Journal of the South Pacific Educators in Vision Impairment

Volume 6, Number 1, 2013

Sampling Social Experiences in School: Feasibility of Experience Sampling Methodology on an iPlatform.

Glenda M Jessup

PhD candidate, Faculty of Health Sciences, University of Sydney, NSW

Anita C Bundy

Professor of Occupational Therapy, Faculty of Health Sciences, University of Sydney, NSW

Alex Broom

Associate Professor of Sociology, School of Social Science, University of Queensland

Nicola Hancock

Lecturer in Occupational Therapy, Faculty of Faculty of Health Sciences, University of Sydney, NSW

Abstract

This paper reports on a pilot study testing the feasibility of an app as a survey tool for exploring the social experiences of high school students who are vision impaired. The Participation in Everyday Life Survey app was designed for use with the Experience Sampling Method. This method uses in-the-moment surveys to understand individuals' experiences of everyday activities and situations. Pilot testing shows the app to be usable and accessible for people with vision impairments and high school students who are sighted but who have other disabilities. This pilot study has also shown that the Experience Sampling Method has the potential to provide useful insights into the social experiences of high school students who are vision impaired.

Keywords: Experience sampling method, vision impairment

Understanding the social experiences of high school students with vision impairment (that is, those who are blind or have low vision) who are in mainstream schools is vital to parents and educators. Vision impairment causes significant differences in the ways children learn and interact with others. Environmental information, spatial knowledge and non-verbal communication rather than being acquired incidentally, need to be specifically taught (Lewis & Wolffe, 2006). These differences can be challenging both for individuals with vision impairment and for those interacting with them.

School is compulsory during a young person's formative years. Spending five or six hours a day in an environment in which disability is seen often as a “problem” can impact on the experience of school. Indeed, research and anecdotal evidence suggest that school is often perceived as a lonely place for students with vision impairment (Hatlen, 2004; Jessup, Cornell, & Bundy, 2010; Sacks, 2006; West, Houghton, Taylor, & Kia Ling, 2004).

Adolescents with vision impairment may experience particular challenges within the context of social interactions. These stem from difficulty reading visual cues and the need for assistive devices to access print and assist with mobility. As peer relationships become more important in the context of adolescent development, many young people weigh-up the benefits of these devices against the social costs of being seen as “different” and either dispense with, or under-utilise, them (Söderström & Ytterhus, 2010). Adult assistance at high school, including that of teacher aides can also be a social negative. It has been described as akin to being “in mainstream with a chaperone. It’s like going to a party with your parents” (Whitburn & O’Connor, 2011, p.8).

Previous research eliciting the perspectives of young people with vision impairment about their social and educational experiences has used focus groups (Cochrane, Lamoureux, & Keeffe, 2008), face-to-face in-depth interviews (West, et al., 2004; Whitburn & O'Connor, 2011), telephone interviews (Gold, Shaw, & Wolffe, 2010), questionnaires (Hess, 2010), time geographic diaries (Kroksmark & Nordell, 2001) and audio diaries (Worth, 2009). While each of these methods has made a valuable contribution to research, all rely upon retrospection and recollection. None has captured in-the-moment experiences.

A person *experiences*, rather than simply performs, activities and interactions. Experience is a complex phenomenon comprising subjective and objective aspects and differing depending on the length of time since the experience. Researchers use a variety of methods to capture aspects of experience. Recall methods, for example, interview and focus groups can capture both subjective and objective aspects of experiences, after the memories have been processed and thus provide longer term perspectives. In contrast, observation methods may capture the objective aspects of real-time actions and interactions (e.g., what a person is doing). Few methods capture subjective aspects in-the-moment.

Csikszentmihalyi (2000) has developed the Experience Sampling Method (ESM) to collect data about both objective and subjective aspects of experience in-the-moment. In this method participants are signalled at random times throughout a pre-determined period (i.e., several days or a week) and asked to fill out a short survey on their current experience. The ESM is particularly useful for capturing experiences that are often discounted as unimportant in recall diaries (e.g., thinking or doing nothing) and activity in natural environments (Hecktner, Schmidt, & Csikszentmihalyi, 2007).

