SPED teachers are most often aware of their relevance to the special needs students under their tutelage. Accessibility and ease of use, as well as trustworthiness based on reputation or recommendation, are also highly considered characteristics of information sources as compared to their strengths and weaknesses or compatibility with organizational culture.

Heavy reliance on colleagues as one of the main information sources in professional occupations is well documented, and the results from this study revealed a similar pattern for SPED teachers. On the flipside, teachers' use of information sources provided by in-house resource centres remain low, as is also the case with traditional print sources of information such as books and scholarly journals. Despite this, the print format remains the information format of choice amongst SPED teachers in the face of an increasingly digital information landscape. A moderate positive correlation is also noted between the frequency of SPED teachers' use of information sources and their expressed information needs.

The lack of available time during work hours has been identified as the main major obstacle to SPED teachers' information-seeking efforts, suggesting that these endeavours will likely continue to be pursued during non-work settings. The barriers to information-seeking faced by teachers are generally perceived to have been shaped more by the surrounding environments that they operate in rather than as a result of gaps in their personal contexts. The high incidence of correlations between the limited range of in-house resources with SPED teachers' information needs and information sources also highlights the potential impact of locally-provided information services.

In general, SPED teachers seem well satisfied with the information sources that they have selected, and appear to enjoy a frequent amount of success in meeting the information

needs that they have expressed. Additionally, the barriers that they face in seeking information seem to negatively affect their success in meeting these needs more than it does their level of satisfaction with selected information sources.

Recommendations

The seeming under-utility of in-house resource centres implies that there may exist gaps between the services being offered and the target users' manifested needs. Therefore, a closer look needs to be taken in terms of establishing what services in-house resource centres of SPED schools can provide to their main clients, as well as educating them about these services in order to boost take-up rates. This is especially pertinent in an age where information is increasingly being made available across a myriad of electronic platforms, and accessible virtually at any moment thanks to the high penetration rate of smartphones in Singapore.

Of value, perhaps, may be services provided by information professionals working in these in-house resource centres that offer prepackaged information from technical sources that teachers tend to avoid, such as scholarly journals and books. These information packages can be delivered to SPED teachers in both print and electronic formats, allowing for a greater reach to a broader demographic within its target population. Users would also benefit from greater awareness of their respective organisation's information infrastructure and what is offered in each information channel, which can be achieved through effective promotional communications.

A more pro-active information push strategy may be required, with information professionals providing the catalyst for an enhanced working relationship with their SPED teacher users. This will entail acknowledging the strength of teachers' use of colleagues as a primary information source and tap into this expertise in the development of contextualised information resources, particularly in adapting research material formats to the needs of teachers.

In tandem with this, there also needs to be a deeper emphasis on the importance of information literacy amongst SPED teachers. The ability to find, critically evaluate, and use information in context will be critical to their continued professional development, especially in regards to the strengthening of their pedagogical understanding of the SPED industry as it continues to evolve.

Limitations

While the study sought to establish the information-seeking behaviour of SPED teachers in Singapore, it was limited to a sample size of only approximately 10% of the total target population from 20 SPED schools. In addition, the use of non-random sampling in obtaining respondents means that care must be taken in generalizing results to the larger population of SPED teachers. As an illustration of this limitation, teachers of students with mental retardation appear to be disproportionately underrepresented as compared to those with multiple disabilities (Table 2.4), despite there being more schools with student enrolment catered to the former.

The study employed the use of an online survey questionnaire to obtain inputs from intended respondents. While the investigation generally benefited from the choice of research instrument, it may have also limited participation in the study only to those with adequate access to the Internet. As at 2014, 12% of Singapore households do not have access to the Internet (IDA, 2015), and SPED teachers without the benefit of such connectivity, as well as those with limited bandwidth or faced with inconsistent online connection speeds, may have been inadvertently excluded from participation.

Another limitation of the study lies with the nature of the survey, which mainly involve assessing statements by selecting answers from a given 5-point scale. Although this is somewhat mitigated by the provision of fields for the input of custom statements, no means of instantly clarifying terms deemed ambiguous to the respondent are available.

In addition, the self-administered nature of the research instrument means that the study has minimal direct control on the respondents' actions and may be overly-reliant on the integrity of the respondents in providing honest inputs, albeit the higher privacy afforded by self-administration may perhaps contribute to the reduction of social desirability bias in responses.

Future Research

Studies in the information-seeking behaviour of SPED teachers remain scarce, despite the abundance of literature examining this phenomenon with other professions (Case, 2012). The findings of this study can be used as a foundation for further exploration in various avenues relating to the information behaviour of SPED teachers.

For instance, further studies can be undertaken that enable comparisons between the information behaviour of SPED teachers that teach students with specific special needs, e.g. autism and multiple disabilities. This endeavour may likely allow for the development of more targeted support initiatives from the SPED industry with regards to the teaching of specific special needs categories.

Additionally, there may also be value in conducting various longitudinal studies on SPED teachers' information-seeking behaviour, with specific focus on how the changing information landscape with regards to mediums of information transmission will affect them in the long term. This would allow for the identification and prediction of important trends in SPED teachers' information behaviour, which may be useful for the planning purposes of the relevant overseeing authorities in the long term.

Finally, future explorations could also look into making use of qualitative data collection methods such as observations, interviews and focus groups, in addition to surveys. These methods would provide more in-depth data on SPED teachers' information behaviour, and allow for method triangulation.

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