Researchers using ESM generally target specific groups to learn a great deal about the daily lives of a relatively small sample. Its reliability and validity are well established in adolescents (Hecktner, Schmidt, & Csikszentmihalyi, 2007). Moneta, Schneider, & Csikszentmihalyi (2001) used the ESM to examine self-concept, self-worth and affect across adolescence. The ESM has also been used to measure the quality of everyday life in boys with neuromuscular disorders (Bray, Bundy, Ryan, & North, 2010) and to understand age and gender differences in homework experiences (Kackar, Shumow, Schmidt, & Grzetich, 2011).

Adapting the ESM to measure experience of high school students who are vision impaired meant eliminating reliance on vision to fill out surveys. Palm pilot devices, used in previous studies, e.g. Bray, Bundy, Ryan, & North (2010), rely on vision. ESM essentials are (a) an alerting device and (b) a survey. We wanted a device that would alert participants but not require their responses to be audible, particularly when in public. After consultation with colleagues who are vision impaired, we sought to implement the ESM using iDevices. These are increasingly used by people with vision impairment and are mainstream and so unlikely to have a stigma attached to them (Söderström & Ytterhus, 2010).

We were unable to find an existing survey app that would be available offline and be accessible with screen readers and zoom functions, so we developed the Participation in Everyday Life (P.I.E.L.) Survey app (Jessup, Bian, Chen, & Bundy, 2012), named after a University of Sydney Research group instrumental in its development. Development was a collaborative and iterative process of trial, and feedback involving the development team and colleagues who were vision impaired. The prime requirement was that the app be both accessible and usable by people who are blind or have low vision. Adapted technology products sometimes are technically accessible but not user friendly, frustrating those who want to use them (Söderström & Ytterhus, 2010).

Due to the complexity of designing ESM studies, pilot studies are imperative to trial the equipment and assess response rates, participant burden and survey questions (Hektner et al., 2007). The purpose this pilot study was to (a) examine the accessibility and usability of the survey app for people who are vision impaired; (b) test the processes of taking and using the device at school; and (c) determine whether or not the survey questions would capture useful data about social experiences. Data from the pilot study would allow us to refine the app, the processes and the survey in preparation for a larger study.

Method

The study had approval from the University of Sydney Human Research and Ethics Committee. Informed consent was obtained from both participants and their parents for participants 16 years or younger. Consent, when preferred, was audio, rather than written.

Participants

The number of high school students in Australia who are vision impaired is relatively small (Cochrane, et al., 2008). In order to preserve this group for the future study, we piloted the app with two different groups, each trialling a different aspect.

The first group (see Table1) comprised 3 adults who are vision impaired. They tested the accessibility and usability of the app. The second group (see Table 1) comprised three high school students who have a disability other than vision impairment. This group of young people was chosen as they are more likely to have experienced a greater degree of social isolation and exclusion than their typically developing peers (Díez, 2010; Doubt & McColl, 2003). They tested the processes involved in taking and using a device at school and assisted in refining the survey questions.

Table 1. The Pilot Participants

Participant	Age	Gender	Occupation	Disability	Pilot device used	Prior iDevice exp
1	41	F	Volunteer	Nystagmus, hydrocephalus	iPad /text	Yes, own iPad
2	60	M	Mature age student	Non-arteritic anterior ischemic optic neuropathy	iPod touch/ voiceover	Yes, own iPhone
3	58	F	Retired	Grave's disease	iPad/ voiceover	Yes, own iPad
4	15	F	High school student	Metatropic skeletal dysplasia	iPod touch/ text	Yes, own iPod touch
5	16	M	High school student	Cerebral palsy	iPad / text	Yes, mother's iPad
6	17	M	High school student	Learning difficulties	iPod touch/ text	No

Instruments

Social Experiences Survey. The pilot version of the ESM survey comprised 18 questions. It was designed to elicit information about quality of activities and social interactions and was based on four sources: (1) data from previous research involving young people with vision impairment (Jessup, 2010); (2) literature relating to young people with vision impairment and social experiences (e.g., Cochrane, et al., 2008; Rosenblum, 2000); (3) literature related to school social experiences and students with disabilities (e.g., Curtin & Clarke, 2005; Díez, 2010; Doubt & McColl, 2003; Koster, Nakken, Pijl, & van Houten, 2009); and (4) consultation with service providers for young people who are vision impaired.

Eleven questions related to external (i.e., objective) dimensions of the experience: location, with whom, and how they were interacting. Participants were also asked what they were doing and why, whether it involved joking or mischief or helping and to what extent they knew what was happening around them? Seven questions related to internal (i.e., subjective) dimensions of experience: whether they wished they were with or were doing something else, how dependent they felt, the extent to which they were enjoying themselves, felt lonely, fitted in and felt accepted?

The P.I.E.L. Survey app was downloaded onto university-owned iDevices (iPad, iPod touch). A control file (Jessup, et al., 2012) specifying the study parameters (i.e., the survey questions, alert sound, maximum delay, sampling times) was loaded into the app. The maximum delay (the time between the beginning of the alert sound and when a survey would be marked "unopened" and not able to be filled in) was set at five minutes. Sampling times were scheduled randomly every 2 hours from 7:30am to 9:20pm on weekdays and 8:30am to 10pm on weekends. This random scheduling was to limit anticipation of the surveys. Five of the six pilot participants trialled the first version of the app. The app was being refined concurrent with the pilot study so that Participant 6 trialled the final version.

*Psychological Sense of School Membership***.** The high school students also completed the Psychological Sense of School Membership (PSSM) (Goodenow, 1993), an 18-item questionnaire. The PSSM explores the extent to which students feel like an accepted, respected, and valued member of their school community. This measure has been used with Australian high school students (You, Ritchey, Furlong, Shochet, & Boman, 2011). The PSSM served as a source of external information about the validity of the data collected with our survey.

Procedure

All documents were emailed to participants in advance. Training was given at each participant's venue of choice, usually their home. One of the high school students had his teacher aide present (at her request) so that she could understand what was required of him.

Each participant was offered a choice of device and provided with 30 to 60 minutes of training. Most were familiar with iDevices and only needed to practice responding to the survey. They were informed of the five minute window in which to answer the surveys and given the feedback form that would guide their interview at the end of the sampling period. High school students were also given an information letter for their school so that teachers and administrators would understand that the device was a research tool.

After initial training, the researcher activated the device to start the following day. Participants were asked either to carry their device, or have it in close proximity, for the duration of their sampling period. The sampling period for the adults who were vision impaired was 3 consecutive days. They tested the accessibility and usability of the app. This included the processes involved in plugging in headphones if necessary, answering the survey, carrying and charging the devices. The high school students' sampling period was 4 consecutive days, including one weekend day. They trialled the survey questions and the processes involved in using a device at school.

After the sampling period, the first author collected the device and asked participants if they had problems accessing or using the device or hearing the alert sounds. They were also asked how they managed carrying and charging the device, in what way the survey affected what they were doing and what they thought about its length. Additionally, they were asked if there were questions they found hard to answer and what led them to respond in the way they did. Finally, they were asked their thoughts on being socially included in general. The high school students were also asked about the ease of using the device in class and whether additional information needed to be provided to school staff.

Analysis

Five sources of data were analysed. These included: (1) feedback from the post-sampling interview, (2) signal response rate and survey duration, (3) the face validity of the survey responses, (4) follow-up interviews where relevant, and (5) PSSM scores.

The post-sampling feedback about the usability, accessibility and practicality of the app and iDevice was categorised. Response rate and duration were analysed by examination of survey data uploaded to an Excel file. Signal response rates (the percentage of signals to which each person responded) greater than 70% were considered acceptable. Timestamps were used to calculate response duration (i.e., how long the surveys took to complete). Three minutes or less was considered acceptable. The face validity, the degree of consistency between the survey items and the purpose of the survey (Crist, 2005), was analysed by comparing the logic of participant responses to questions about the internal dimensions of experiences with their responses to objective aspects of their experiences and then comparing both of these with the extant literature. Post-analysis feedback was used to

clarify any irregularities in responses. The PSSM score for the each of the high school students was compared with their individual responses to questions about fitting in and acceptance when at school.

Results

Overall the high school students reported that they had enjoyed using the device and contributing to the research. They found it was a "conversation starter." None had difficulty responding to the device at school although two said it was inconvenient to answer the device if new work was being explained, as they did not want to miss an explanation to respond to the device. All made multiple copies of the information letter so they could provide a copy to a school administrator and also keep one with them. The students believed that the survey content was sufficient for its purpose.

None of the high school students had difficulty carrying, hearing or using the device. The first two students were wheelchair users and kept the devices with them in their chairs. The third student (Participant 6), who used the final version of the app, kept the iPod touch in his pocket and had no trouble hearing the alerts, even in a crowded shopping centre.

Feedback from the three adult participants who had vision impairment was somewhat different. Although none had any difficulty answering the survey questions, Participants 2 and 3 had trouble hearing the alert sounds, particularly in public, and even when they heard the signal, they could not sometimes locate the device before the survey expired. Participant 1 had no trouble hearing the alert but did not always take the iPad with her when she went out to socialise because it was not hers. She went out socialising on two of her three days. She said she that would rather have the app on her own iPad than look after an additional device. In fact, all three adult participants would have preferred to use their own iDevices for the surveys. Participant 2 had not completed many surveys on the final day as he had urgent family responsibilities. Participant 3 said her struggle was to be "mindful of the iPad." She had to remember to take it with her when she changed rooms or went outside.

Response rates of the high school students were all acceptable (67%, 82%, 96%) but those for all the participants with vision impairment were low (43%, 43%, 57%). Nonetheless, each of these participants with vision impairment reported in the post-survey interview that using the device and filling in surveys was easy. All had given reasons why they could not respond to many of the surveys including: (a) not hearing alert sounds and (b) intentionally, or unintentionally, not having the device in close proximity. All surveys took less than three minutes to complete.

Evidence for the face validity of data collected with the social experiences survey was supported by the context of the responses, for example, the relationships between activities and enjoyment (Figure 1) and interactions and acceptance (Figure 2) and was

consistent with extant literature (e.g., Hektner & Csikszentmihalyi, 2002). Data from the high school students illustrates these relationships. Figure 1 illustrates what the young people were doing when alerted and how much they were enjoying themselves. The response options were: “heaps,” “a lot,” “a little,” or “not” enjoying themselves. Figure 1 shows that not all activities are enjoyed equally all the time. For example, at times, when doing schoolwork, the students responded “not” to enjoyment and at other times, responded “heaps” to the same question. These responses suggest that the young people tailored their responses to their situation, rather than provide a rote set of answers for each survey.

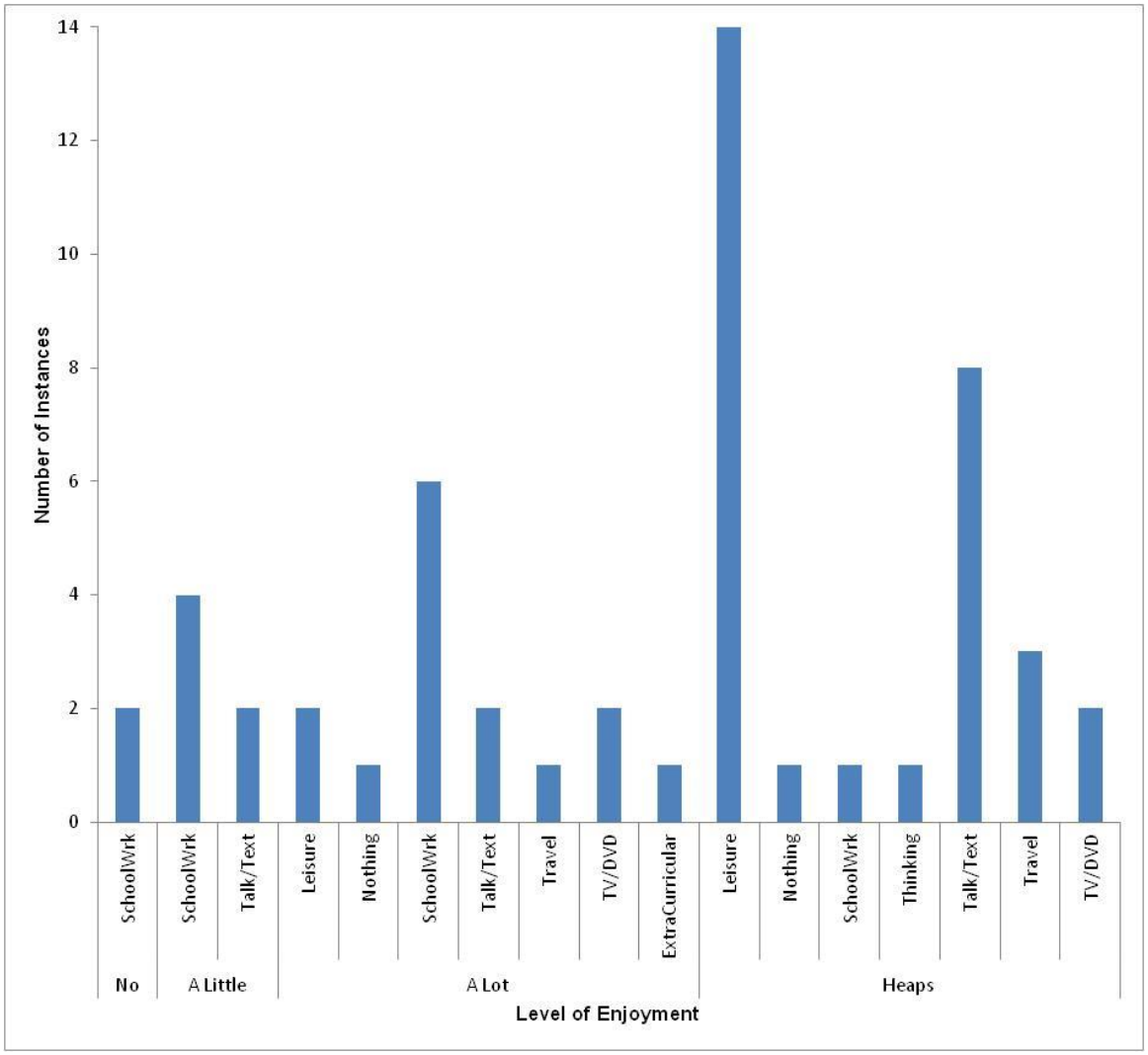

Figure 1. Activities and enjoyment.

The horizontal axes show what high school students were doing when alerted and their enjoyment level. The vertical axis shows the number of instances of this activity over 4 days.

Figure 2 illustrates the relationship between interactions and acceptance. The young people felt “heaps” or “a lot” accepted by the people with whom they were interacting. This included their interactions with school staff and classmates.

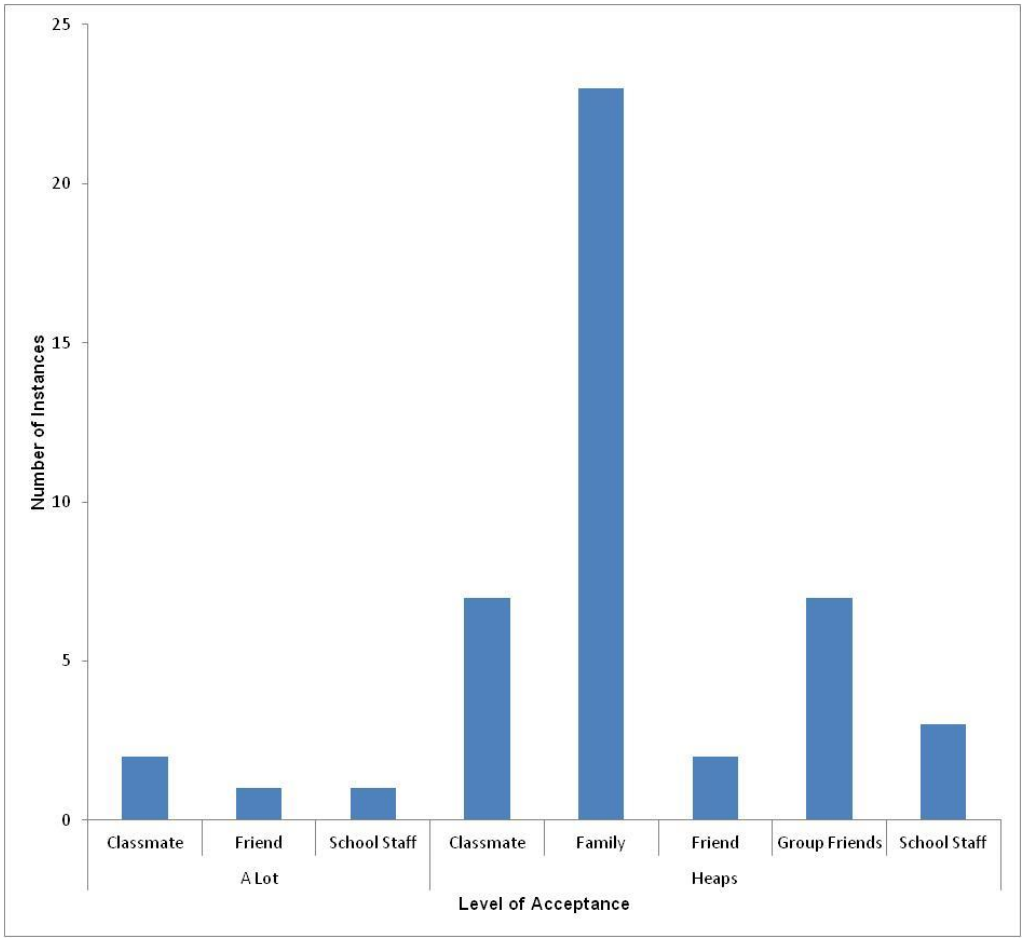

Figure 2. Interactions and acceptance.
The horizontal axes show with whom the high school students were interacting when alerted and how accepted they felt. The vertical axis shows the number of interactions over 4 days.

Post-analysis feedback focussed on clarifying the reasons for the poor response rates of the participants who were vision impaired and clarifying some irregularities in the response logic of one of the high school students (Participant 5). The participants who were vision impaired were asked to provide suggestions for increasing the response rates. All three said the alert sounds needed to be easier to hear and Participant 3 again spoke of her struggle to be “mindful” of the device. She tried to remember to take it with her but would put it down and then go to another room and forget to attend to it. She said that she commonly puts things down and forgets where she’s put them, “any of life’s distractions could take your

mind away.” Participant 5, who has cerebral palsy, explained that he had selected the wrong answers a couple of times, once during class and once at home. Although he knew he could go back and redo his answers (the app has provision for this), he chose not to because of the extra time and effort this would require.

The PSSM scores for the high school students indicated that, to a large extent, they felt accepted, respected, and valued at school. Their scores aligned with their high or very high feelings of acceptance (see Figure 2) and perceptions of fitting in at school and provided support for the content of the social experiences survey.

Discussion

The study aim was to test the feasibility of using the P.I.E.L. Survey app to collect ESM data with high school students who are vision impaired and to determine whether or not the survey questions captured useful data about social experiences. Results showed that the app was usable and accessible once the survey was opened, but the poor response rate for participants with vision impairment in comparison to those of the high school students indicated there were issues that clearly needed to be addressed. These issues were hearing the signal; and carrying, and being mindful of, an additional device that may not be immediately visible or at hand.

An alert sound can be a location cue for people with vision impairment who may not be able to visually scan a room to locate an object. However, when the sound stops, so does the cue. Locating the device may take extra time, which has implications for the time allowed for the maximum delay. Hearing an alert sound may present an additional challenge for voiceover users if they are already focussed (with headphones) on auditory output from another device.

Mindfulness of iPads in particular, was an issue. Unlike smaller devices, they have to be carried as they do not fit into a pocket. Providing a backpack so an iPad is worn, rather than carried and set down, may be one option to help mindfulness. The two adults who used iPads declined to use the offered backpack. Both already owned iPads so had to be mindful of two devices. In the future study, the high school students may choose to keep their iDevices in their school backpacks during the day.

As a result of this pilot, modifications were made to the P.I.E.L. Survey app and control file settings. The alert sounds were lengthened and in some cases made slightly louder. Their default volume is a compromise between being loud enough to be heard outside or in a noisy area and not being too loud in enclosed or quiet spaces like classrooms. Volume can be adjusted via the device where necessary. Additionally, the app was made available via the Apple Store so participants can download it onto their own devices. This should help reduce the burden of caring for, and having to be mindful of, an

additional device. It may also mean that voiceover users, when wearing headphones and attending to their own device, can hear the survey alert sound.

The window of time between an alert sound and the survey being unable to be opened has been lengthened. However, to capture in-the-moment data, there needs to be a limit on how long a survey remains viable. If the maximum delay is too long, the data tend towards being recall, rather than in-the-moment.

The social experiences survey seemed to capture useful information as illustrated, for example, by Figures 1 and 2. The utility of the survey in school settings was supported by the students' above-average PSSM scores that aligned with their high perceptions of acceptance and fitting in in this environment. The PSSM provides an overall measure of a student's perceptions of belonging and acceptance at school (Goodenow, 1993). The social experiences survey has the potential to complement this measure by detailing the experiences contributing to these perceptions.

Conclusion

This pilot study has shown that the P.I.E.L. Survey App loaded onto an iDevice provides an accessible and usable data collection tool for the ESM. In so doing, it has the potential to provide essential information about the everyday experiences of high school students who are vision impaired and be an additional means through which these young people can actively participate in research. A greater understanding of these young people's experiences will enable service providers and educators to develop more targeted social and educational strategies.

References

Bray, P., Bundy, A. C., Ryan, M. M., & North, K. N. (2010). Feasibility of a computerized method to measure quality of "everyday" life in children with neuromuscular disorders. *Physical & Occupational Therapy in Pediatrics, 30*(1), 43-53. doi: 10.3109/01942630903294687

Cochrane, G., Lamoureux, E., & Keeffe, J. (2008). Defining the content for a new quality of life questionnaire for students with low vision (The Impact of Vision Impairment on Children: IVI_C). *Ophthalmic Epidemiology, 15*(2), 114-120. doi: doi:10.1080/09286580701772029

Crist, P. (2005). Reliability and validity: The psychometrics of standardized assessments. In J. Hinjosa, P. Kramer & P. Crist (Eds.), *Evaluation: Obtaining and interpreting data* (pp. 175-194). Bethesda, MD: AOTA Press.

Csikszentmihalyi, M. (2000). *Beyond boredom and anxiety: experiencing flow in work and play* (25th Anniversary ed.). San Francisco: Jossey-Bass Inc.

Curtin, M., & Clarke, G. (2005). Listening to young people with physical disabilities' experiences of education. *International Journal of Disability, Development and Education, 52*(3), 195 - 214. doi: 10.1080/10349120500252817

Díez, A. M. (2010). School memories of young people with disabilities: an analysis of barriers and aids to inclusion. *Disability & Society, 25*(2), 163-175.

Doubt, L., & McColl, M. A. (2003). A secondary guy: Physically disabled teenagers in secondary schools. *Canadian Journal of Occupational Therapy/ Revue Canadienne D'Ergotherapie, 70*(3), 139-150.

Gold, D., Shaw, A., & Wolffe, K. (2010). The social lives of Canadian youths with visual impairments. *Journal of Visual Impairment & Blindness, 104*(7), 431.

Goodenow, C. (1993). The Psychological Sense of School Membership among adolescents: Scale development and educational correlates. *Psychology in the Schools, 30*(1), 79-90.

Hatlen, P. (2004). Is social isolation a predictable outcome of inclusive education? *Journal of Visual Impairment & Blindness, 98*(11), 676-678.

Hektner, J. M., & Csikszentmihalyi, M. (2002). The experience sampling method: Measuring the context and content of lives. In R. B. Bechtel & A. Churchman (Eds.), *Handbook of environmental psychology* (pp. 233-243). New York: Wiley.

Hektner, J. M., Schmidt, J. A., & Csikszentmihalyi, M. (2007). *Experience sampling method: Measuring the quality of everyday life*. Thousand Oaks, CA: Sage Publications, Inc.

Hess, I. (2010). Visually impaired pupils in mainstream schools in Israel: Quality of life and other associated factors. *British Journal of Visual Impairment, 28*(1), 19-33. doi: 10.1177/0264619609347242

Jessup, G., Bian, S., Chen, Y., & Bundy, A. (2012). P.I.E.L. Survey Application Manual. Retrieved from http://libguides.library.usyd.edu.au/content.php?pid=27362&sid=3350309

Jessup, G. M. (2010). *The benefits of leisure: Perceptions of young people who are blind.* (Unpublished masters thesis), University of Sydney, Sydney, N.S.W.

Jessup, G. M., Cornell, E., & Bundy, A. C. (2010). The treasure in leisure activities: Fostering resilience in young people who are blind. *Journal of Visual Impairment & Blindness, 104*(7), 419-430. doi: 10.1037/0003-066X.55.5.469 PMid:10842426

Kackar, H. Z., Shumow, L., Schmidt, J. A., & Grzetich, J. (2011). Age and gender differences in adolescents' homework experiences. *Journal of Applied Developmental Psychology*. doi: doi:10.1016/j.appdev.2010.12.005

Koster, M., Nakken, H., Pijl, S. J., & van Houten, E. (2009). Being part of the peer group: a literature study focusing on the social dimension of inclusion in education. *International Journal of Inclusive Education, 13*(2), 117 - 140.

Kroksmark, U., & Nordell, K. (2001). Adolescence: The age of opportunities and obstacles for students with low vision in Sweden. *Journal of Visual Impairment & Blindness, 95*(4), 213-225.

Lewis, S., & Wolffe, K. (2006). Promoting and nurturing self-esteem. In S. Sacks & K. Wolffe (Eds.), *Teaching social skills to students with visual impairment: From theory to practice* (pp. 122-162). New York: AFB Press.

Moneta, G. B., Schneider, B., & Csikszentmihalyi, M. (2001). A Longitudinal Study of the Self-Concept and Experiential Components of Self-Worth and Affect Across Adolescence. *Applied Developmental Science, 5*(3), 125-142. doi: 10.1207/s1532480xads0503_2

Rosenblum, L. P. (2000). Perceptions of the impact of visual impairment on the lives of adolescents. *Journal of Visual Impairment & Blindness, 94*(7), 434-445.

Sacks, S. (2006). The development of social skills: a personal perspective. In S. Sacks & K. Wolffe (Eds.), *Teaching social skills to students with visual impairment: From theory to practice* (pp. 3-19). New York: AFB press.

Söderström, S., & Ytterhus, S. (2010). The use and non-use of assistive technologies from the world of information and communication technology by visually impaired young people: A walk on a tightrope of peer inclusion. *Disability & Society, 25*(3), 303-315. doi: 10.1080/09687591003701215

West, J., Houghton, S., Taylor, M., & Kia Ling, P. (2004). The perspectives of Singapore secondary school students with vision impairment towards their inclusion in mainstream education. *Australasian Journal of Special Education, 28*(1), 18-27.

Whitburn, B., & O'Connor, B. (2011). *Exploring the voices of secondary school students with vision impairment about their experiences of inclusion: Implications for educational and support staff.* Paper presented at the Biennial Conference of the South Pacific Educators in Vision Impairment, Sydney.

Worth, N. (2009). Making Use of Audio Diaries in Research with Young People: Examining Narrative, Participation and Audience. *Sociological Research Online, 14*(4), 9. doi: 10.5153/sro.1967

You, S., Ritchey, K. M., Furlong, M. J., Shochet, I., & Boman, P. (2011). Examination of the latent structure of the Psychological Sense of School Membership Scale. *Journal of Psychoeducational Assessment, 29*(3), 225-237. doi: 10.1177/0734282910379968